CAMBODIA 2040

CULTURE AND SOCIETY

Edited by
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The Organizations

Future Forum

Founded by Ou Virak in late 2015, Future Forum is an independent think tank that focuses on research, analysis, and public policy, representing a dynamic response to an identified "policy gap" in Cambodia.

While there are various civil society actors in Cambodia engaged with a wide variety of issues, Future Forum takes a broader view and adopts a more measured, analytical and considered approach that identifies underlying trends and employs rigorous research, and creative and principled policy recommendations to help shape Cambodia's policy discourse.

Rather than simply identifying problems, Future Forum adopts a solution-oriented approach, and uses its research to equip key decision-makers with detailed, specific, constructive policy solutions to Cambodia's issues. Future Forum remains closely connected to youth and grassroots civil society networks such that it can provide local communities with the benefit of policy, analysis and technical assistance.

Konrad Adenauer Stiftung

Freedom, justice and solidarity are the basic principles underlying the work of the Konrad Adenauer Stiftung (KAS). The KAS is a political foundation, closely associated with the Christian Democratic Union of Germany (CDU). As co-founder of the CDU and the first Chancellor of the Federal Republic of Germany, Konrad Adenauer (1876-1967) united Christian-social, conservative and liberal traditions. His name is synonymous with the democratic reconstruction of Germany, the firm alignment of foreign policy with the trans-Atlantic community of values, the vision of a unified Europe and an orientation towards the social market economy. His intellectual heritage continues to serve both as our aim as well as our obligation today. In our European and international cooperation efforts we work for people to be able to live self-determined lives in freedom and

dignity. We make a contribution underpinned by values to helping Germany meet its growing responsibilities throughout the world.

KAS has been working in Cambodia since 1994, striving to support the Cambodian people in fostering dialogue, building networks and enhancing scientific projects. Thereby, the foundation works towards creating an environment conducive to economic and social development. All programs are conceived and implemented in close cooperation with the Cambodian partners on central and sub-national levels.

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Chapter 1 | Introduction

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Cambodia has experienced drastic changes since the signing of the Paris Peace Accords in 1991. Twenty-five years later, Cambodia is a lower middle-income country with consistently high GDP growth rates and concomitant improvements in human security as measured by the Human Development Index (HDI). The question that Cambodia confronts today is a seemingly simple one, but which is in fact remarkably complex: Whither Cambodia? From energy to industrialization to agriculture, how are the diverse sectors of Cambodian society and the Cambodian economy likely to develop over the next two decades?

As a relatively small country in a region of growing geopolitical and economic importance, how is the kingdom to respond to an assortment of global trends? From the continued rise of China to the effects of climate change to the transition towards a digitalized global economy, Cambodia is set to develop within a rapidly changing global landscape that offers both new challenges and new opportunities.

Set at the intersection between domestic development and global change, will Cambodia in 2040 be a middle-income state with growing prosperity or will it have stagnated at its current, lower middle-income level, or indeed have dropped back to the status of a low-income state? Will the kingdom have adapted to climate change or will it be a victim of its topography? Will a social welfare system be developed to ensure the dignity and security of all of within the kingdom?

In order to address these and other important questions, Future Forum has partnered with the Konrad Adenauer Stiftung to produce a series of edited volumes examining a number of different areas of socio-economic development, ranging from fiscal policy to the fourth industrial revolution to healthcare. There are three thematic scopes that the series covers: (i) economic development; (ii) culture and society; and (iii) foreign policy and governance.

This is the first book that brings together a collection of experts, utilizing a single methodological framework, in order to set out the potential scenarios that Cambodia is likely to confront two decades from now. Broadly employing a shared foresighting approach each author examines their particular area of expertise in order to illustrate the potential paths that Cambodia could follow. Additionally, as befits a book about the future of Cambodia, each of the substantive chapters has been developed and written by a Cambodian analyst.

Methodology and Structure

Foresighting is grounded in the view that society is neither predictable nor evolutive. According to this perspective, future developments cannot simply be calculated, totting up sums to yield precise predictions as to outcomes in the long term. However, at the same time, foresighting recognizes that the world is not a chaotic place wherein the analysis of potential future trajectories is ultimately impossible. Rather, in this methodology, the future is best understood as "malleable." Agency exists but diverse macrosocial variables, institutions, and trends ultimately structure the decisions taken by actors. In this middle ground between perfect prediction and pure chaos, it is possible to capture and analyze processes of change.

Based on a focused and systematic analysis of contemporary trends, across a diverse set of societal and technological sectors, these trends can be extrapolated into the future. Hence, by following their respective trajectories it is possible to develop probabilistic scenarios as to the paths that societal change can take. A "scenario" is understood in this context as a description of a possible future situation inclusive of the path that leads to that situation. At the same time, scenarios are not developed in a way that presents a full and precise picture of the future; rather these are hypothetical constructs built to highlight

certain key factors that will drive future developments. These scenarios can then be used to drive discussions concerning contemporary politics and policies such that actors are able to "clear away the brush" and grapple with the key factors that will most significantly impact the development of a particular topic.

Owing to constraints of space, rather than projecting a series of potential scenarios – each author sets out an ideal and a baseline scenario. Defining a particular set of key factors and then utilizing a funneling method, each chapter analyses its area's salient factors in order to generate the respective ideal and baseline scenarios.

As a methodology, foresighting has historically had diverse applicability across different fields of research – with some being more amenable to such an approach than others. Rather than "boxing in" analysts, this volume recognizes that diversity and approaches foresighting as a methodological toolbox from which analysts can draw in order to best explore the future development of their particular areas of research. Following the foresighting analysis presented, outputs are specified in the form of a set of policy recommendations. Each chapter follows the same narrative, four-part structure:

1) **The Ideal Scenario,** describing the plausible 'best-case' outcome for the topic at hand, given that the prescribed policy recommendations are undertaken.
2) **Scenario Space and Key Factors,** containing an analysis of the topic space as defined by the author.
3) **Policy Initiatives to Achieve the Ideal Scenario**. Having defined the topic space and considered the interplay of global trends and local development needs, the author outlines their policy roadmap.
4) **Baseline Scenario: Business as Usual in 2040.** The final section presents the hypothetical outcome for the topic if current practice is to remain in motion.

In addition to these four sections, in order to bring these analyses "to life," each chapter begins with a brief narrative setting out what one day in 2040 for a random Cambodian citizen might look like under the ideal scenario developed.

Beyond its contribution in the policy arena, we visualize this book as having a second and equally important benefit: supporting the training and development of Cambodian scholars. To this end we utilize foresighting as a guide and structure for a diverse set of local, Cambodian experts to examine key policy questions over the long term. It is not intended to be read as a definitive construction of the Cambodian development pathway. Rather, Cambodia 2040 represents a promotion of analytical hypotheses and outcomes, intended to encourage discourse and debate amongst stakeholders from government to aid partners to citizens.

The Kingdom in Retrospect: Cambodia in 2000

The new millennium ushered in a period of relative stability in war-torn Cambodia. Less than a year earlier, in March 1999, the last Khmer Rouge commander, Ta Mok, was arrested, thereby effectively ending the guerrilla movement that had posed security threats to Cambodia throughout the 1990s. In April 1999, Cambodia was also admitted as the tenth member of the Association of Southeast Asian Nations (ASEAN) after decades-long delay caused by Cambodia's civil wars, bloody regime changes, and domestic instability.

Thanks to the fragile peace achieved by 2000, the country began to witness signs of modest socio-economic growth. This was evident, for instance, in the rise of official tourist arrival to the kingdom. While 118,183 tourists officially visited Cambodia in 1993, the number rose to 466,365 by the end of 2000. In 2000, there were already 240 hotels and 292 guest houses operating in Cambodia catering to the rising tourist demands (Sharpley & McGrath, 2017, pp. 90–91). Likewise, urbanization and the expansion of Phnom Penh as the capital city began to accelerate: "The real estate market took off significantly after 1998 and grew at a rapid rate between 2004 and 2008. The price of land in central Phnom Penh increased great between 2004 and 2007, from around US$250 to over US$2000 per square meter in some key locations" (Percival, 2017, p. 182). At the time, however, traffic congestion and waste management were presumably not the pressing issues as they are today.

While provision of public general education began almost immediately following the collapse of the Khmer Rouge regime, the establishment of private secondary

and higher education institutions only began to mushroom during the early 2000s (the first private university was officially established in 1997), though at the time, quality control and accreditation regulations were scant.

In 2000, only 80,000 persons were estimated to own a mobile phone (CIA World Factbook 2001: Cambodia, 2001); by 2019, mobile subscription has jumped to more than 18.5 million users (when the total population is only approximately 16.5 million). Cambodia also began its e-government initiatives by establishing the National Information Communications Technology Development Authority (NiDA) in 2000, but poor technology infrastructure, low literacy rates, and a high turnover of government IT staff members were the main challenges of such efforts (Richardson, 2017).

According to official statistics, Cambodia's GDP per capita had increased from $288 in 2000 to over $1500 in 2018, making Cambodia one of the best performers in poverty reduction (Ministry of Economy and Finance, 2016) – even if, as Young Sokphea pointed out, "[…] the poverty measurement and calculation remain contested" (Young, 2017).

As the Khmer Rouge threat diminished by the late 1990s, "land disputes became the most high profile source of potential threat to peace and stability. Regular disputes occurred, typically between groups of villagers and well-connected companies or individuals whose identity was difficult to pin down" (Biddulph & Williams, 2017). Similarly, thanks to weak governance, the country's natural resources have also become collateral damage of Cambodia's embrace of a market economy. Since the early 2000s, the country has continued to witness rapid deforestation, high profile cases of land evictions, mineral extraction, and environmental degradation. Political tension has also continued to simmer throughout the 2000s, culminating in the dissolution of the main opposition party – the Cambodian National Rescue Party (CNRP) in 2017.

Noting these vast changes – both positive and negative, anticipated and unanticipated – experienced in the kingdom over the course of the last twenty years, the future development of Cambodia will be anything but dull.

The Kingdom at Present: Cambodia in 2020

The utility in this project is derived from the observation that a great deal of growth and development has been achieved in the previous twenty years of Cambodian history. The recommendations made within this series are set against the circumstances of Cambodia as it enters 2020; with a view to the exceptional development it may undertake by 2040. Accordingly, it is necessary to provide an overview of Cambodia at this moment in time.

As noted above, the last twenty years of change in the kingdom have seen Cambodia undergo a considerable economic transition towards the lower middle-income status reached in 2015 (WorldBank, 2019). This growth has been primarily driven by large demands in the garments and tourism industries (ODC, 2019). With an average growth rate of 8% between 1998 and 2018, Cambodia is one of the fastest-growing economies in the world (WorldBank, 2019). The latest figures at the time of writing show that Cambodia's international trade reached $24.9 billion (MEF, 2019). The kingdom's three biggest export markets are the United States, the United Kingdom, and Germany; while its largest import partners are China, Thailand, and Vietnam (WITS, 2019). With ambitions to break into the upper middle-income bracket by 2030, the policy recommendations made in this book seek to support the continued achievement of this goal.

The poverty rate in Cambodia has continued to fall as economic growth continues to provide an engine for development. With a population sitting just over 16 million, and according to official estimates by the World Bank, the poverty rate has fallen from 47.8% in 2007, to 13.5%. Of this group, over 90% are based in the countryside. The kingdom met its obligation to the Millennium Development Goal of halving poverty. Currently, 76% of the population remain rural.

Cambodia has made substantial improvements in health since its continued policy efforts that began in the 1990s (WorldBank, 2019). The infant mortality rate has dropped to 46 deaths per 1000 live birth, while the life expectancy has increased to 65 years (63 years for males and 68 years for females). The fertility rate is currently at roughly 2.5 children born per woman, while the maternal mortality rate has fallen to 160 deaths per 1000 live births. Regarding developments in education, net enrollment in primary education has increased from 82% in 1997 to 97% in 2016 (WorldBank, 2019). On average, children complete

11 years of formal education and 80 percent of the population are literate (CIA, 2019). As of 2019, the average age in Cambodia remains young at 24 years old. Prospects for employment remain rooted in garments, tourism, construction, and agriculture.

Beyond Cambodia's internal status at this time, several prevalent mega-trends will determine the future of growth and development within the kingdom. Whereas a trend captures a general direction of change over time, a megatrend captures the major forces in societal development that are predicted to affect all areas over a ten-year timeframe (EFP, 2019). At this time, five megatrends have been identified that will shape the development of global society and economy (PWC, 2019): rapid urbanization; climate change and resource scarcity; a multipolar structure of global power; population growth and demographic change; and technological breakthroughs. Each of these megatrends will have a direct impact on the form and function of Cambodian growth and development.

The Kingdom in Future: Cambodia in 2040

What does it mean to be Cambodian? This question holds considerable significance for the nation's 16 million strong population. Is it the **Identity, Culture, and Legacy** rooted in the history and splendor of Angkor? Or is it instead tethered to the brutality of the Khmer Rouge regime? It need not be either to the mind of author **DIN Darathtey**. In her chapter, Darathtey explores the intersections between economic development, institutional representation, and art in society in the pursuit of contemporary Cambodian identity. By examining the cultural markers of the past in concert with the features of today, this chapter outlines the trajectory towards the promotion of Cambodian identity and pride beyond the constraints of its history.

As Cambodian society develops, so too will its attitudes around a number of key culture and identity topics. In particular, attitudes around Cambodian **Gender, Equality, and Sexual Reproductive Health** will evolve. In chapter 3, authors **HARRY Catherine** and **NHEK Pichponreingsey** explore this topic through the examination of the kingdom's evolving attitude towards, and education around, contraceptive methods and responsibilities. They explore important questions around the viability of a universal healthcare plan, the shared responsibility of

men around contraception, and the role of sustainability in future decision making around the topic.

The second volume in this series then moves into an exploration of developments in the education sector. Given the importance and the breadth of this topic this volume contains two chapters; with two authors providing parallel visions for the future of **Education**. Firstly, **KHOUN Theara** explores pedagogy and the changing role of educators over the next twenty years. As the structure of the economy changes so too will the skills demanded. Theara envisions that these demand side forces will bring about a necessary change in the educational infrastructure; in particular highlighting the increasing role of digital technologies and the transition of educators towards a facilitation role.

The second author on **Education, RATH Setha** also considers the role of digital technologies in education, however through the lens of ensuring nationwide inclusivity and the development of curriculum around STEM. In considering developments in the kingdom around New Generation Model schools, Setha outlines the development of future education around universal coverage under such models.

Underpinning the developmental potential of an improved education system, author **SUN Chhai** outlines the crucial role of **Health** and the healthcare sector for attaining growth and development across Cambodia. Outlining the case for universal coverage, Chhai asks and answers questions around the importance of funding, education, and development collaboration.

In considering the role of agriculture in the kingdom, author **HOY Sokkea** explores the concept of **Food** in Cambodia through the consumer and producer lenses. On the consumer side Sokkea explores a generational shift in food preferences and delivery, considering the dominating role that technology is envisioned to play. From the producer side she then considers how this consumer demand can be met in the Cambodian context. From this vantage Sokkea seeks to explore the growing cultural relevance of food in the kingdom; away from the standard discussion on agricultural process and logistics, and instead towards the Khmer heart of the matter.

Beginning with the question, *'what is an informed society?',* author **SOEUNG Sophat** discusses the crucial role of an independent **Media** towards ensuring an informed and self-determined population. With a focus on the free flow of information, Sophat explores the role of a pluralistic, institutionalized governance landscape in securing the comprehensive legal framework to guarantee the fundamental functions of the news media sector. In addition, he advocates for the inclusion of nationwide digital media literacy and critical thinking platforms throughout education in order to deliver a savvy domestic consumer.

Author **YOU Sokunpanha** discusses the kingdom's financial future as a **Cashless Cambodia,** describing how business and consumer will come to transact without the need for physical handover. "This situation may sound like a fairy tale," notes the author, but in growing towards middle-income status set within an increasingly digitized market space Cambodia is certain to further deepen its growing utilization of cashless exchange. Universal bank account ownership is touted as the predominant means of securing this reality, itself contingent on Cambodia ensuring nationwide metrics of personal identification. Rooted in the kingdom's experience with mobile phone adoption the possibility of the digital transaction transformation is laid out.

As the nation's economy grows, it is inevitable that the question of holiday destinations will come to the dinner table. It is the view of author **CHHORN Theara's** that many of these questions can be answered within the kingdom. With domestic travel already a prominent feature of Cambodian cultural holidays, Theara outlines how domestic **Tourism** will continue to grow with incomes to compliment international arrivals and support additional development in the country.

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Chapter 2 | Cambodian Identity, Culture, and Legacy

Ms. DIN Darathtey

Daly has a short bob hair with icy blue highlights. She works at one of the top three contemporary art studios based in Phnom Penh; her style shines through and her work outfits are always composed of loose colourful pantsuits and shiny dark loafers. She is an early riser. Her gym routine starts as the sun rises at 5AM and usually includes an hour of powerlifting. After coming back from the gym, she makes a quick breakfast while listening to a newly released post-rock album from her favourite Cambodian female artist. Then, off to work she goes. During her train ride to work, Daly listens to a news headlines podcast by a local media start-up called Phnom Penh Scoop. She likes their content a lot, especially a young commentator who is very good at making everything sound very relevant to people her age. It's Friday and that means Daly has plans after work. Her colleague asked her last week to go to a photo exhibition opening at Phnom Penh Art Centre. The exhibition is an exploration of homosexuality pre and post Khmer Rouge through photography and spoken word. The artist is a 27-year-old photography student from The Royal University of Fine Arts. Afterwards, she's going to meet her friends for dinner and then head to a live psychedelic Kse Diev concert at The Box, a famous venue for live local music in town. This band is from Kampong Cham and they are so famous that her Cambodian friend in London asked her to get a signed t-shirt for when she visits. Daly will try to be home before midnight because she has an important gathering with her family tomorrow. It will be the Day of Rememberance, celebrated nationwide, to pray for lives lost during the Khmer Rouge and to celebrate the nation's resilience. On the day,

she always goes to pray at the pagoda with her family and spends time with them afterwards to hear her parents' stories of the old times.

I. Cambodian Identity, Culture, and Legacy: The Ideal Scenario

In 2040, Cambodian young people will define themselves using a more individualistic approach and accompanying values. An individualistic culture refers to cultures that emphasize the needs of the individual over the needs of the group as a whole. The identity of young Cambodians will shift from focusing on family values to focusing on their individualistic values, whist retaining a hint of family influence. With these values, young Cambodians will be more ambitious and progressive which will continue to enable them to be creative and culturally expressive. The future Cambodian young people will define themselves to be an actualization of an ideal self, transformed from the old traditional Khmer identity by integrating traditional and modern elements of being Cambodian, and detached from the victimized stain of their Khmer Rouge past. Artworks, both visual and performing, created by young Cambodians will look very different to how they do now.

The process of developing one's identity involves a close relationship between the individual and the social surroundings in which that person is embedded (Weber, 2002). In 2040, much of the social surrounding in Cambodia will be vastly different from what they are now, particularly in the fields of politics, economic development, arts and culture. Based on a pattern observed in the shift on youth identity in Vietnam in the early 2000 (King, Nguyen & Minh, 2008) and China in the early 90s (Weber, 2002), it can be argued that changes in Cambodian identity are closely connected to changes in government versus modernization. Furthermore, the modern Cambodian national identity will not be as strongly influenced by the trauma of the Khmer Rouge as it is currently.

Cambodian collective memory, a very significant element in the identity construction process, will extend beyond the traditional Angkor glory and the victims of the Khmer Rouge era. Over the next 20 years, Democratic Kampuchea (DK) will be an historical topic widely explored and studied by young

Cambodians as part of their national identity but with a completely different connotation. They will explore the topic, not as a victim of the war, but as scholars, observers and second and third generation survivors who are keen to learn and understand how something as tragic as the Khmer Rouge was possible; in addition to their determination to change the representation of the country. The media through which the Khmer Rouge narrative will be explored will be far more diverse and expand beyond the conventional narrative.

The development of four key factors will determine the path by which Cambodian youth identity is heading. Their ultimate destination under the ideal scenario will see the following:

1. There will be institutional representation for younger generations throughout the mechanisms of government.
2. A more diverse range of perspectives and narratives which more widely mirror the current changes in the country's social representation and identity.
3. Economic development brings in new values and information, embracing globalization and bringing about access to diverse and free media.
4. Art utilized as a powerful tool to influence a national identity and representation.

II. Scenario Space and Key Factors for Cambodian Identity, Culture, and Legacy

Current state of identity

It is this author's opinion that the current state of youth identity in Cambodia is less affected by the country's violent history than their parents' generation. Young Cambodians today are considered to be politically active and engaged. This group, born between 1986 and 2001, dominate a large part of the population representing 50 per cent of the entire country (Pen, Hok & Eng, 2007). Socio-economic transformation has significantly influenced the dynamic of youth through: urbanization, better education, internet access and information literacy, labour migration and social fragmentation (Pen et al., 2017). It is plausible to argue that these factors expose Cambodian youth to new ideas and values,

technology and diverse economic opportunity. These experiences influence their expectation and aspiration (Ibid).

In his study of Cambodian modernism, Karbaum (2015) finds that educated youth living in urban areas are less adherent to traditional beliefs than their less educated peers living in the countryside are. Since the agency and world view of youth are predominantly determined by their education, future aspirations of the majority of Khmer youths are still confined by tradition and situations (Pen et al., 2017). This is due to the fact that only seven percent of youth annually graduate with a university degree (World Bank, 2015). It is important to note that despite its increasing openness and economic development, Cambodia remains a traditional, paternalistic, hierarchical, and patriarchal society (Pen et al., 2017). This means that values such as a sense of oneself in relation to family and gender norms remains highly influential in shaping social behaviours (Cook, 2015; Jacobson, 2012). Furthermore, due to the omnipresence of traditional age-bound hierarchies, young Cambodians are not expected to express any views that differ from their elders (Pen et al., 2017).

The key factors to consider in this scenario space include identity, the concept of imagined community, the role of narratives in identity construction and Cambodian generational differences.

Identity and imagined community

Since this chapter mainly focuses on identity, an elaboration about its meaning is necessary. Definitions of identity are fluid and complex. They vary depending on the context in which they are being discussed. Hall (1990:222) argues that identity is far from being an accomplished fact but a 'production', which is never complete, always in process, and always constituted within, not outside, representation (Hall, 1990, p. 222). In Welsch's (1999:5) concept of "transculturality", we are cultural hybrids whose identities are formed by multiple cultures (Welsch, 1995). Although perceived as an aftereffect of the "inner differentiation and complexity of modern cultures", transculturality is not a completely new concept specifically assigned to today's society (Ibid).

Looking at these arguments, it is plausible to make the point that an individual has multiple identities depending on how many social contexts and groups that person operates in and belongs to. Therefore, this chapter will approach the term "identity" as a combination of cultures and nation that an individual associates with. Regarding the term nation, this chapter will approach it as an "imagined community" whose image is constructed by people who consider themselves part of the group in which collective memory is shared (Anderson, 1983). Anderson perceives nationality, nation-ness and nationalism as cultural artefacts of a particular kind. Members of an imagined community will never know or meet most of their fellow members, yet all of them have the image of their communion (Ibid). A nation is not only a political entity but also a system of cultural representation (Hall, 1992). Therefore, this chapter will explore Cambodian young people's identity as individuals and as a collective. What the chapter will not cover are the citizenship aspects of being Cambodian.

Shaping identity through narrative transformation

Cambodia is a country known for stark contrasts in its history: the glory of Angkor and the atrocities of the Khmer Rouge (formally known as Democratic Kampuchea). These two distinct and contradicting pasts are undeniably significant in the construction of Cambodian identity. In order for Cambodia to have a new social representation, which extends beyond the two main historical events, the government needs to focus on related policies that can help represent the country in a different image and allow diverse narratives. Hall (1992) argues that we were not born with national identities. They are formed and transformed within and in relation to representation.

It is important to note that today's modern Cambodian national identity is strongly informed by the trauma perpetrated by the Khmer Rouge. This can be explained through the concept of collective memory which has a direct influence in shaping one's identity. Collective memory is defined as "a totality of thoughts common to a group, the group of people with whom we have a relation at this moment, or with whom we have had a relation on the preceding day or days" (Halbwachs, 1992). Simply put, collective memory is individual memories placed in a social dimension. Cambodian people share many collective memories which

define their ethnic and national identity. Takei (2007) argues that Khmer identity is not based on culture, but rather on a collective memory that emphasizes the Angkor Empire and relations with external powers, particularly Vietnam and Thailand. Contemporary Cambodian identity still emphasizes the old collective memory of Angkor glory but with the addition of the recent collective memory of the Khmer Rouge. Close relationship between the individual and the social surroundings is inevitable in the process of identity construction. Therefore, the interdependency of the two concepts needs to be considered. Social surroundings are influenced by many factors including politics, economic development, globalization, arts and culture.

Cambodian generational differences

With the disruption during the Khmer Rouge period, a whole generation is arguably missing. This means that there are huge generational differences between older decision makers and their constituents because Cambodia is a young country in which two thirds of the population is below 30 years old (UNFPA, 2015). Generational differences can be found in personality traits, attitudes, mental health, and behaviours (Twenge, Campbell, Hoffman & Lance, 2010). Major factors such as parents, peers, media, critical economic and social events, and popular culture influence each generation and create common value systems which make them different from people who grew up at different times (Twenge et al., 2010). According to Karl Mannheim's theory of generations (Mannheim & Kecskemeti, 1952), older generations form the social context with which a new generation makes fresh contact. When this occurs, the new generation slightly adjusts the social context by selecting or emphasising particular aspects of it. Defined by years of birth and events that they went through, each generation has distinct characteristics. The table below demonstrates these differences:

Table 1: Synopsis of generations[1]

Generation	Other names	Years of birthday (approx.)**	Values	World events/ Innovations
Generation X	Xers 13th Generation	1965-1980	Individualism Skepticism Flexibility	Oral Contraceptives "The Pill" Cold War
Generation Y	Millennials Generation Next	1981-2000s	Moralism Confidence Positivity Environmental Consciousness	Internet MTV 9/11 Attacks Fall of the Eastern Bloc
Generation Z*	--	2000 - 2010	Digital natives Inclusion Individuality Realistic	

** Generation Z was added to build on previous work that produced the existing table.*

*** Years of birth for each generation are slightly different based on which source is being used.*

The above synopsis cannot be fully applied to Cambodia due to the differences in context as well as social events being heavily influenced by American history. However, some characteristics are similar and can serve as a baseline when looking at generational differences in Cambodia. In this chapter, the relevant generations which will be examined are Generation X, Y and Z.

[1] Some table information was adapted from DelCampo, Haggerty, Knippel & Haney, 2011

Table 2: Synopsis of some generations in Cambodia

Generation	Major events	Characteristics and values
Gen X (1965 – 1980)	Sangkum Reas Niyum, Vietnam War, U.S. bombing, Khmer Rouge, Vietnamese occupation	*Bak Sbat,* tramautized, self-sacrifice, respect for authority, tolerance
Gen Y (1981 – 2000)	Cold War, UNTAC, 1997 civil unrest, Chea Vichea assassination, internet, Cambodia becomes ASEAN member, CPP, 2013 election	Individualism, confidence, independence, skeptic, hopeful, public activism, tech-savvy
Gen Z (2000 – 2020)	Kem Ley assassination, CNRP dissolution, rapid economic development, Chinese investment	Digital native, social network, mobility and multiple realities, fake news

In the context of Cambodia, one of social events that clearly distinguish Generations X, Y and Z is the Khmer Rouge. There are contested senses of identity among the Gen X who have been through Democratic Kampuchea, Gen Y (also known as millennials), and Gen Z. As mentioned earlier, since two thirds of the current Cambodian population consists of the latter two categories, it is reasonable to assume that their modern version of national identity prevails. However, this is not completely the case because the younger generation still have their identity shaped by the influencing narrative of the older generation (Din, 2017). As mentioned previously, the older generation makes up the majority of decision makers in the government, which means that they are still in control of how the Khmer Rouge history should be remembered through both official and unofficial means. In other words, the older generation still holds the power to constitute the nation's collective memory of the Khmer Rouge. This collective memory, mainly generated by the older generation, creates a dominating narrative that the new generation has to deal with, risking having their own stories and experiences displaced. The phenomenon is known as post memory (Hirsch, 2008).

III. Policy Initiatives to Achieve the Ideal Scenario

Initiative 1. Increase institutional representation for the younger generation across the government through the rejuvenation of public administration and political leadership.

The government plays a very significant role in constructing collective memory which is one of the core elements in the process of identity construction (Bellino & Williams, 2017). For example, The Day of Remembrance, Win-Win Monument and the production of school textbooks reflect direct intervention of the government in constructing memory. In that sense, it is plausible to contend that the government can essentially contribute to the transformation of Cambodian identity.

At the moment, there is a lack of cross age representation in decision makers amongst the current government due to the Khmer Rouge. During the Khmer Rouge Regime, many educated people were either killed or fled the country. Also, in the aftermath, there were not enough institutions to train and recruit public servants. This led to the majority of people making decisions at a government level being over the age of 40 (Ege, 2016). Due to generational differences, there is a disconnect between these older decision makers and their constituents because Cambodia is a young country in which two thirds of the population is below 30 years old (UNFPA, 2015). Generational differences can be found in personality traits, attitudes, mental health, and behaviours (Twenge, Campbell, Hoffman & Lance, 2010). Major forces such as parents, peers, media, critical economic and social events, and popular culture influence each generation and in creating common value systems which make them different from people who grew up at different times (Twenge et al., 2010).

Another result of generational differences in Cambodia is the distinguished definition of what it means to be Khmer or Cambodian. These two terms, although not contested, have distinctive connotations and national sentiment. Ege (2016) argues that the term 'Khmer' is being used by older ruling elites who draw Khmer national identity from old traditions and culture, focussing on the glory of Angkor. The term 'Cambodian', however, is argued to represent a more contemporary Cambodia, revived from the Khmer Rouge atrocities and trying to represent the modernity of Cambodia.

Second, when there is a steady growth of young, competent public servants, the focus needs to be on how to retain those young talents in the public sector. Royal School of Administration, popularly known as ERA, serves as a good

example which can be built upon in future reform. There should be more public administration universities, which not only offer the knowledge of working in the public sector but also provide a clear career prospect to attract young talent. Moreover, the government needs to take into account that they will be working with Generation Z Cambodians who are digital natives; therefore, the public sector needs to ensure that their working environment and salary package are attractive and competitive enough to compete with the private sector in order to retain talent.

Third, following the step of attracting youths and keeping them in the public sector, these young pools of talent should be encouraged and supported to take decision-making roles so that they voice their views through policy making and represent their generation. In addition, the government needs to ensure that public administration is depoliticized. This step is crucial to guarantee that policy making will reflect the interests of the constituents instead of political parties in power.

It will also be ideal for the current ruling elites to acknowledge and understand the consequences of generational differences in policy making so that they can foster the concept among their families' future generations. When there is a narrower generation gap among future policy makers, they will explore new ways to represent Cambodia that are more suited to their generation using more contemporary values and elements. The reason for the current decision makers to not just simply step down and leave space for the younger generation but also to pay attention to educating their children can be explained by using the concept of “parental complex” (Bennett, 2015). Parental complex is a network of influences with which parenthood is necessarily embroiled. Parents hold positive expectations about many aspects of a child’s future typically in the areas of generation development, education, employment, values, sociability etc. These expectations reflect wider societal influences, such as nationality, class, economic status, political ideology and religion (Ibid). In this aspect, it is worth recalling Mannheim’s theory of generations which states that a new generation makes new contact with the social context formed by older generations. Hence, the older generations need to be aware of this connection between generations and their influence on shaping the social context.

Initiative 2. Allow for diverse perspectives and narratives.

As mentioned previously, Cambodian national identity has been strongly informed by the trauma of the Khmer Rouge for both the older and the younger generations. Therefore, the government will need to rethink how the Khmer Rouge narratives are being used if the country's national identity is to be transformed and less dominated by this trauma in the future.

First, all political leaders should look for more contemporary and progressive ways to debate their policies using diverse ideas and narratives that extend beyond the Khmer Rouge legacy. Currently, an official Khmer Rouge narrative is still being widely used by the ruling party for political goals. The official narrative of the Khmer Rouge has been modified constantly by the Cambodian government in power over the years since 1979 (Ngo, 2014). The Khmer Rouge official narrative focuses on the demonization of the perpetrator and victimization of the survivors. This version of the narrative has been excessively enforced annually on "January 7" labelled as Victory Day over the genocide (Strangio, 2014). According to Tyner, Alvarez and Colucci (2012), commemoration is very often utilized to construct, omit, or reinvent an official history and collective memory which can be used to justify current forms of social representation and political presence. Therefore, in order for the social representation and identity of Cambodia to change, political culture will require a facelift. All political leaders should reinvent themselves by looking for a more contemporary and progressive ways to debate their policies using diverse ideas and narratives that extend beyond the Khmer Rouge legacy. Therefore, by using new narratives in the social and political sphere, leaders can help steer discussion beyond the narrow framing of the Khmer Rouge narrative and open space for diverse narratives to penetrate.

Second, noting the importance of learning about Cambodia's dark history, the discussion of the topic should continue but instead of being linear and relying on dominant official narrative, it should be multidirectional. In 2040, the government should allow and nurture the culture of cross-generational historical dialogue and alternative narratives of Democratic Kampuchea. One should note that it is impossible to achieve a totally objective and unbiased history; hence, it

is crucial to be open-minded about it and to allow people to be exposed to as many versions as possible. That will allow them the option to choose to reconcile with the version of a narrative that they can reflect on and come to terms with.

Third, the government should pay more attention to the formulation and practice of explicit and implicit cultural policies that nurture "transculturality" (Welsch, 1995) and freedom to possess as well as express memories. The idea here is to empower Cambodians to shape their own identities instead of having the government doing it for them – including Cambodian national identity. However, if the government is to use its power to influence collective memory, it should be the one in which Cambodia is shifting from a Western rescuing project and victim of the Khmer Rouge to a strong resilient nation thriving to achieve self-actualization.

This can be done through both formal and informal means. The main formal ways include history lessons, books and teaching, museums, television and film, memorials and monuments, rituals and anniversaries. The main informal approaches include family storytelling, oral histories, online and offline conversations, anecdotes, jokes, folk songs etc.

Formal ways to shape memories

It is essential to note that cultural policy extends beyond a narrow sense of the administration of the arts. It is about the "politics of culture in the most general sense, it is about the clash of ideas, institutional struggles and power relations in the production and circulation of symbolic meaning" (McGuigan, 1996). There is a distinction between explicit and implicit cultural policy (Ahearne, 2009). Explicit cultural policy focuses on what the government is doing for culture through its official cultural administration while implicit cultural policy focuses on the effective impact on the nation's culture of its action as a whole, including education, media, industry, and foreign policy, etc (Ibid).

When it comes to formal means, the first few points to look at are history lessons, books and teaching. Since the establishment of the Extraordinary Chambers in the Courts of Cambodian (ECCC) or the Khmer Rouge Tribunal, Khmer Rouge education has already been more open than before through various channels (McCaffrie, Kum, Mattes & Tay, 2018). Changes have been made to high

school textbooks, teacher training and university curriculum. Nevertheless, students still claim that they do not learn much about the Khmer Rouge history in school (McCaffrie et al., 2018). This could be because of the already limited narrative tightly controlled by the government and the quality of teaching. Research has shown that neutrality of teaching is one of the problems concerning Khmer Rouge history teaching (Ibid). The problem is either the teacher is a Khmer Rouge survivor who may find the events traumatic or difficult to explain neutrally, or someone who did not live through the regime and may struggle to understand the events or to be taken seriously as teachers (Ibid). Therefore, more research by Cambodian scholars is needed in order to examine the topic from different angles that can then be utilized in teaching.

In addition, what the government should do in the upcoming two decades is to enable and allow open impartial spaces in which younger teachers are able to express their teaching neutrality, free from political influence and students are able to challenge the historical narratives taught to them using other narratives they have gathered from other sources such as family. Quality of teaching and content of history lessons on DK history will also need to be significantly improved. A research study conducted on student focus group by WSD Handa Center found that most students said they had not studied the regime at school or university at all, although their age suggested that they would have been through high school by the time the textbook on DK produced by DC-Cam was published in 2007 (Ibid).

Other formal means that can be hugely improved in order to transform the Khmer Rouge narrative in Cambodia are museums, mass media, monuments and memorials. It is very important to bear in mind that for Cambodia, as a nation, to have a new identity and social representation in twenty years' time, the core narratives – temple and war – used for the current representation will need to be replaced completely with new ones. For the Khmer Rouge narrative, that can only be done if the nation is allowed and ready to confront their past. By confronting, I mean asking questions, researching different narratives, creating dialogues among the younger generation who will need to accept and understand what happened and move on. At that point, the role of the government is to allow a safe space for this confrontation and reflection without interference.

Once the confrontation of the past is complete, there will need to be space for new narratives and representation of modern Cambodia to exist and grow.

Some good examples can be observed in discussions around Germany's experience with Holocaust education. In Germany, the word for education is "bildung", a concept of development that empowers youth with all the characteristics needed to succeed in life. This concept is traditionally linked to the concept of emancipation which assumed that with knowledge comes freedom (Bunch, Canfield & Schöler, 2011). In Germany, Holocaust education evolves constantly. In a landscape where survivors die and third generation slowly drifts out of the Holocaust's shadow, education must be strengthened with an understanding of the applicable lessons and principles that derived from the Holocaust (ibid). In this sense, Cambodia's Khmer Rouge education should utilise this existing experience from Germany and make sure that Khmer Rouge education evolves timely as the new generations gradually drift out of the Khmer Rouge shadow. As Bunch, Canfield and Schöler argue, "there is a fine line between instilling students with the facts of history, self-consciousness, and the ability to be critical of one's milieu without creating a feeling of guilt and defensiveness" (Ibid, (para.10)).

Furthermore, the government should reinvent a new way to remember the war. Instead of remembering the Khmer Rouge with the Day of Hatred, the nation can have an alternative way of remembering with the Remembrance Day, which will be a day to pray and remember all the lives that were lost. The re-enactment of the Khmer Rouge violence should be abolished completely. In terms of mass media, they should be allowed to operate uncensored.

It is worth noting that collective memory does not simply disappear as the legitimacy of the government who is in charge of controlling the collective memory begins to dissolve (Wertsch, 2002). Wertsch (2002) argues that there seem to be quite active, compensating forces in textual consumption that are likely to give rise to alternative ways of representing the past. It is safe to make a point that often times those forces derive from informal means of shaping memories because they are mostly free from government control.

Informal means to shape memories

Cambodia's collective memory is already shaped significantly by informal means such as oral histories, family storytelling, and conversation online and offline. For young people, the main source of knowledge about the Khmer Rouge is not educational institutions but their families (McCaffrie et al., 2018). The government should nurture these informal ways of shaping the Khmer Rouge memories by not intervening and not imposing a politically charged version of the narrative on people.

Instead, the government should invest in implicit cultural policy that can influence the shaping of a new Cambodian identity. For example, by introducing the teaching of soft skills in the public education system focusing on building future leaders equipped with critical thinking and leadership skills. Those future leaders will be the agents of change and a new representation of a future Cambodia. This suggestion is made based on the German concept of "building", which as mentioned previously, emphasizes a process of holistic growth, self-realization of the individual as an entirety, freedom, and self-understanding as well as a sense of social responsibility, and which puts the development of the individual's unique potential and self at the center of educational processes (Hu, 2015). Another example is re-routing budget normally used to build large cement monuments to invest in technology and media start-ups, business incubators, arts and culture and the like. In short, the government should change its perception of its people from being pure followers of what has already been decided for them to being partners who have a great deal to contribute in the collective efforts of building the country.

> **Initiative 3.** Encourage the flow of ideas and knowledge through embracing globalization and access to diverse and free media.

Cambodia has witnessed significant economic growth over the past two decades reaching lower middle-income status in 2015 (World Bank, 2019). The World Bank's (2019) preliminary estimation illustrates real growth achieved a four-year high of 7.5 percent in 2018, compared to 7 percent in 2017. Economic development unarguably brings many positive changes to a country such as urbanization, globalization, technological advancement, increased literacy and so on. These changes then create ripple effects to almost all aspects of society ranging

from the increased mobility of the rural population, to how media text is consumed, to the idea of what it means to be a Cambodian. Changes driven by economic development are important factors which contribute to a shift in the self-identification of youth from collective consciousness and representative of everything Cambodian to a celebration of individuality and multidirectional ways of viewing the world.

In another aspect, high economic growth is one of the major driving forces for urbanization. The growth in Cambodia was fuelled by deep structural transformation of the national economy: taking steps toward becoming "one of the most open countries in one of the most open regions in the world" (Davies, 2010). With encouragement from the government, a significant influx of foreign private investment, concentrated in services and industry, have overtaken agriculture as a primary source of Cambodian GDP (Springer, 2015). This growth, however, has a rather narrow base focusing on the garment trade and tourism, concentrated in the capital city of Phnom Penh (Lawreniuk, 2017). These developments have caused an influx of labour migration from rural areas into the city. According to the 2008 census, an estimated 850,000 people from a total labour force of 7.5 million in Cambodia, or over 10 percent, had migrated from provinces to reside and work in Phnom Penh. Currently, the Cambodian urbanization rate is at 21 percent and is expected to be at 36 percent by 2050 (World Bank, 2017).

Though this migration is clearly driven by the need for better income generation opportunities, modernity appears to be a perceived promise that comes with the prospect of urban work. In addition to their drive to escape hardship, many migrants long to be part of urban life, with which come freedom, fun, and fortune (Lawreniuk, 2017). Hence, it can be argued that the desire to be immersed in modernity and urban life has a potential to expose migrants or new city dwellers to range of media texts and narratives. Even though the level of exposure and their ability to generate meanings of those texts and narratives might differ from well-educated Cambodians, it is plausible to assume that migrants' perceptions of the country and themselves are expanded and eventually transformed when they move to the city.

Regarding the aspect of increased literacy, Cambodia currently has a youth literacy rate of 73.9 percent (Thomas, 2019). Educated Cambodians are better exposed to textual resources, which diversify and broaden their means of building a definition of who they are and want to be. It is worth noting that this does not imply that the Cambodian education system is great. However, education is an enabler of Cambodian young people to seek new information through various means.

Based on changes observed in Vietnam (King et al., 2008) and China (Weber, 2002), the transformation to a free market economy opens a big door for globalization which brings in a wide range of cultural experiences through various media including television, the internet, and literature. In the case of reform in China, Weber (2002) examines that in rapidly changing social typography brought about by reform, youth face different challenges, embrace different dreams, and pursue different opportunities from their parents and grandparents. Currently, Cambodia is witnessing similar phenomena with stronger influences in a shorter amount of time. This arguably could be because of the country's self-proclaimed democratic status, which allows more space for other cultures and values to penetrate.

Examining all of these transformations brought to Cambodia by economic development, it can be pointed out that the flow of information through ranges of media channels is crucial in influencing youths' perception of themselves and the country. Therefore, Cambodia needs to first embrace this by continuing to welcome globalization and ensuring that the media space remains free which will then allow more information to be exchanged and consumed. This will then provide the younger generation with a continuous exposure to new sets of ideas, foreign cultures and values through the range of media mentioned previously. Texts produced by the range of media are then being used by young Cambodians to achieve various individual objectives, one of which is building an identity and social representation of themselves. Ege (2016) argues that as young Cambodians become increasingly connected to the outside world, competing definitions of national identity arise, leaving a divide between Cambodians who wish to forge a new form of national and cultural identity and those who wish to revert to a shared sense of Cambodia's distant past.

Furthermore, an improved education system is required in order to increase the rate of university graduates to ensure that more young people are exposed to more textual resources through the media. There will also be the need for increased media literacy skills to be introduced by the government into the education system so that youth can best utilize good information and protect themselves from misinformation. After all, Cambodia's accessibility to the internet continues to rise reaching 8 million users representing a 49% reach in a country of 16 million people (UNDP Cambodia, 2019).

> **Initiative 4.** Revitalize the arts and cultural sector by recognising the importance of arts in the reconciliation process and allowing artists the freedom to create more work that reflects the society.

Arts contain powerful tools for influencing society, identities, and representation. Artists can stimulate discussion on a wide range of issues that traditional actors in society may be unable to achieve. Examples can be found through many famous and powerful art forms such as Rithy Panh's *The Missing Picture (Panh, 2013)*, Ai WeiWei's *Sunflower Seeds (WeiWei, 2010), and* Olafur Eliasson's *Ice Watch (Eliasson 2018)*. Filmmaker Rithy Panh once expressed that "art is not able to change the word, but art can show the future and the past. We had to come back and deal with identity. You can't rebuild a country without rebuilding identity" (Schneider, 2016). From this quote, it can be drawn that reconciliation within and among individuals and societies is an essential first step towards building a positive future out of the remnants of a tragic past or present.

On top of that, art increasingly becomes a form of self-expression and is allowing young people to find a voice which they previously did not have. Following decades of war, especially the Khmer Rouge regime, many artists were involved in reflecting on the Khmer Rouge regime, either recounting their own experiences or eschewing the autobiographical in works that were more universal in them. This was mainly due to demands imposed by international audiences, who also demanded picture-postcard paintings of Angkor Wat or the Cambodian countryside (Wolfarth, 2017). Similar to many post-conflict countries, contemporary visual arts in Cambodia are marked by investigation into regional, national, and personal identity (Ibid). However, Cambodian artists are becoming increasingly

critical in their art which illustrates more global themes, beyond the war, be it in uneven development and social justice, the legacy of history, or questions of gender.

At the moment, Cambodian modern artists are at a crossroads and caught between keeping Khmer tradition and old Khmer identity, and self-expression and the new modern Cambodian identity (Ege, 2016). Although the government does not specify what it is to be Cambodian, they propagate the idea that one is not Cambodian unless they fit into the social norms related to Khmer culture, religion, language and customs. Modern day artists seem to be at the greatest odds with the concept of the old Khmer identity which associate most with the glorious Angkor, strict traditions and countryside landscape (Ibid). Furthermore, the tight control that the government has over the official narrative of the Khmer Rouge and national history hinders the artist's ability to create relatable artworks altogether. Within this context, the first key step is for the government to recognize the essential role of the arts by allowing the narrative to be free from governmental control. This will allow artists to be active agents for change using their various creative modes.

Furthermore, emerging technologies and increased connectivity brought by economic development in the country have enabled the Cambodian young population to be powerful advocates and consumers of Cambodian contemporary art. There is clear evidence that Cambodian artists are heading in the direction of shifting narrative to something that they can relate to (Ege, 2016). However, the progress is slow due to lack of clear and cohesive national cultural policy and the government's political will to control the narrative. For example, in the current National Policy for Culture (National Policy for Culture, 2014), one of the goals is "to reduce negative culture and its impact upon society" with the term "negative culture" vaguely defined as "cultural activities which impact otherwise good national tradition". In a sub-decree on the management of film industry (Sub-Decree on the Management of Film Industry, 2016), Chapter 2, Article 8, states that "it is prohibited to produce cinematographic works whose content [...] distort the truth in national history; [...]".

The government should improve the cultural sector by increasing the funding for Ministry of Culture and Fine Arts, which will allow them to develop a clearer and non-prescriptive explicit cultural policy. By clearer and non-prescriptive explicit cultural policy, I refer to one that will encourage artists to create and represent without handcuffing them to the clause of old Khmer tradition and "negative culture" while also protecting the rights to their works. After all, as Scheider rightfully questioned, “If extremists grasp the importance of erasing culture in dominating and controlling, then why is the value of culture in recovering from violence not more widely accepted?” (Schneider, 2016). Economic development must be combined with healing and reconciliation to enable post-conflict rebuilding and to truly transform societies (Ibid).

IV. Cambodian Identity, Culture, and Legacy Under the Baseline Scenario: Business as Usual in 2040

In the absence of targeted reform through the policy initiatives suggested above, Cambodian youth identity will be very different from its current state. Without the implementation of Initiative 1, there will not be sufficient institutional representation for younger generations in a vibrant public administration. It is easy to picture that the older generation will eventually retire in the next twenty years; however, it is uncertain what kind of leadership or values the new wave of younger generation of public servants will possess. Without following through the three key steps of Initiative 1, it is plausible to argue that the new wave of younger generation who comes to take decision-making role in the government are there because of their family lineage, and they potentially hold some of their parents’ old values transferred to them through their upbringing. This will influence the younger generations’ way of working as well as their beliefs. It will also stagnate the idea of political leadership and how public administration is operated. Consequently, the Khmer Rouge narratives will uphold its existence and dominance beyond 2040 due to legacy passed down from parents who used to be in power. It is worth keeping in mind that the current ruling party might still be in power by that time despite having new leaders.

In addition, without Initiative 2 in place to enable diverse perspectives and narratives, there is no guarantee that the new younger decision makers would

dismiss the official Khmer Rouge narrative and create a new one. Applying the concept of the parental complex, it can be contended that the current leaders have influenced their children in many aspects throughout their upbringing which includes political ideology, beliefs and possibly their preferred way of telling the Khmer Rouge history. However, the new generation of leaders and decision-makers in the future Cambodian government will be those who have not experienced living under Democratic Kampuchea at all. Hence, even though they possibly were taught to utilize the Khmer Rouge narrative for their political gain and agenda, they cannot claim the same legacy as their predecessors.

In terms of economic development, it cannot be denied that it brings many positive changes; however, it also brings adverse impacts. Today, with its fast-growing economy, Cambodia faces many serious challenges. One of the most prominent challenges is uneven distribution of resources. Despite the soaring GDP, not every Cambodian benefits from this. This issue also applies to other aspects brought by development such as increased literacy and urbanization. Although these two aspects play a major role in exposing young people to the world outside of Cambodia, not everyone receives the same exposure and opportunities. Karbaum (2015) finds that young educated, especially urban, Cambodians are less submissive to traditional beliefs than the less educated countryside group. In addition, future aspirations of a majority of Cambodian youths is expected to be constrained to the traditional and situational pattern because youths' agency and world view are predominantly determined by their education (Pen, et al., 2017). According to the World Bank (Ibid), only 7 percent of young people graduate every year with a university degree, which is a huge decline from over 96 percent registration at primary level.

On the subject of urban migration, most migrants move to the city to work in labor intensive jobs and less than 6 percent have had secondary or above education (Ministry of Planning, 2012). A research paper from CDRI finds that for this youth group, ensuring daily survival is a struggle (Pen, et al., 2017, p. 113). For this reason, it is difficult to imagine that this youth group would aspire to be anything else – modern, creative, tech-savvy – beyond immediate economic opportunities. It is fair to say that being able to be individualistic is considered to be a privilege in the Cambodian context.

Regarding art, it is worth keeping in mind that the Ministry of Culture and Fine Arts remains one of the lowest funded government institutions. Looking twenty years ahead, it is difficult to presume that the sector will thrive and flourish without a well-funded institution to regulate especially if there is no reform that leads to the expansion of the sector. Also, it is possible that the government can potentially turn the cultural sector into a powerful propaganda machine. The Union of Youth Federations of Cambodia, led by a son of the Prime minister, presents a potential operationalization of this concern. This is an organization that aims to train Cambodian youth to become the pillars and backbone of the nation and as potential successors to preserve the past achievements and to achieve socio-economic development in the future (Union of Youth Federations of Cambodia, 2019). While recognizing this, the future for the art sector and artists is not all negative and grim. There have been positive changes and growth in the sector. To date, there are three local organizations – Cambodian Living Arts, Cambodia Children's Fund, Mad Monkey – that give grants to artists directly. This will allow artists to be more independent in their work and sustain themselves. Nevertheless, the sector still heavily relies on international funding from foreign governments such as the U.S., Sweden, Japan, U.K. etc. These governments have their own agenda and policies. Hence, the question worth asking is how do artists create without being controlled by anyone's agenda at all.

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Chapter 3 | Gender Equality and Sexual Reproductive Health

Ms. HARRY Catherine and Ms. NHEK Pichponreingsey

In order to fully understand the vision that we have, let us imagine ourselves from a pair of eyes that is right between childhood and the bloom of adulthood. At 17 years old, Sabrina is a senior at Preah Sisowath high school. Today has started poorly. Whilst she is seated in class, she has realized that her menstruation has come earlier than usual, and she has forgotten to bring any extra eco-pads! Thankfully the school provides facilities to receive free tampons and menstrual pads for this very instance. For third period today, Sabrina is excited for her favorite class, sexual reproductive health and rights class. Last week, Miss Songkran said they will be learning about consent. Miss Songkran is a trained teacher from a government program, and she is very knowledgeable in this field. After class, Sabrina goes home to find her sister visiting her. Her older sister, 24-year-old Veha, moved out to live with her boyfriend a couple of months ago. Veha is considering a contraception method and discussing the matter with her parents. Sabrina was able to recount the lesson of her class that day to remind her sister that there are contraception methods for both men and women being offered as part of the Cambodian universal health care plan.

I. Gender Equality and Sexual Reproductive Health: The Ideal Scenario

Social change, like any other kind of change, is driven by the desire of the human population and how they navigate their lives while fulfilling their basic needs on Maslow's hierarchy of needs as best as they can in the time that they are given to adapt and evolve.

Having over 50 per cent of the population being under the age of 24, the future of Cambodia looks bright and full of possibilities. It's not even a question that in 20 years, Cambodia will be vastly different across all landscapes; not excluding the sexual reproductive health and rights of its citizens. Being a progressive, globally integrated, and educated populace, contraception and birth control will unquestionably be more largely available and accepted, which give rise to demands for more innovative and accessible methods for both men and women.

Five key factors underpin the ability for Cambodia to fulfil the dream of being an informed and equal population free to make confident and healthy choices regarding their sexual health and reproductive rights:

1. Nationwide accessibility and availability of contraception and menstrual products;
2. Sexually educated and open-minded population that make healthy sexual reproductive health and rights choices;
3. Male and female sharing equal responsibilities regarding contraception;
4. Inclusivity of the universal health care plan and government policies that will include marginalized groups;
5. Sustainability being part of future Cambodian's decision making.

Each of these factors is heavily contingent on the education system. In 2020, Cambodia is moving towards a 100 per cent rate of primary education enrollment. With numerous efforts by the government through state-funded programs and policies like Education Strategic Plan (2009-2013), the Curriculum Development Master Plan (2010-2014), the Teacher Development Master Plan (2010-2014), the Master Plan for Capacity Development in the Education Sector (2011-2015), the Gender Mainstreaming Strategic Plan (2011-2015), the gap of enrollment between girls and boys are closing up and more young women are attending university (Ministry of Women's Affairs, 2014). In 2040, educational enrollment will be matched by a 100 percent secondary completion rate. In

regards to an open-minded population, the school curriculum created by the ministry of education will include sexual reproductive health and rights education that will be taught as early as the fifth grade (Ministry of Education Youth & Sports, 2018). This will be a prominent feature of the 2040 education system throughout public health and diversity training.

Due to the positive effects of the newly revamped health education curriculum, the future population of Cambodia will be more inclusive and less ignorant about gender, sexuality, and sexual reproductive health and rights. The conversation on contraceptives will have broadened to include all genders. They will include men, women, people of the LGBTQ+ community, non-able-bodied and non-disabled people, and indigenous people. Teaching boys from a young age about their role in sexual reproductive health and rights and gender equality will ensure that the men of the future will have a greater desire to share the responsibility of contraception.

The shift from larger to smaller families mean that contraception will continue to be in high demand. In fact, following the trend of the developing world, the number of women in Cambodia wishing to have large families will have fallen as economic opportunities grow. To cope with the decrease in the desire to conceive, in 2040, Cambodia will provide a wide range of contraception methods for its citizens. The contraception that will be largely used in the future will be those that are long-lasting methods, such as IUDs and implants. These methods have a lower rate of discontinuation, as well as being more cost-effective in the long run (Castle & Askew, 2015). The rise in the level of education would also mean that providers of contraception will be more trained and equipped in customizing their advice to each individual regarding the best method of contraception. Provider bias is one of the biggest reasons for discontinuation for younger women, so if providers are more competent, less women will want to discontinue in the future, garnering better accessibility and availability to Cambodian of the future (Castle & Askew, 2015). In addition, and following the footsteps of other countries such as Scotland and Sweden, Cambodia will distribute feminine hygiene products free of charge to women. Vending machines that dispel the products will have been installed in schools and offices as to make it more convenient and accessible for those who are in need.

In efforts to promote equal responsibility and normalization for sexual health and contraceptive methods, Cambodia will have developed a nationwide universal healthcare package to run alongside the kingdom's efforts in education. Our vision for 2040 is seeing sexual reproductive health and rights being appropriately covered by this universal health care plan. Once contraception has been normalized, and the issue of contraceptive discontinuation is solved by competent providers, new and improved contraceptive methods will be safe and long-acting methods, fertility rate will be reduced by 20 per cent to 48 per cent (Castle & Askew, 2015). This will benefit the universal health care plan in the funding department. If needs of contraception are met, women will be able to control the timing of their pregnancy and space their births, there will be less unintended pregnancy, and less abortion. This cuts the costs of post-abortion care, which includes drugs, supplies, and personnel and the costs of maternal care. Singh, E.Darroch, Ashford (2014) found that the total costs of abortion procedures and post-abortion care of women in the developing world is $794 million; however, if there is less unintended pregnancy, the total number would drop to $255 million for abortion care, and to $380 million for abortion care (Singh, Darroch, & Ashford, 2014). GDP can grow up to nine times, if just $5 per person were increased in expenditure for reproductive, maternal, newborn and child health (Singh, Darroch, & Ashford, 2014). Yielding results such as an increase in GDP would hopefully mean that more budget will be allocated to refocus on the healthcare sector, especially sexual reproductive health and rights. However, the coverage of sexual reproductive health and rights won't just be exclusive to citizens eligible for the national social security fund (NSSF) and the national social health protection fund (NSHP). Indeed, all citizens of the kingdom, including those in the informal sectors, indigenous people, sex workers, will be covered by the universal health care plan.

II. Scenario Space and Key Factors for Gender Equality and Sexual Reproductive Health

As noted previously, there are five key factors that represent sexual health and reproductive rights in this chapter's conceptualization and discussion.

1. Accessibility and availability of contraception and menstrual products;

2. Education and awareness;
3. Responsibility for contraception and sexual health;
4. Healthcare provision; and,
5. Sustainability.

At the turn of the millennium, representatives from all the world's countries and leading development institutions participated in the 2000 Millennium Summit. The major output of this was the establishment of eight Millennium Development Goals (MDGs). Amongst those eight, three particular goals rely heavily on sexual reproductive healthcare and rights: the goal to promote gender equality and empower women; the goal to improve maternal health; and, the goal to combat HIV/AIDS, malaria and other diseases. In April 2019, in a UN discussion on the 2030 Agenda for Sustainable Development adopted byMember States in 2015, the Swedish delegate noted that "the 2030 Agenda can only be fulfilled with full enjoyment of sexual and reproductive health and rights. Women and girls must be an active part of development, with full autonomy over their own bodies" (United Nations, 2019).

When discussions on human rights and gender equality arise, sexual reproductive rights are usually hot on their heels; for no girl or woman can truly have freedom unless she has autonomy over her own body. Sexual and reproductive health rights are a vital component towards ensuring that everyone can be equal and free to make decisions without discrimination, violence or coercion, and with the assurance of their dignity upheld (IPPF, 2015). To this end, the International Planned Parenthood Federation (2015) has found that:

> *If all pregnant women and their newborns were to receive care at WHO recommended standards, if all women who want to avoid an unplanned pregnancy had access to modern contraceptives, the life-saving benefits would be substantial. Maternal deaths would drop by 67%. Newborn deaths would drop by 77%. Unintended pregnancies would drop by 70%. Women's and newborns' burden of disability related to pregnancy and childbirth would drop by 66%. Transmission of HIV from mothers to newborns would be nearly eliminated – a 93% reduction*. (IPPF, 2015)

As the country with the youngest population in Southeast Asia, Cambodia has inched further towards the fertility age as youth are increasingly moving into family planning. In 2014, the CDHS collected fertility data by asking women for a complete history of her live births, which was used to calculate the total fertility rate (TFR) – the number of children the average woman would bear in her lifetime. In 2014, it was found that the TRF in Cambodia is 2.7 children per woman; 2.9 children for rural women and 2.1 children for urban women if they were to follow current levels of fertility throughout their life. The trend has declined over the past 15 years, as the TFR in 2005 was 3.4 children per woman. Out of all women aged 15-19, one in eight has become a mother or is currently pregnant with her first child; 31 percent amongst women age 19. The level of education is closely linked to the level of teenage fertility as data found that one-third of teenagers who have never been to school have begun childbearing, compared to 18 of teenagers who have a primary school education (Cambodia Demographic Health Survey, 2015). This ties in with the urgency in providing adequate sexual reproductive health and rights classes to young people in order to combat teenage pregnancy, which leads to the rise in dropout rates.

Having access to quality sexual and reproductive right can be the difference between a life spent in poverty and an empowering life; especially when it concerns young girls and teen pregnancy. When young girls are not subjected to bearing children at an age where they are considered to be children themselves, they can focus on getting their education and choosing to start a family when they are ready.

As a result of this, it is easy to see why accessibility and availability of contraception is so vital to the development of women and girls in Cambodia. Many lose the opportunity of education because they lose the chance to make an informed decision on family planning. The autonomy to decide whether, when and with whom to have children and having access to quality health services is pivotal to women's economic, educational, and political empowerment as it opens up the realization of their other life opportunities and fulfilment (IPPF, 2015).

As for the contraceptive method usage in Cambodia, 56 percent of currently married women are using some method of contraception, with the majority

relying on a modern method (39 percent of currently married women). The most commonly used modern methods are the contraceptive pill and injectables (18 percent and 9 percent, respectively), while 15 percent of women are using withdrawal. On the other hand, only 4 percent of women without any children are using a modern contraceptive method as women do not generally begin to opt for contraception until they have had at least one child. The CDHS also found that the use of traditional method increases in correlation with the level of education. Twenty-one percent of women with some secondary education and 27 percent of women with higher education use rhythm or withdrawal methods, in contrast with 12 percent of women with no education.

As women grow older, they tend to choose modern methods, with 20 percent of women age 15-19 compared to 48 percent of women from age 30-34. Women in rural areas also tend to use modern methods more than women in urban areas (40 percent versus 33 percent). The demand for family planning is defined as the sum of unmet need and met need of all contraceptive methods and in 2014, the demand stood at 69 percent. Nonetheless, 13 percent of currently married women have an unmet need for family planning (Cambodia Demographic Health Survey, 2015). The inconsistency in the use of contraception of women across all ages solidifies the idea of a universal healthcare plan, where there is enough budget allocation to healthcare to focus on disseminating information on which contraception methods are better for Cambodian citizens of all ages and across all income brackets, instead of just focusing on a certain group of people such as poor, disadvantaged women in rural areas when the truth is every group is ignorant about their sexual reproductive health and rights choices.

As of now, the subject of sexual and reproductive health right generally falls upon women, male participation is essential in achieving a world where women have full body autonomy. Because of traditional family values, in many households, men are tasked with the responsibility to make decisions within families, including reproductive, family size, and contraceptive use. Hence, “men’s general knowledge and attitudes concerning the ideal family size, gender preference of children, ideal spacing between child births, and contraceptive method use greatly influence women’s preferences and opinions. Only in societies where

men and women have equal rights and responsibilities will reproductive rights be equally shared by all." (UNFPA, 2014)

III. Policy Initiatives to Achieve the Ideal Scenario

In order to realize the ideal scenario, there needs to be important key steps to serve as steppingstones towards our goals for 2040.

From 2005 to 2014, the use of modern contraceptive methods had increased from 27% to 39% of currently married women. However, only four percent of women without any children use any type of modern contraception, as women tend to wait until they have at least one child before beginning to explore modern contraception methods (Cambodia Demographic Health Survey, 2015). The use of modern contraceptive methods is more prevalent amongst women living in rural areas than in urban areas, 40 percent and 33 percent respectively (Cambodia Demographic Health Survey, 2015). Side effects such as prolonged bleeding or amenorrhea can lead women to discontinue contraceptive use, other than reasons such as wanting a child or no longer needing protection. These side effects can perhaps have adverse sociocultural consequences, ranging from abnormal bleeding or spotting that limits a woman's ability to pray, prepare food or have intercourse. Myths and rumors revolving contraceptive methods, especially misleading ones such as infertility, can also contribute to discontinuation or hesitation to opt for modern contraceptive methods in the first place (Castle & Askew, 2015).

Measures can be taken to curb the concerns or myths in order to encourage long-term usage. It has been found that providing women with safe and open space to discuss side effects with their providers and members of their social networks, the understanding of the nature of side effects becomes incessant, leading to an increase of continuation and the facilitation of switching (Castle & Askew, 2015). Other measures include engaging male partners and enhancing couple communication, ensuring client confidentiality, counselling women who experience prolonged amenorrhea, and dispelling misconceptions.

Lack of understanding on menstruation may hinder a woman's decision to use modern contraception as many believe that the absence of menstruation

signifies a woman's poor health. This happens especially often when the method is implants. Hence, more accurate information about physiology must be disseminated in order for women to fully understand the options out there and the benefits of it rather than being frightened to the side effects. According to Blanc, Curtis, and Croft (2002) in FP2020, a country would experience a decrease of 20-48 percent in total fertility rate, if discontinuation were to be eliminated.

It is also crucial to note that men's involvement plays a key role in a woman's decision on whether or not to continue a contraceptive method. In Cambodia, Samandari and O'Connell (2011) found that amongst married women less than 30 years old with 12 to 14 years of education, long term use is largely reliant on their ability to reject misconceptions surrounding contraceptives, endure the side effects, and receive support from their partners and providers.

Including men and male leaders in community in discussions about family planning has been proven to improve continuation rates during the postpartum period. Without being well-informed, men may encourage their partners to discontinue because they perceive the side effects to be harmful, or because they believe that family planning will alter their partner's behaviors and sex drive. In such cases, sensitization and education programs have to include men and equip them with accurate information (Castle & Askew, 2015). Using the Family Planning Program Effort score, Blanc, Curtis, and Croft (2002) found that low quality of the service environment accounts for 27 percent of women discontinuing contraception, while between 40-60 percent of the overall discontinuation rate reflects decisions based on the quality care (Castle & Askew, 2015). Where sex remains such a taboo topic in Cambodia, providers might hold on to their personal beliefs regarding women's sexual productive rights and freedom; thus, affecting their communication with the clients. In order for women to gain complete freedom in making an informed decision on their sexual reproductive rights, the new generation of health care workers need to be better equipped to reduce discontinuation and receive support and training in order to provide unbiased counseling and supporting women.

A report by Guttmacher Institute estimated that in 2014, the cost of modern contraception services for 652 million users in the developing world amounts to

around $4.1 billion, which includes the costs of contraceptives and related supplies, health workers salaries and program, and program and systems cost. While the average annual cost per user in the developing world is $3.18 in direct costs and $6.35 when indirect costs are factored in, the average total cost per user in Asia is lowest, with it being $4.76 (Singh, Darroch, & Ashford, 2014). The same study found that if all 225 million women with an unmet need for modern contraception were to receive proper and qualified services, the cost of modern contraception services would increase from $4.1 billion to $9.4 billion. Although the increase may seem daunting, it would result in 52 million fewer unintended pregnancies and 21 million fewer unplanned births. These reductions would, in turn, make maternal and newborn care more affordable, at the declined spending of $2.7 billion. The decline is due to the decrease in unintended pregnancies. This allows for all women with unintended pregnancies and unplanned births to receive the recommended levels of care at a spending that would've been $10.5 billion otherwise (Singh, Darroch, & Ashford, 2014).

Not only will improved sexual and reproductive health services generate gains in other areas of health, but women who bear children past adolescence can have an effect on their education, training and employment. In the long term, it can help strengthen their earning potential and financial security. In (Barnett B and Stein J, *Women's Voices, Women's Lives: The Impact of Family Planning, Research Triangle Park*, NC, USA: Family Health International, 1998), it was found that women reported greater personal well-being when they used contraceptives to time their births and avoid unintended pregnancies compared to those who did not. Studies have found that the former were more likely to communicate and share decision-making power with their spouses, creating more equitable household relations (B & J, 1998).

Although delay has pushed back the estimated on-sale date, it can be assumed that the microchips will be available in mass marketplace by 2040 – an invention that will revolutionize women's sexual productive rights, giving them more control over their sexual choices than ever before. Initial concern might be that the microchip will be too expensive for disadvantaged women in developing countries to afford; thus, limiting its effectiveness and impact. However, it can follow the footsteps of contraception companies such as Jadelle® and Implanon®,

which have signed a deal to supply and purchase doses of their implants in exchange for 53 percent and 50 percent price reduction respectively.

To expand access to modern contraceptives to every needed woman and non-binary by 2040, contraception should be covered by the NSSF as part of the Universal Health Care.

According to the Ministry of Health's Health Financing Policy (2014), the universal population coverage will be as follows:

- All citizens of Cambodia are entitled to a set of health interventions funded through government budget allocations to the Ministry of Health and Social Health Protection Institutions
- All employees of the formal private sector must enroll with the Social Health Insurance of the mandatory National Social Security Fund for private sector employees
- All civil servants and Veterans must enroll with the Social Health Insurance of the mandatory National Social Security Fund for Civil Servants and Veterans
- Both National Social Security Funds will also cover dependents over time
- The poor and vulnerable who will be identified by the Ministry of Planning through appropriate methods will automatically be covered through subsidies by a third National Social Health Protection Fund for the informal sector
- The non-poor informal sector population are automatically enrolled with the National Social Health Protection Fund. (Ministry of Health, 2014)

The health system will be funded from various sources such as general revenues, payroll contributions and financial support by development partners. The National Social Security Fund will be funded through payroll contributions from employees and employers, and from civil servants and government. It will also be funded by the government and development partners. The use of revenue by health facilities will be specified in the guidelines formulated by the Ministry of Health (Ministry of Health, 2014).

There is another solution to cutting the cost to fund nationwide contraception and menstruation products. Sustainability is the answer. When Leo Hendrik

Baekeland invented plastic in 1907, he didn't foresee that it would be one of the trademarks of our environmental 11th Hour warning. Seen as an item to make life more convenient, it was rather hailed as a product of the booming Industrial Revolution.

Fast forward decades later, images after images of plastic waste drifting along the vast oceans, forming its own island, have jolted the world into shifting their focus on their carbon footprint and consumerism habits. A problem that didn't exist in the public's eyes hitherto. The world is shrouded in plastic, most of which is unnecessary and can easily be eliminated, albeit requiring a change of habits. Nonetheless, some disposable items are a necessity that has changed the lives of half of the population, namely, feminine products such as tampons and sanitary pads.

Usually wrapped in plastic bags, feminine hygiene waste remains in the ecosystem long after the demise of the users and the generations after. It is estimated that in North America alone, close to 20 billion sanitary pads, tampons and applicators are dumped into landfills every year. Over the period of a woman's lifetime, she uses an average of 11,000 tampons. However, the damage to the earth's ecosystem doesn't only come from the plastic waste. The Royal Institute of Technology in Stockholm conducted a Life Cycle Assessment of tampons and found that the processing of LDPE (low-density polyethylene, which is a thermoplastic made from the monomer ethylene) that is used in tampon applicators and the plastic back-strip of sanitary pads is the largest impact on global warming, considering it requires high amounts of energy generated by fossil fuel. Just simply one year's worth of a typical feminine hygiene product leaves a carbon footprint of 5.3 kg CO2 equivalents (Shreya, 2016).

Cambodia is no exception to the damaging global trend, but with limited alternatives, it is difficult to reduce the consumption. Witnessing the growing problem, a new trend has emerged around the world, including developing countries such as Cambodia, where eco-friendly feminine hygiene products have been introduced, ranging from eco-pads to menstrual cups.

Social enterprises and organizations have latched on to this niche market by creating eco-friendly alternatives for women. Green Lady Cambodia is a project

aimed at providing eco-friendly period's products to girls and women in South-east Asia, whereas Project G, a project stemmed from Cambodia Rural Students Trust, is focused on bringing sustainable feminine hygiene solutions to girls in rural Cambodia.

Despite the growing number of projects on eco-friendly alternatives, the accessibility and progress are gradual and slow without much of the government's intervention. In order for eco-friendly feminine hygiene products to become the main, if not the only choice, for women and the non-binary in Cambodia, the products need to be accessible and affordable for everyone, especially those in the rural provinces. Government subsidiary is crucial for mass production of eco-friendly products to cater to the needs of half of Cambodia's population. One of the ways for the government to have additional budget to subsidize the growing need by 2040 is through taxes, and one of the items that we would benefit from through higher taxes is plastic and disposable products.

Currently, the government has already decided to put in place a regulation that requires supermarkets to charge an additional $0.10 on a single plastic bag. Although the amount might seem miniscule, especially to middle-class Cambodians who enjoy the convenience that plastic brings, higher taxes on products that are not only limited to plastic bags may bring forth hesitation from consumers once they are faced with the decision to choose between disposable items and items that are more gentle to the environment. The plastic and disposable items can range from single-use utensils and kitchenware to bottled water. Not only will this course of action reduce the consumption of items that are causing the deaths of wild animals and the population in oceans around the world, but the excessive money from the taxes can be used to allocate for more production of eco-friendly products.

In 2012, total health expenditure in Cambodia was estimated at $1 billion, the equivalent of 7 percent of Cambodia's GDP; 60 percent of which was out-of-pocket expenditure. Twelve percent of total government spending was used on healthcare. Sin taxes levied on tobacco products and alcoholic beverages can be utilized to increase the government's budget for health, along with social health insurance contributions (Ministry of Health, 2014).

To meet the demands, the government can invest in its own state-run facilities to produce eco-friendly feminine hygiene products such as eco-pads and menstrual cups. Producing eco-pads can be a process that is as simple as sewing pieces of fabric together. It can be done by workers that have minimal skills, as long as they have the knowledge of sewing. The government can use the facilities to target two birds with one stone by hiring workers, especially women, from disadvantaged areas to be a part of the production. Not only will this reduce the rate of unemployment, but the cost of the products won't be as high as it would be if it was produced by private entities or imported from abroad.

Additionally, taxes can be collected from a company's income or an individual's salary (Ministry of Health, 2014). Thus, the more employed citizens are, the more tax will be poured into the country; a portion of which can be used to sustain the facilities. In this scenario, the final price for the products can be minimal thanks to the self-sustaining model of the enterprise. Nonetheless, the affordability of the products shouldn't come at a cost for the workers. They should be paid a wage that is livable and fair, not simply a dash over the poverty line.

Contraception comes in packages that are enclosed in plastic. Reducing the usage in such cases will require the government and stakeholders to encourage more women and the non-binary to use long-acting reversible contraception (LARC), such as implants and IUDs.

IV. Gender Equality and Sexual Reproductive Health Under the Baseline Scenario: Business as Usual in 2040

The health financing strategy drafted in 2014 details future plans for how the government will be able to fund the dreams of universal health care. In that, four institutes will be the main health services purchasing channels for the citizens of Cambodia, and that includes, National Social Security Fund for Civil Servants, National Social Security Fund for Private Sector Employees, National Social Health Protection Fund, and the Ministry of Health (Ministry of Health, 2014).

However, it's uncertain whether the universal health care plan would really cover each and every citizen of the Kingdom of Cambodia. There is no mention of the current marginalized groups such as sex workers or the indigenous people. In order for the universal health care plan to be truly universal, there must be a push to legalize sex workers, the group most at risk from STIs, so that they may receive the benefits of social funding.

It should be noted that there is also a decrease in the spending of development partners on the procurement of commodities, which also includes contraceptives (Ministry of Health, 2014). If this trend continues, there will be more burden on the government to ensure that there are enough commodities stocked in order to plan for the proposed universal health care plan.

Therefore, although we may not see remote control contraception in Cambodia 2040 due to the device being potentially too costly to stock up. It is true that all health centers in Cambodia are providing at least 3 contraceptive methods, but long-term methods such as IUDs and implants are not available at every health center in Cambodia (Ministry of Health, 2014). This is largely due to the slightly more costly price of these long-term methods and the lack of knowledge regarding them. Women and their partners are driven away from contraception due to myths and rumors (Castle & Askew, 2015), but the new school curriculum on health education will hopefully help them be more open and trusting of IUDs and implants. At baseline, we may see IUDs and implants be widely available throughout the country, including those regions are from urban areas, where more health posts will be stationed.

Male contraception will be on sales, but the problem is whether there will be widespread use by male themselves. Currently there has been no government sponsored programs to encourage men to participate in male contraception, only programs for men to support their partner's choice of contraception. Therefore, without active efforts to seek accessible and affordable alternatives to male contraception (making it less expensive than female contraception or provide incentives), the responsibility of contraception will still rest on women, although men will become more involved and supportive of their partner's choices in family planning if they are able to see financial benefits (Castle & Askew, 2015).

However, all hope is not lost. For even though there is not a lot of focus on male contraception in Cambodia, there is general support from the government in order to create a shift in male attitude. An example of this would be the 'Leading the Way for Gender Equality', an initiative of the Ministry of Women's Affairs of Cambodia, supported by the United Nations Development Programme (UNDP), the Swedish International Development Agency (SIDA) and Oxfam. This program is geared towards challenging traditional gender norms instilled in the male populace, while also providing interventions that will aid in the fight for gender equality in Cambodia (UNDP, 2018). So, we see that there is substantial interest in shifting male and female attitude regarding gender norms.

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Chapter 4 | Education: Pedagogy and Infrastructure

Mr. KHOUN Theara

Waking up on a morning in January 2040, Ret Mayuri (English nickname "Yuri") asks TimeSmart, a low-cost, time management robot, about her schedule for the day. The device tells her there is one science class for her to attend at Sisowath School from 10am to 12pm, two self-registered online courses on creative design and material engineering for her to resume, and a pending twelve-week collaborative project for her to work on. Consisting of a team of five students, the collaborative project on adjustable chair design is in response to a recent student feedback survey showing that some students are having difficulty sitting for long hours in the current school chairs. After school, Yuri searches on the internet for ideas, samples, and videos on adjustable materials and takes relevant online classes recommended by her class facilitator. She then syncs her collaborative works on KhmerKollab, a popular cloud-based platform, and makes an initial presentation using a hologram projector from her home to her teammates. Yuri then successfully produces four different prototypes of adjustable chairs to share with her friends, using a 3D printer available at the Student Lab. Her team then invites 20 students to try out the new chairs during their class. A week later she conducts an online survey with these volunteer students to learn about their experience, using an app on their e-watches. The result shows that only two students found all four prototypes uncomfortable, implying a tenfold decrease of complaints when set against the standard design. At the end of their project, Yuri and her teammates need to write an individual reflective paper in English, including the portfolio of their data, reading materials, and

raw files. Her team then uploads their project, prototype, and relevant information to Share9, a popular skill and problem-solving platform, to share their initiative with other netizens.

I. Future Education: Pedagogy and Infrastructure: The Ideal Scenario

Education as we know it has evolved. Assessment in 2040 is holistic and individualized, tailored towards the specific interests of the students. Class facilitators normally group students in projects based on their shared interests. Compulsory education covers five broad subjects – Khmer literature, foreign languages (English compulsory, and a secondary elective of Chinese or a Southeast Asian language), math and science, philosophy and ethics, and information and computer technology (ICT), based on various types of holistic student assessments in addition to the collaborative projects which usually takes a student 12 years to complete. However, some gifted students like Yuri can finish much earlier while students with learning difficulty may take a longer time than the average. Upon graduating from her compulsory education, Mayuri plans to undertake her advanced degree in Material Engineering which largely follows the same project-based format but specifically will prepare her to be a material scientist. In this new system, six main systematic reforms are envisioned:

- the integration of digital education and technology into the classroom;
- a model of bilingualism (Khmer and English);
- the adoption of facilitation-based education;
- the feature of project-based, collaborative, and real-world learning;
- integrated sensorial learning; and,
- individualized, holistic evaluations.

The successful implementation of these reforms will support the development of the skilled workforce needed to transform Cambodia's economy from being labor-intensive to knowledge based.

[I] Integration of digital education and technology into classroom

The ideal scenario is that by 2040, Cambodia's Ministry of Education, Youth, and Sports (MoEYS) will have fully integrated digital education platforms and affordable technologies to supplement the traditional education system. For more than 150 years, society has demanded students physically go to school. With disruptive technology and the rise of digital education, this may no longer necessarily be the case in the near future (Thomas Arnett, 2016, in Jukes & Schaaf, 2019). Presently, millennial students often find it more convenient and faster to put their questions into a search engine such as Google than ask their teacher (ibid.). Other online resources have also become increasingly more sophisticated, including, for instance, electronic books, cloud-based learning, learning apps, open online courses, educational games, personalized learning playlists, blended learning, video streaming, and interactive and virtual simulations. In many parts of the world, these resources have rivaled the ability of teachers and traditional curriculums to make learning engaging, fun, and memorable, and are gradually separating education from the physical buildings known as "schools" (Thomas Arnett, 2016 in Jukes & Schaaf, 2019, p.2-3). While the concept of schooling in the physical sense will retain relevance, the availability of personal digital devices and access to a huge amount of digital learning resources will augment the learning system. Such an integration of digital learning with an offline mode of knowledge delivery through affordable technologies is known as "blended learning". This approach has been adopted as best practice in some countries. Singapore, for example, in 2004 introduced the "Teach Less, Learn More" initiative that urges teachers to give priority to the quality of learning, with the incorporation of technology/digital education into the classrooms, rather than quantity of knowledge and memory-based exams (Ketchell, 2014). Studies show this innovative teaching and learning method helps students learn better and become more engaged in the subject compared with traditional modes of instruction (Hockly, 2018). Such systematic integration will allow students like Yuri to learn from anyone, anywhere, at any time, and at any pace to improve their competency in their core subjects, as well as their own personalized subjects and skills while using just a tablet or mobile device.

[II] Bilingualism

The 2040 ideal scenario is that Cambodia's compulsory education will cover four broad subjects: Khmer language, literature, and culture (for identity and sense of belonging), math and science (for their role in all scientific innovations), philosophy and ethics (for responding to skills demands including, for instance, ethics, critical thinking, interpersonal skills, and leadership), and ICT (for efficiency in work and communication). Only Khmer literature and culture will be taught in Khmer, with all the other subjects delivered in English. Bilingualism -- Khmer- and English-based education -- is essential for two main reasons. First, mastering a high level of English proficiency will give students access to a vast body of knowledge. As stated earlier, there are a huge amount of learning materials, including electronic books, apps, multimedia content and digital education platforms, available online across disciplinary subjects, but they are largely in English (Dao, 2018). In the early 2000s, a quarter of the world's population, or 1.5 billion people, were fluent or competent in English, followed by Chinese with 1.1 billion, and the trend is growing (Cristal, 2003, p.12). There is no incentive to translate all these resources into Khmer given Cambodia's small population. The second argument is that proficiency in English will prepare Cambodian students for the future of work, with seamless integration into the global production network, where English will likely remain the *lingua franca* for professional communication, thus opening up greater business opportunities.

[III] Facilitation-based education

In many education systems, teachers usually dictate the way they teach and generally avoid extended discussions, making the process a one-way communication (Ketchell, 2014). Evidence suggests that the teacher-centered education system makes students passive and lacking in self-confidence (Emaliana, 2017). In Cambodia in 2040, the concept of the teacher as it is understood today will be obsolete, with educators instead taking on the new role of "class facilitator". The two main functions of a class facilitator will be to rouse the curiosity of students and to improve their engagement, proactivity, creativity, and ability to absorb new knowledge. First, as the name suggests, a class facilitator is a mentor or facilitator who is willing to invest quality time in guiding students through their learning journeys. They will also take on other roles beyond the learning

environment, including supplying pastoral care and emotional support (Bateman, 2012, p.17). Second, a class facilitator should be an "expert generalist", not a specialist (Jukes, McCain, & Crockett, 2010, pp.79-88). Coined by Orit Gadiesh, an expert generalist is someone who has the ability and curiosity to draw on diverse knowledge and skills to recognize patterns, "connect the dots," and manage situations (Roberta, 2018). An educator will be required to have these qualities as they respond to students with diverse interests and talents and capitalize on their strengths and curiosity to unlock their full potential in solving real-world problems. For such an arrangement to be manageable will usually require small class sizes (Emaliana, 2017).

[IV] Project-based, collaborative, real-world learning

By 2040, project-based and collaborative learning will be integral to the Cambodian education system and act as the core assessment of a student's learning outcomes. Jukes and Schaaf (2019) contend that in the age of "InfoWhelm", in which information has become increasingly accessible, limitless, and overwhelming, memory-based facts and knowledge can be easily outsourced to electronic devices, and thus students can put greater focus on creation and application through project-based learning rather than the pure retention of factual knowledge. Given the complexity of global problems such as water pollution and poverty, having one specialized discipline will not be enough to tackle them (Jukes & Schaaf, 2019, p. 1). This poses one significant implication for the approach to education in that these complex issues usually require interdisciplinary solutions, whereby they cannot be solved alone but rather require a team effort in which different skill sets and roles are utilized.

[V] Integrated sensorial education

The approach to learning in 2040 will see students optimize the use of their five senses -- vision, hearing, smell, taste, and touch. In this regard, digital education and technology will require a supporting physical environment to operate within. Therefore, other tools will have been integrated into the new learning environment in Cambodia by 2040. These include play-to-learn tools including learning games and playgrounds; exposure to local communities and the natural environment through field trips and site visits; and the availability of the

Student Laboratories to undertake collaborative exercises. These sensorial tools combined will enhance students' learning by incorporating all five senses and translating this new knowledge and wisdom into the creation of applications to solve real-world problems. A recent study shows that this type of active learning helps students learn more and perform better in tests compared with passive lectures (Deslauriersa et al., 2019). Sensorial education has been integral in various education models, particularly the Montessori approach. Developed by Maria Montessori, it is a child-centered educational method based on scientific observations of children that has been widely used for more than 100 years in many parts of the world (American Montessori Society, 2019). Numerous studies have found that when implemented holistically, Montessori students generally outperform students from other types of schools not only in academic skills such as mathematics and science, but also in social skills deemed crucial in later stages of life (Dohrmann et al., 2007; Borman et al., 2003).

[VI] Individualized, holistic evaluations

When it comes to student assessment, age-based education and memory-based testing will be outdated across all levels of Cambodia's education system by 2040. Whether a student should move on to a higher level of education will be based on a variety of sophisticated competency yardsticks. Thus, talented students will be able to graduate earlier than the average student, while students who struggle will spend more time in compulsory education. The school curriculum has been traditionally organized along a one-size-fits-all mentality, operating on the assumption that students learn from the same materials, in the same way, and in the same timeframe. However, in reality, students neither have the same capacity nor do they share the same interests (Stein, 2019; Jukes & Schaaf, 2019). In this sense, curriculum and student assessments will be holistically designed, and tailored towards equipping learners with the skills of the future, both soft and hard. Evaluation tools will also broaden the perspective of the curriculum, allowing students to connect the dots, for example, as to how mathematics is related to music, art, material design, and social science. This will in turn make education more interesting, engaging, and relevant to the real world.

II. Scenario Space and Key Factors for Industrialization

Education provision in the future will largely depend on three main factors:

i. Supply and the substance and way in which education is delivered (teaching pedagogy and curriculum);
ii. Demand and the structure of the economy, which dictates the skills demanded in the future (future skills);
iii. Resources through which such an education delivery mode is made possible (education infrastructure and digital technology); and,
iv. Digital technologies and their widespread adoption across society.

According to the WEF's Human Capital Report 2017, Cambodia scored the lowest in ASEAN in educating and training its citizens into becoming a productive and competitive labor force. Cambodia ranked 92nd out of 130 countries in the human capital development index (WEF, 2017). Similarly, Cambodia ranked 146 among 189 countries in the UNDP's Human Development Index 2019, the lowest in Southeast Asia after Myanmar, whereas Singapore and Sweden remain consistently in the top 10 (UNDP, 2019). In a recent survey of 605 employers in Cambodia across industries, one-third of interviewees reported having encountered a skills gap, including a lack of foreign-language skills, technical skills, and communication skills, as well as collaboration and problem-solving skills (National Employment Agency, 2018). The findings regarding skills demand in Cambodia are generally consistent with global trends (see WEF, 2016; Florida, 2014). This can be seen as partly emanating from the kingdom's dropout rates. At primary level the dropout rate in Cambodia has increased from 7.2% in 2016 to 9.4% in 2017 (the World Bank, 2018). At lower-secondary school the rate is higher still with a rate of 19.2% in 2014-15 (MoEYS, 2016).

Supply: Teaching pedagogy and curriculum

While as a global trend, facilitation-based, student-centered learning has been embraced by many countries, the mode of delivery in public schools in Cambodia is presently largely one-way, teacher-centered instruction wherein teachers take on two main roles. First, they lead the classroom based on the core curriculum as designated by MoEYS. Second, teachers are generally experts in their

subject. For instance, a math teacher is trained only in math, and the same is true of teachers of Khmer literature; however, they may not be expert generalists who have the ability to help students understand the big picture or to connect the dots through facilitation-based learning.

This is, however, practical for two main reasons. First, with the current large class sizes, with an average 44:1 student-teacher ratio (MoEYS, 2017), student-centered learning is, in theory, not feasible (Emaliana, 2017). Second, the large number of low-quality teachers, especially in rural areas, also poses a legitimate constraint on modernizing teaching pedagogy. At slightly more than $200 a month in 2017, the pay is low, with teachers earning 60% less than other professions that require similar levels of education. Many teachers are forced to take additional, often low-paid, employment to support themselves, resulting in the quality of their teaching being compromised (MoEYS, 2015a; Sokhean, Sineat, & Amaro, 2017). As a consequence of poor remuneration, the profession often fails to attract high-performing students, with most trainee teachers attaining C, D, or E scores in their Grade 12 final exams, while private tutoring is still widespread (Tandon & Fukao, 2015). In the Teacher Policy Action Plan 2015, MoEYS has committed to increasing the salaries and other benefits for teachers based on performance to attract talent. The qualification needed for teaching is being increased to the minimum of a Bachelor's degree, while a fast-track program is being provided for existing teachers (MoEYS, 2015a). With respect to the curriculum, in its recently adopted Curriculum Framework for General Education 2015, MoEYS laid out a new vision in transforming the public school curriculum in response to global trends and changes in workforce demand, moving from memory-based, summative knowledge to higher levels of competencies and skills in application, analysis, and evaluation (MoEYS, 2015b). The curriculum framework is a key document for all stakeholders in developing important documents such as student textbooks, learning aids, guidelines for teaching and learning methods, and indicators of student learning outcomes (ibid.). Three significant changes to the old curriculum framework are the incorporation of international languages (English or French) from Grade 1 to 6 as core subjects, the integration of ICT classes from Grade 4 to 12, and the incorporation of life skills

from Grade 4 to 9. Additionally, curriculums will need to be developed around eight core competencies:

1. Literacy and numeracy
2. Foreign languages
3. Information and communications technology (ICT)
4. Communication and teamwork
5. Analysis and creativity
6. Applying knowledge and skills
7. Personal, family, and societal development
8. Entrepreneurship and leadership (MoEYS, 2015b).

However, a recent study by Khieng et al. (2016) found that such curriculum reforms usually get bogged down by under-qualified staff and vested interests. There was a plan, for example, to solve a problem with science textbooks by adapting Oxford University Press books at no additional cost; however, the proposal was shelved in favor of creating a large committee to handle the task. Another example is that of a small, competent team tasked with revising the chemistry curriculum that was quickly expanded to become a large committee of 50 people, many of whom had neither knowledge in chemistry nor of teaching pedagogy (ibid.). These cases illustrate the challenges to be faced when modernizing the school curriculum. In assessing the competency of students, MoEYS has committed to improving the system through regular classroom tests, national examination system reforms, preparing students for international tests such as PISA and Olympiad, and improvements to the school quality assurance system (MoEYS, 2014).

Resources: Education infrastructure and digital technology

In terms of education infrastructure, as a global trend, more digital platforms and technologies have become accessible, with more to become available in the future. Apart from these digital resources, there are a wide array of other disruptive and emerging technologies that have significantly changed the way students learn and will continue to do so. Below are four examples of technologies that will provide pioneering new teaching methods moving forward:

- Holographic, virtual reality (VR), and augmented reality (AR) learning experiences: These technological breakthroughs are a splendid add-on for online and physical learning in that they can give learners an immersive learning experience without the need for travel. Learners can wear VR headgear to immerse themselves in the Milky Way, for example, while medical students can follow complicated operations (Jobanputra, 2018).
- Games: Scenario-based games now have been integrated into various universities in the US and elsewhere as part of the training for nurses and engineers, and in the teaching of history and other subjects (TeachThought, 2015).
- 3D printing: Students can print basic prototypes, structures, and materials as part of the application of training to address real-world problems (TeachThought, 2015).
- Artificial intelligence (AI) integrated software: Such software can be used to improve language proficiency and detect plagiarism. It has even begun to grade students' essays with teacher-like accuracy (Jukes & Schaaf, 2019).

Looking at trends that will likely affect Cambodia, while very few people in Cambodia had a mobile phone in the 1990s given the high price, almost everyone could afford one as of 2016 (MPTC, 2016). Cambodian mobile phone subscription has already reached saturation, with 20.5 million subscribers in a population of only 15 million people (ibid.). As of 2016, internet subscription in the kingdom accounted for 7.16 million people, or approximately half the population, a sevenfold increase from 2011 (ibid.). With the highest internet coverage growth rate in the Asia-Pacific region, the Royal Government of Cambodia (RGC) expects 100% coverage of high-speed and affordable internet in urban areas and 80% in rural areas by 2020 (Xinhua, 2018). This promising trend will provide a feasible foundation for blended and other forms of digital learning through the integration of education technologies/platforms in the classroom.

Taking advantage of these technological advances, MoEYS has piloted two innovative programs, the New Generation Schools (NGS) model[2] and the E2STEM school as groundwork toward modernizing the Cambodian education system. Operational in 2015, NGSs are autonomous public schools with a mandate to innovate and improve educational quality, especially in the STEM subjects -- science, technology, engineering, and mathematics -- through access to high level of investment (MoEYS, 2016). After a competitive selection process, students in NGSs have access to a modern STEM curriculum, and cutting-edge textbooks and educational technologies, such as electronic lesson plans, science labs, and e-learning. They are also provided life skills education and interactive learning modules, including project work and subject clubs to provide them with the skills needed for the 21st century (MoEYS, 2016).

Demand: Future skills

Regarding future skills demand, this chapter will examine this from both the global and national perspectives. As a global trend, in the 2016 WEF report *The Future of Jobs*, more than one-third of skills (35%) that are considered important in 2020 will be replaceable by advanced robotics, self-driving transportation, AI, and machine learning in the Fourth Industrial Revolution. This requires everyone, including employees, employers, governments, and educators, to be proactive in up-skilling, unlearning, and retraining themselves and others. According to the report, the 10 most fundamental skills necessary in the future will be complex problem solving, critical thinking, creativity, people management, coordination, emotional intelligence, judgment and decision-making, service orientation, the ability to negotiate, and cognitive flexibility (WEF, 2016). In his seminal book *The Rise of the Creative Class,* Florida (2014) examines and classifies the modern workforce of a nation into four groups: agriculture, working, service, and creative. Creative class jobs are those professions that require "headware skills" in addition to hardware skills. Headware skills are abilities such as leadership, critical thinking, problem-solving, adaptability, productivity, accountability,

[2] Discussed thoroughly in Rath's (2020) chapter in this volume.

communication, information management, creativity, innovation, global citizenship, and collaboration. These are lifelong skills, not short-life ones that traditionally require the memorization of specific content knowledge as practiced in high-stake standardized tests and benchmark exams. Florida (2014) believes that short-life skills will quickly become irrelevant in the age of disruptive innovation and hyper-information.

In Cambodia, though such a global trend has yet to drastically materialize, the share of the labor force in agriculture has continued to shrink steadily from 60% in 2009 to less than 40% in 2017, whereas the share in industry increased from 17% to nearly 30% over the same period (National Institute of Statistics, 2018). The decline of the labor force in agriculture is the result of moves to larger-scale commercial farming and mechanization, as well as diversification to other economic sectors (ODC, 2015). Meanwhile, although an increase of the labor force in industry is plausible, it is predominantly in low-skilled industries such as manufacturing. In Cambodia, automation in the manufacturing industry will likely see the loss of thousands of jobs to machines in the coming years (Chea, 2019). Potential job losses to automation and machinery in agriculture and labor-intensive industries will be exacerbated by a projected population growth, and especially an aging population.

III. Policy Initiatives to Achieve the Ideal Scenario

To make the best-case scenario a reality, the following action plans are proposed at policy and implementation levels. During the initial phase, it is recommended that MoEYS establishes a governing council whose tasks are to harmonize and address the gap in existing policy frameworks and create action plans moving toward the best-case scenario. Under the council, it is advisable to have six subordinate committees to reform each of the features outlined in the best-case scenario. While they are independent, the committees should work closely and collaboratively under the governing council to design a new, holistic education system. This can be done by revising and capitalizing on the existing NGS policy based on clear, progressive indicators, feasibility studies, cost-benefit analysis, and monitoring and evaluation frameworks. The following proposals may assist the council with the direction of the reform agenda:

Feasibility of extensive digitalization of classroom

- Identify low-cost technology, digital learning tools, personalized learning apps and games, and online materials that can be used as supplementary aids for teachers and students. These resources should then be broken down into different sets for different levels of class. It could be argued that as a developing country, such digital education platforms and technologies are out of Cambodia's reach. However, there is cause for optimism for two reasons. First, most such electronic learning platforms, like Khan Academy, Coursera, and EdX, as well as collaborative platforms such as Google Suite, are generally available free or with low subscription fees. Second, while even technologies such as 3D printing are somewhat expensive for the time being, technological diffusion and transfer should make them affordable in the coming years.
- Provide flexibility for students in bringing their laptops, tablets, smartphones, or other mobile devices into the classroom. This will help public schools and the Cambodian government save day-to-day operational expenses and simultaneously improve students' learning outcomes and productivity as they use their personal devices (Jukes & Schaaf, 2019).

Financial sustainability

- Charge parents a modest school fee. Parents in the low-income threshold should be subsidized or have fees waived. In Cambodia, parents who can tend to send their children to private schools over public schools, perceiving a difference in quality. If public schools were to provide better quality education, a lot of parents would reconsider sending their children to private schools.
- Identify resources at public schools that could be monetized from various revenue sources, including, for example, parking fees, renting out the canteen, or possibly after-school classroom rental for private lessons. The revenues would need to be managed with transparency, accountability, and efficiency so they could be used to improve learning facilities and supplement teachers' basic pay.

Improvement of teaching competency

- Implement a vigorous approach to human resource management, retiring corrupt and unqualified staff through an effective education management system, as well as put an end to "shadow" education, in which educators teach private lessons. The problem with shadow education is that this often leads teachers to not put much effort into their school lessons so that they can provide private tutoring to their students instead. This is a corrupt and inefficient practice that needs to be addressed.
- Increase basic salary for teachers and provide performance incentives based on a list of indicators, including student assessment and teaching performance, to attract more talent to the teaching profession.
- Put significantly more effort into teacher recruitment. Having competent people on board would in itself greatly reduce weaknesses in education. The role of the new intakes and existing teachers should be framed as "class facilitator".
- Provide existing teachers and new intakes with intensive training in student-centered, facilitation-based instruction methods, digital education and the related tools, and supplementary English training. With regard incentives, salary supplements and other benefits should be contingent on their competencies in these digital tools, their English proficiency, and their ability to apply the new teaching pedagogy in the classroom.

Feasibility of curriculum and assessment restructuring

- The curriculum and student assessments should be holistically designed and tailored towards equipping learners with the skills of the future, including complex problem solving, critical thinking, creativity, people management, coordination, emotional intelligence, judgment and decision-making, service orientation, negotiation, and cognitive flexibility.
- Reduce the number of compulsory subjects to only five: Khmer literature, English language, mathematics, science, and ethics/philosophy, and increase the variability of elective courses to meet the different interests, needs, and talents of students.

- Adopt the Singaporean model in which English is the medium of instruction. Compulsory classes except Khmer literature should be given in English. Also, high-quality textbooks, such as Oxford Science Textbooks, should be consulted and contextualized into the new curriculum design.
- Integrate project-based learning into the classroom. Using Yuri's scenario, the learning outcomes of each student can be assessed from each collaborative project via a variety of methods: the acquiring of soft skills, such as the ability to work collaboratively as a team and presentation skills; obtaining hard skills, such as the quality of the project's content, and its feasibility and applicability, and evidence-based project outcomes; critical writing (through personal reflection); and general skills (portfolio filing). In this sense, students become more empowered, curious, and passionate throughout the learning process. Emphasizing the collaborative project also suggests that the core subjects in the curriculum should be limited to just those that are the most relevant for real-world applications.
- Incorporate a wide range of activities such as group work, student presentations, prototyping, and project implementation in addition to standardized tests to assess students' competency and their eligibility to graduate to a higher level. Holistic, individualized assessment also means a competency-based education can replace the traditional age-based division. The implication is that students who perform better can progress faster.
- Invest more in learning facilities, especially the learning lab, so that students can better understand the importance of various subjects, how they relate to one another, and how they can be applied in real life.
- Include periodic fieldwork and study trips as part of the curriculum.

Collaboration with non-state actors

- Maintain close and healthy collaborations with all stakeholders, especially local and international EdTech non-governmental organizations and startups, to provide greater efficiency in integrating digital education tools and recruiting qualified teachers. Teach for Cambodia, for

example, has recruited numerous potential teaching fellows to teach in rural areas, so this type of setup should continue to be embraced and leveraged.

IV. Education: Pedagogy and Infrastructure Under the Baseline Scenario: Business as Usual in 2040

The baseline scenario is the business-as-usual trend analysis, taking into account current and future trends collected from available data and resources. As a general trend, the Cambodian government has been committed to improving the quality of education. In 2019, MoEYS received the highest share of total national expenditure at 11.7% ($915 million), an 11% increase from the year before (MEF, 2018). Along this line, there is also an explicitly high level of political commitment to gradually reforming the education system. In the Rectangular Strategy Phase IV in particular, while education and human resources development stand as the first pillar of the rectangular strategy, the government boldly acknowledges that "the quality of higher education does not meet market demand and regional standards, as well as [there being] limited efficiency in the management and governance of higher education institutions." (RGC, 2018, p.21). The government estimated that only 42% of students finished Grade 9 in 2016 (PPP, 2018). As discussed in Section 2, failings have been acknowledged, and the determination to address them has been manifested by the adoption of numerous progressive policies in recent years, such as the Policy on Higher Education 2030, Teacher Policy Action Plan, New Generation School Policy, Curriculum Framework for General Education, Policy on Technical Education, and Education Strategic Plan. Following an analysis of these policies and extrapolating major trends, the quality of Cambodia's education will be substantially improved, but it is unlikely to be as competitive as that of Singapore's and other developed countries as of 2040.

First, there will be a moderate adoption of technology into the classroom setting. MoEYS has been gradually embracing low-cost technology and digital platforms, for instance, by adopting an electronic attendance system, equipping computers and basic electronic devices across public schools, integrating basic ICT classes into the curriculum, and creating online portals such as the Krou website. These

portals provide supplementary teaching resources, videos, images, and games for teachers at all levels and disciplines to assist with their offline teaching (KTD, 2019). However, the rate of such adoption and technology diffusion is still relatively slow, especially as regards ICT infrastructure, such as LCD projectors, smart boards, suitable computers, high-speed internet bandwidth, and other low-cost technologies essential for blended learning.

Similarly, there still will not have been any guidelines put in place for students and teachers to adopt blended learning or consult with freely accessible online platforms and digital textbooks, such as Khan Academy and Coursera, to supplement mandatory classes, especially in math, science, and English. In other words, while there are emerging trends regarding education modernization and digitalization, they appear not to have been fully utilized to an optimal efficiency. Therefore, based on this trend, modern education models such as NGS will be difficult to scale up nationwide by 2040 without additional, credible interventions.

Second, the teaching pedagogy will be largely teacher-centered. Based on various policy reviews, especially the General Curriculum Framework 2015, there appears to be no policy or action plan in place to transform teaching pedagogy from teacher-centered to student-centered, and this trend may hold until 2040. As discussed earlier, teacher-centered pedagogy, by design, generally cannot provide students with the soft and hard skills required for the 21st century workforce as effectively as the student-centered approach.

Third, in terms of curriculum development, based on the General Curriculum Framework, Cambodian education in the coming years will continue to be driven by an inflexible, one-size-fits-all curriculum, while there is a slight chance of project-based learning pedagogy to be adopted nationwide. While there are justifications for a rigid curriculum structure, the pitfalls are that it cannot be tailored toward individualized students' interests and talents.

Fourth, as specified in the framework, there is a plan outlined to bring forward the teaching of foreign languages—English and French—into compulsory primary school education, from them currently only being taught from Grades 7 to 12. However, this approach could be dubbed the "soft integration of

bilingualism" in that all other subjects, except for languages, are still taught in Khmer. This could result in students facing challenges when doing individualized online learning or engaging in a professional working environment at a later stage if they do not possess strong enough competency in English.

Fifth, with the current rate of investment and as a matter of projection based on the available data and government policies, most public schools will be able to access a moderate use of experiential and sensorial learning tools and infrastructure by 2040. In informal interviews, several high school students said they generally learned STEM subjects such as math, chemistry, and physics by rote, but generally had no idea of the applicability and usefulness of what they had memorized. As a result, they quickly lost interest in STEM, tending to choose social science majors at university instead.

Experiential and sensorial learning through the availability of the required laboratory tools and field trips to communities and the natural environment on a periodic basis would enable students to connect the dots to make sense of the world and help them conceive and devise appropriate ideas and solutions to address the problems facing the modern era.

Sixth, a wide array of standardized, one-size-fits-all tests will still be used as the primary instrument to assess student performance and their suitability to move to a higher grade. There are two major setbacks with standardized testing. First, it operates on the assumption that students learn at the same pace, while this has been proven not to be the case. Instead, as discussed earlier, age-based, standardized testing can demotivate gifted students, with them quickly lose interest and passion. Second, it cannot be used to evaluate the skills needed for the 21st century, such as collaboration skills and leadership, and students' real competencies, for instance, their ability to apply the knowledge gained.

If the baseline trends were to be followed, Cambodia's education system and human capital would be improved to some extent, but they would still lag behind those of neighboring Thailand and Vietnam. As discussed earlier, there are a host of reasons why this would be the case. For example, with a limited use of affordable technologies and digital education, together with Khmer-based instruction, students would continue to struggle with independent learning and

access to the world of knowledge. Equally important, with a teacher-led classroom setting and standardized assessment, students would not be able to master the skills demanded by the 21st century, including critical thinking, leadership, and collaboration.

With many jobs likely to be replaced by machines and AI, it is critical that these essential skills are provided to ensure the smooth integration of the Cambodian labor force into the future of work and to inspire life-long learning. While there are some efforts being undertaken by education startups and non-state actors such as Future Forum, Edemy, Teach for Cambodia, and Liger Leadership Academy to bridge the gap, the reforms needed cannot go far without a holistic revision of the education system.

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Chapter 5 | Education: Inclusivity, STEM, and Smart Design

Ms. RATH Setha

It is 8AM on a Monday morning and Mongkol, an 11-year-old boy, is eating his breakfast while listening to a science podcast before heading to school. Mongkol takes a driverless bus to school. It is the start of the new semester, and Mongkol selected his Grade 6 subjects based on his interests. He goes to his history class and uses facial recognition to sign the attendance. During the history class, the instructor shows everyone a hologram of Angkor Wat that has been developed by senior students. Mongkol takes notes on his digital pad. After the lecture, Mongkol gets his tablet and logs into the Learning Management System to work on his history assessment. In the afternoon, Mongkol goes to the canteen to have lunch, which he has already pre-ordered from his phone. After the lunch break, he meets his friend Mony at the special education class for visually impaired students. Mongkol, Dara and three other classmates are working on a robotics project at the tech and innovation lab where they develop and innovate a personal assistant robot for the elderly. It is almost the end of the day and Mongkol takes the skytrain home via his evening Apsara dance class. After having dinner with his family, Mongkol goes to his study room to review the materials for tomorrow's seminars and watch the recorded lectures from last week as he had missed the classes. On opening his email, he is excited to have received a message from the ASEAN Exchange Program notifying him that he has been selected for an exchange program in Singapore for the next semester.

I. Future Education: Inclusivity, STEM, and Smart Design: The Ideal Scenario

In 2040 Cambodian education will be a hallmark standard of inclusion. Inclusive education means making basic education accessible to all children regardless of background, race, ethnicity, religion, or disability. The distinction demographically in Cambodia between urban and rural areas, with children in the cities having access to better educational opportunities than those in remote areas (Lay, Lim & Man, 2018), has been eradicated through a combination of distance learning and quality coverage. The promotion of inclusive education ensures that students in remote areas have equal access to quality learning and educators. School facilities have been designed to meet the needs of students with disabilities; including the standardized incorporation of wheelchair ramps, inclusive bathroom facilities, and multi-sensory teaching methods. Underpinning quality, inclusive coverage is the nationwide provision of quality internet connectivity, with all areas covered, enabling even remote schools to have access to EdTech.

A crucial feature of the 2040 vision for education is the structure around STEM subjects (science, technology, engineering, and mathematics). Public schools in both urban and rural areas have developed around the mandate to replicate the new generation schools (NGS) model.[3] NGSs have formed student unions and study clubs, enabling students to learn specialized subjects such as STEM and organize school activities. With the popular model in place at NGSs and certain private schools, over the next 20 years student unions will become autonomous and well-established, with students feeling empowered to voice their opinions

[3] New Generation School (NGS) is an education reform made by the Ministry of Education, Youth and Sports in 2014 that aims to improve the standard and quality of education. NGS has an autonomous model in which the school governing board is accountable for their performance, whereas the recruitment of educators is competitive and focuses on performance-based merit. The NGS also extends the teaching hours to include the special subject themes for students and expand the educational services such as career counselling and extracurricular activities. In addition, technology and innovation is the key factor in accelerating teaching and learning (Ministry of Education, Youth and Sport, 2016).

and concerns, as well as to create projects and solutions to serve the learning needs of their peers. The student union, a replication of the model at learning institutions in developed countries, will consist of study clubs, subject-based clubs, and common interest and hobby groups. They will organize student-run social and charity events, and project work. The student union will engage parents and all key stakeholders in its activities.

Early forerunners in the NGS model have been transformed into "smart schools", with the model implemented nationwide. The Smart school model builds on the NGS model by prioritizing the adoption, incorporation, and promotion of digital learning practices throughout the curriculum. It places a significant on science, innovation, and entrepreneurship, under a hands-on learning model. Similar to the NGS model, Smart schools will focus on the delivery of high-quality educational services, with qualified and highly motivated educators, STEM education, student-centered learning and innovation labs. Smart schools will have introduced the learning management system to students since Grade 1. The learning management system will allow educators to communicate with students on subject guides, lesson plans, reading materials for each week, and assessments. In addition, the system will introduce the virtual classroom, which will allow students who missed class to watch recorded lectures. The virtual classroom also works for the long-distance learning. Schools, be they NGS of Smart, are interconnected, with students able to visit others in their area to learn about innovative projects and activities. Building on the opportunities of 2020, there is an institutionalized opportunity for students in secondary school to undertake an exchange program to study a semester in neighboring ASEAN countries. The ASEAN Scholarships for Cambodia program awarded by the Ministry of Education in Singapore, gives high school students in the kingdom the opportunity to study at an institution of a regional neighbor.

Educators in 2040 are no longer reliant on tutoring classes to supplement their income. In addition to a secured and competitive salary, they are incentivized through personal and professional development training programs undertaken in exchanges within the ASEAN region. In addition to the standard school day program, Smart schools operate additional community facing programs including opportunities for self-learning, research, and exploration at the tech and

innovation labs. An additional focus is placed on health and wellbeing with a kingdom wide coverage of extracurricular activities, covering art, sports, education in life skills and digital learning. Even though technology will be integrated into primary and secondary education, educators will still play an important role in facilitating the learning outcomes for students. The shift from teacher-centered to student-centered learning will allow educators to facilitate learning for students, and mentor and support them in the areas they are lacking. On top of that, senior students will play a significant role in mentoring and coaching junior students. The peer support system in a well-established student union and in study clubs will become popular in the next two decades. The model has been adapted currently in certain projects; for example, with senior students mentoring junior students on literacy skills based on results from the TEST app and digital literacy assessments.

The current program at NGSs will inspire the design and development of technology and innovation labs at all schools starting from primary. School technology and innovation labs will be the platform for students to access support and mentorship from educators and mentors, as well as educational resources including digital tools and software-based learning. They will be places where students receive training on digital literacy and ICT skills, working in a team to solve specific design challenges. Students will also be able to access support and counselling regarding personal, school and career opportunities. They will additionally be able to access study guidance and tailored mentorship support from their seniors as part of their learning journey. Digital literacy assessments for first to third graders were successfully handed over to the Ministry of Education, Youth, and Sports (MoEYS) this year (Rath & Chin, 2018). This was initially implemented by World Education, with funding support from USAID's Development Innovations project. The project has been scaled to include 48 public schools, with more than 6,000 active current users across Cambodia (Rath & Chin, 2018). Seeing its impact to scale, the ministry has expressed a commitment to standardizing the assessments and making them available for all public schools to use and access. Being made accessible by all levels of education will ensure transparency, accountability, effectiveness, and efficiency in the delivery of education services. In addition, based on the instant results from the assessments,

educators and senior mentors will be able to tailor their support to meet the needs of students, specifically slower learners. The digitization of these assessments and other learning materials will help schools become paperless, with the environment and climate change shaping the discussion over the next 20 years.

II. Scenario Space and Key Factors for Education: Inclusivity, STEM, and Smart Design.

Education is a core priority for the Royal Government of Cambodia (RGC) as indicated in the Education Strategic Plan 2014-2018 (Ministry of Education, Youth and Sports, 2014). With a number of potential development avenues for education to be built around, I have identified four key factors that will support and guide the kingdom's development in education towards 2040 and beyond. Each of these factors represents a crucial aspect towards the realization of an inclusive and STEM focused education system in 2040.

1. **Coverage**. Education can only be completely inclusive so long as the coverage is universal within the kingdom. This relates to both the geographical dimension (physical institutions) and the digital dimension (access to online teaching materials).
2. **Facilities**. The design and provision of educational facilities is a contingent factor on the quality of the education system.
3. **Syllabus**. The outcome of future education on economy and society is contingent on what is being taught.
4. **Technology**. As technology continues to increase its role in everyday life, the application across education is a determining feature of the ultimate success of the model.

Each of these key factors are motivated by current features of the Cambodian education and learning system. These are discussed in turn below.

Policy and Priorities for Education Reform

With Cambodia aiming to reach high-income country status by 2050, human resource development is essential (Ministry of Education, Youth and Sport, 2014). In accordance with the education strategic plan for 2014-2018, MoEYS has

highlighted three policy areas to equalize access to education, enhance the quality of learning, and improve the leadership and management of education staff. In addition, priority programs in the strategic plan also include early childhood education, increased educational quality, scholarships, improved teacher performance, and technical and vocational education. MoEYS has additionally set out seven priorities to enhance the quality of education: introduce capacity building and professional development opportunities for teachers to improve their learning and teaching; increase teacher remuneration and benefits based on performance; provide sufficient educational resources; form an independent council to advise the government on education development and policy reform; improve vocational training programs for young people entering the workforce; and overhaul the instruction of sport and physical education. However, the challenges in basic education still remain, with a lack of competent educators and low pay still an issue. Education reforms began in 2014 after the appointment of a new minister. The first major reform was the crackdown on corruption during the national exams, one that received public support. The pass rate among Grade 12 students increased from 25.7% in 2014 to 62% in 2015 after the reform was implemented (Chea, n.d). In 2015, the government undertook the further reform of increasing teachers' salaries by 20% (Sem and Hem, 2016), which indicates a positive trend to incentivize educators.

Emergence of New Generation Schools

The NGS policy was introduced and piloted at certain public schools in 2014 (Ministry of Education, Youth and Sport, 2016). NGSs are autonomous public schools that focus on enhanced educational and teacher quality, and merit-based performance. There are advantages for educators, with incentives and professional development opportunities for career advancement. The newly reformed schools also aim at providing STEM education and other learning opportunities for students, such as career counselling, science labs, mobile and ICT learning, and life skills education. The NGS initiative was developed in partnership with KAPE. The model utilizes extended hours of studying and allows the schools to apply innovation in education, for example by using ICT in education

and making necessary changes to the curriculum. NGSs have also introduced a coding course for girls, Sisters of Code, to complement STEM education.

STEM Education

The goal of MoEYS with its recent education reforms is to focus on investment in human capital development and STEM education. This has also been demonstrated with the master plan for ICT in education (2009-2013), which shows the commitment of MoEYS to integrate the use of ICT to improve the quality of teaching and learning from basic education. Along with the ministry's vision and commitment, there has been an emerging trend over the past few years of NGOs and private sector partners initiating STEM education in partnership with public schools. This has led to the implementation of such programs as Technovation Cambodia, Sisters of Code, Champion Coders—a coding course for 6- to 15-year-olds—and E2STEM. These STEM programs have been adapted from those run in developed countries and localized for Cambodia. This focus on STEM education is designed to address the current challenge of a shortage of knowledge and skills among STEM professionals to meet the demands of the labor market.

Support from MoEYS on NGO Initiatives

As indicated in the master plan for ICT in education (Ministry of Education, Youth and Sport, 2010), the government has sought partnerships to minimize the cost of ICT. Non-state actors have begun to engage with the government in the early stages of their education projects. EdTech projects have been successful piloted, scaled-up, and handed over to MoEYS – the digital literacy assessments in early grade education as implemented by World Education and KAPE, the youth career counselling mobile application put into effect by InSTEDD iLab Southeast Asia and KAPE, and the digital library and STEM books program funded by Smart and implemented by The Asia Foundation, for example. Additionally, as seen earlier, the E2STEM program, which aims to build the capacity of high school students in English, e-Learning, and to build the next generation of STEM professionals, has been introduced at a public school in Phnom Penh.

Education Technology Initiatives from Public and Private Institutions

There have been a number of education technology initiatives at both public and private institutions to enhance and accelerate innovative learning approaches. Open education resources have been endorsed by MoEYS for educators and students in accessing digital and multimedia teaching and learning materials for K12, including the G7-G9 learning English app. Moreover, recent technologies have been introduced into the classroom, such as the MoEYS App Scan augmented reality educational tool that brings visual interactions to science textbooks. ICT training for teachers started in 2013 but failed due to a lack of equipment (Ministry of Education, Youth and Sport, 2010). The educator's website has been developed to help them improve their teaching methodologies through digital materials and resources. In terms of non-formal education, the master plan for ICT in education also highlighted vocational and life skills training programs, as well as multimedia and video-based training for out-of-school youth to prepare for exams (Ministry of Education, Youth and Sport, 2010). Additionally, UNESCO, with support from MoEYS, has launched the BEEP program to provide a flexible e-learning platform for school dropouts to be able to complete a basic education to ensure future livelihoods and employment opportunities (UNESCO, 2018).

III. Policy Initiatives to Achieve the Ideal Scenario

The ideal scenario described in section one is contingent on undertaking appropriate policy steps. To this end individual and combinations of key factors will be discussed in line with policy solutions that can be undertaken to attain the end goal of inclusive and scientific education.

Facilities and Syllabus

Replicate New Generation Schools Model and Adapt International Best Practices. The successful NGS model allows school administrations and management teams to be autonomous in the decision-making process and improve the standard and quality of education through applied technology and innovation. Educational institutions should evaluate the NGS pilot model to determine

what worked well, and what did not work. The lessons learned should be taken on board by other public schools, with recommendations for replicating the model. Given the recent trends for adapting global education programs, for instance the Technovation Challenge, and youth coding courses in Cambodia, conventional public schools should be encouraged to use the model as it would improve the standard of the public education system.

Coding and digital literacy are essential basic skills to acquire. At present, programming and coding programs, for instance the Sisters of Code project implemented by IT Academy STEP Cambodia and funded by USAID's Development Innovations, have gained support from MoEYS (IT STEP Academy, n.d) and have the potential to be replicated and scaled up for public schools. English language and coding skills should be introduced to students in the early grades. Teaching coding does not mean to create a pool of computer programmers, but rather for children to become confident and innovative problem solvers by acquiring critical thinking skills as they learn to communicate with a computer. This is an essential skill for children to obtain from a young age as they develop soft and hard skills with which to meet the future demands of the labor market. Coding not only teaches students about communicating with a computer, but also encourages them to be curious, problem solving, and self-motivated learners (Pena, 2018).

Prioritize STEM Education at the Primary School Level. The government's recent reforms of public education with the piloting of the NGSs come as part of a drive to enhance the quality of education as well as putting a special focus on STEM education at the newly reformed schools. According to STEM Cambodia (2018), only three percent of students in higher education enrolled in the science, technology, engineering and mathematics related subjects, which indicates a future lack of human resources in the STEM fields. Employers in the information technology sectors have also identified a lack of qualified and competent human resources to meet demand in the labor markets (B2B Cambodia, 2017). Therefore, in order to meet the needs of a competitive labor market, especially in the ASEAN region, STEM education should be prioritized and integrated at the early grades of education in order to stimulate the interests of young children to be curious, self-motivated, and problem-solving learners.

Equipped with such skills, Cambodian students will be able to build mobile apps, websites, software, and robots.

Investment in Education and Human Resources Development. Investment in public education is the first priority in the roadmap to the 2040 vision. At present, the government has taken initiatives to reform the Cambodian education system and increase its annual budget allocation. However, further investment in school infrastructure, particularly in remote areas, is essential, as is the capacity building and professional development of educators, with them receiving increased remuneration and benefits.

ASEAN is also to play an important role in contributing to educational advancement and human resource development through investment funds and accelerating innovative learning opportunities through scholarships and exchange programs for both students and educators. The ASEAN scholarship program by the Ministry of Education in Singapore and the Teaching Excellence and Achievement exchange program for educators to develop their teaching skills in the United States are two examples of such opportunities. At the same time, the government should leverage public-private sector partnerships (PPPs) to innovate and increase the efficiency of education service delivery. Such partnerships are crucial given the private sector's capacity to finance investment in school infrastructure and creative learning models, thereby improving standards. The scaling up of the NGS model to reach additional public schools in urban, rural, and remote areas needs major investment, in financing as well as infrastructure and human resources development. There remains a disparity between urban and rural areas in educational attainment. Public educational institutions and relevant key stakeholders should therefore take this into account and ensure that children living in remote areas receive an education and other learning opportunities equally.

Recruitment, Retention, and Incentives for Educators. According to Education Reform in Cambodia: Progress and Challenges in Basic Education (Sem and Hem, 2016), primary school educators earn approximately $35-$40 per month. This often forces them to work a second job in order to support their families or take on private tutoring to earn extra money. Therefore, they do not have the

time to carry out research, prepare lesson plans, and support students outside of teaching hours, which consequently impacts the quality of education. Educators in rural areas are also often absent during harvesting season, which contributes to the dropout rate of rural students. There is additionally a shortage of teachers to meet current needs, particularly in the northeast of Cambodia, which therefore results in large class sizes (Sem and Hem, 2016). Recruiting qualified, competent, and committed people as educators is difficult as they will look for jobs with higher income and greater professional development. To overcome these challenges, the recruitment and retention of competent teaching staff should be properly addressed.

There are certain steps that should be taken in the recruitment process. The minimum education level for primary and secondary school should be increased to at least a Bachelor's degree in Education, while top performing students should be incentivized to apply for a teaching position. A higher standard and more competitive recruitment process would better motivate qualified people to apply. Furthermore, remunerations and benefits for educators should increase in line with the market value. As mentioned earlier, a teacher's salary is fairly low and not able to provide a decent standard of living. Additionally, educational institutions should provide personal and professional development opportunities in order to retain competent staff. For example, scholarships, exchange programs, and exposure visits for educators to learn from schools in developed countries should be provided so they can adapt the models and programs they experience locally. Furthermore, appreciation, awards, and incentives for the top performing teaching staff should be applied as this will increase their recognition in society and boost motivation.

Improve the Capacity of Educators in Digital Literacy and ICT. As Cambodia embraces the Fourth Industrial Revolution (also known as Industry 4.0), a basic knowledge of digital literacy and ICT is essential for Cambodia to keep up with its ASEAN neighbors. On top of the raised qualifications for teachers and their increased competency, basics skills in digital literacy and ICT, such as the use of digital devices, social media platforms, and digital security, are important skills for educators to acquire in order to maximize their teaching proficiency as well as the learning journey for students. Currently, the digital platform for educators

and instructors is the Krou website, where they access materials to improve lessons plans at all levels from primary to higher education.[4] While Krou is a good starting point, in order to get the most from it, basic knowledge on how to access and best use digital platforms is crucial. It is important to consider whether a platform has been designed to meet the needs of teachers, how often they use it, how it adds value to their teaching methodology, and in which ways teachers can use its digital and multimedia materials in the classroom. The policy option is to integrate digital literacy and ICT skills in the teacher training curriculum. Educators not familiar with using technology in the classroom should receive coaching and support from those with digital experience. Capacity building in digital literacy and ICT would help educators in utilizing such skills in the classroom, with students making use of digital tools and social media platforms for research and learning.

Public and Private Partnerships for Sustainability. There has been an increase in the role of non-state actors through PPPs to improve the quality of education and the long-term sustainability of learning projects (Kampuchean Action for Primary Education, 2014). There have also been the successful pilots of Edtech projects. The TEST app digital literacy assessment, for instance, which was handed over to MoEYS for long-term sustainability assessments. The E2STEM integrated English, e-learning and STEM education project at a Phnom Penh high school is another. The aim is to build the capacity of the students in STEM subjects through modern teaching methodologies. Similar to the NGS model, the initiative was set up by a non-profit organization. The selection process for E2STEM is very competitive, with only highly competent students able to join the program. The initial pilot proved the effectiveness of its innovative approach to education and highlights the importance of public educational institutions collaborating with NGOs and private sector partners in developing integrated education approaches that are sustainable in the long term.

Technology

[4] Krou Website: Open Educational Resources, available at http://krou.moeys.gov.kh/en/

With the Fourth Industrial Revolution, technological advancement and innovation will not only have a significant impact on the socio-economic development of Cambodia, but also on the education sector, with students, educators, and public and private institutions embracing technology to accelerate innovative learning. Free and affordable basic programming and coding courses will have been made available for children from the age of six. Given advancements in technology, students will be greater connected in a flexible learning environment, becoming tech natives in comparison with previous generations. At the same time, there will be new emerging actors, such as Education and Technology (EdTech) companies and private sector partnership funds to incubate and accelerate digital programs for both children and adults.

User-Centered Design and User Uptake in Technology. Technology can greatly increase the quality, effectiveness, and efficiency of education; however, if it is not designed to meet the needs of its users, particularly institutions, educators, and students, it will not add value to education. Prior to the design of technology for educational projects, the educational institutions, policymakers, development practitioners, and relevant stakeholders concerned should carry out rapid design research to assess the needs of educators and students, as well as the challenges hindering education service delivery that they may be facing. Rapid design research will provide useful insights for the development team on how to design EdTech tools that respond to the needs and concerns of educators. For instance, prior to the development of open education resources, the development team should assess the educators' uptake of the technology—the digital literacy and ICT skills of the teaching staff, and what kind of tech tools they use to conduct research and prepare lesson plans, for example.

The Open Education Resources (OER) developed and managed by MoEYS provides educators with digital materials and resources at all levels and subjects that they can use to improve their teaching methodologies. OER is a good starting point, but it still has areas for improvement. The platform is currently only in English and might not be accessible for some educators with language and digital know-how barriers. OER can be adapted to the learning management system (LMS) to facilitate the administration and management of teaching and learning.

According to Computer Aided Learning (n.d), LMS provides a number of benefits for educational institutions, educators, and students, such as supporting in-person learning through blended learning and virtual classrooms, personalized content with multimedia teaching materials. These can enhance the effectiveness and efficiency of teaching methodologies, the management of student assessments, and communication between school administration, teachers, and students. LMS is very popular in the higher education systems of developed countries and has the potential to be applied and integrated into K12 education in Cambodia. Another area to be considered is the effective and ethical use of technology in teaching and learning. Technology can improve learning outcomes, but this might not be the only factor to take into consideration. Digital security and safety for both students and educators should be properly addressed as there have been growing concerns over cyberbullying and user privacy.

Coverage

Mandatory Education for All Children. The first priority is to equalize access to education, especially for children living in remote areas and those from ethnic and minority groups. In order to bridge the gap between urban and rural education standards, appropriate measures should be taken such as building school infrastructure, especially in remote areas, to make them easily accessible for children, and putting in place a public school transportation service that allows children living far away to be able to attend classes. Children should also be incentivized to stay in school through support programs, particularly the school feeding schemes currently being implemented by NGOs. Given the lack of educators in remote areas, educational institutions should recruit qualified teaching staff through identifying the top-performing students in communities and encourage them to apply for teaching positions (Sem and Hem, 2016). In addition, capacity building and training with personal and professional development opportunities are important for current educators to improve their teaching methodologies and keep up with innovative trends in education.

Support Systems for Students with Disabilities and From Disadvantaged Backgrounds. The dropout rate among lower-secondary school students in

Cambodia was 19.2% between 2015-2016 (Sem and Hem, 2016) and mainly due to poverty, with the rate much higher in rural areas, where a lack of educators also undermined the quality of the education on offer. Support systems for disabled children are also limited in the kingdom, with special education services only available at a handful of disability NGOs. Krousar Thmey, for example, offers special education services for visually and hearing-impaired children.

School facilities and infrastructure in Cambodia often do not support the needs of children. Long distances to schools on poor roads coupled with poverty often means disabled and disadvantaged children do attend school (Sem and Hem, 2016). The disabled and disadvantaged are often neglected by society in terms of education, social activities, and employment. In this regard, MoEYS, the Ministry of Social Affairs, Veterans and Youth Rehabilitation (MoSVY), Ministry of Health (MoH), policymakers and NGOs should collaborate in joint initiatives to design and develop programs addressing the needs of children with disabilities and special needs, as well as those from disadvantaged backgrounds. Schools should be fitted with wheelchair ramps, multi-purpose toilets, and special learning spaces with assistive devices, for example, to provide an accessible environment for children with disabilities. Education in digital literacy and ICT should also be made accessible to them, with educational institutions utilizing multimedia tools to assist disabled children in learning. Additionally, building the capacity of educators regarding inclusive education methods is hugely important, ensuring they have the necessary knowledge and tools to provide special education services to the students that need them. Educational institutions should encourage children with disabilities to go to school despite the restrictions of poverty by implementing scaled up versions of the school feeding program, for instance.

Plan International Cambodia and Kampuchea Action to Promote Education (KAPE)[5], for example, provide children with free uniforms, bags, books, and

[5] Kampuchea Action to Promote Education is one of the leading local NGOs that aims to equalize the access to quality education for Cambodians, with the primary focus on integrating innovative approaches in Cambodia's education system. Available at http://www.kapekh.org/en/

school materials. They encourage parents to send their children to school through providing school and take-home meals. Services such as escorting pupils to school, assistive devices, and health support for children in need should be established and made available at all times. Life skills education, vocational training, internships, and apprenticeship programs should also be tailored to students with special needs.

IV. Inclusivity, STEM, and Smart Design Under the Baseline Scenario: Business as Usual in 2040

Notwithstanding the positive visions of human capital development of Cambodia in 2040, without major interventions to improve the quality of education, Cambodia will face several challenges. Human capital development is one of the most important contributing factors in becoming an upper-middle-income country in 2030. Transitions in the political landscape could have a significant impact in terms of foreign investment and private partnership funding in the education budget. Reforms in the education system, particularly expanding the current NGS model, and infrastructure, recruitment, retention, and capacity building, as well as incentives for Cambodian educators, need major financial investment. Therefore, a decrease in foreign aid investment and budget deficits would have an adverse effect on education sector development. Education was approved $915 million in the budget for 2019, a 7.32% increase on the previous year (Kay, 2018). The 2019 national budget allocation aimed to increase the salary of educators to $300 per month (Kay, 2018). The increase, coupled with a competitive working environment, intended to enable them to put their focus on education service delivery, without the distraction of needing second jobs. Changes to the allocation, particularly budget cuts, could have negative influences on the recruitment and retention of the necessary capable educators.

The NGS model is regarded as a successful reform by MoEYS. However, investment for its scaling-up requires increased budget allocation and additional human resources. The current model has not yet been implemented in all schools in Cambodia. This could create internal inequality, forcing children in rural areas to move to the cities in pursuit of a better education. With the high cost of private education, low-income families are not able to afford such schools. The children

left behind by migrant parents will not have an equal opportunity to access education, given the standards and infrastructure available at the schools in rural areas.

From a technological perspective, there are two potential issues as regards the development of an inclusive and STEM focused system. Firstly, there needs to be a targeted nationwide infrastructure project to ensure that coverage is universal. In the absence of full coverage there will emerge a gap between students educated under a top Smart school model, and a, likely, rural model inhibited by a lack of resources. This itself could cause an issue whereby Cambodia experiences a major gap in quality provision between urban and rural schools. Separately there is also a need to ensure that the school population is educated in how to use new digital technologies as they emerge. This will require teachers to also understand the process. In the absence of suitable teacher training programs, the application of technology in the classroom will be uneven and fail to achieve the intended outcome.

From a syllabus perspective there is a danger that a full STEM focus faces over-educating a workforce prior to the changing demands of its economy. In this sense, even if inclusive STEM education was achievable there is a need for an economic development plan that can ensure the Cambodian workforce can make use of highly educated members of society under the new system. In its absence the kingdom faces a brain-drain of students to markets that can provide employment opportunities.

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Chapter 6 | Health

Mr. SUN Chhai

Proloeng has finished a long day developing code for Kingdom Games, a start-up firm based in Phnom Penh that aims to break into the global e-game market. As is normal on Thursdays, he is heading to football practice in Toul Tompoung's expanded sports district. Today, however, he must stop by the pharmacist en route to pick up his wife's cold and flu medication. Thankfully the process is effortless, as his wife has already sent across her prescription with a note that Proloeng will collect. All he needs to do is confirm his identity through his Cambodian Carte Vitale, and pick it up, and unlike years before, no payment is required. Having picked up the prescription, Proloeng continues on to football. One hour into training he finds himself on the wrong end of a tackle and requires hospital treatment. Fortunately, the ambulance is able to arrive within thirty minutes and take him to the hospital for x-rays. It turns out that Proloeng has suffered a broken leg requiring three months of crutches and rehabilitation. While frustrated by the idea of not being able to play his favorite sport for some time, Proloeng reminds himself that he is lucky to live in a country that takes care of its ill and infirmed. The combination of no upfront medical costs under universal coverage and a well-trained medical workforce help to remove a considerable burden when it comes to medical treatment.

I. Future Health: The Ideal Scenario

It is 2040 and the future of Cambodian healthcare is bright. Citizens have access to a universal healthcare system that has developed to ensure quality coverage for all. As the kingdom has continued its strong economic growth trajectory, the

Royal Government of Cambodia (RGC) has developed effective financing mechanisms to capture a proportion of national revenue for the system. This is supported by enhanced tax revenue capture[6] that supports the collection of individual contributions in the form of social security. Of particular note has been Cambodia's ability to successfully transition away from a high burden of foreign donation in the sector and move towards a domestically sourced one. As Cambodia has continued its economic growth towards upper-middle income status, the RGC has ringfenced a larger proportion of government revenue funds into the healthcare sector. This has facilitated nation-wide improvements in healthcare infrastructure, with the building of state-of-the-art hospital facilities within each province. In addition, domestic revenue has been effectively utilized to support the development of human capital in healthcare.

In part the transition has been made possible through the adoption of new national forecasting technologies that better predict the requirement of public health expenditure; contingent on an AI prediction of disease incidence. This improvement of, and adoption in, technology has equally supported the quality of coverage in both urban and rural areas, with even the most remote centres able to access real time health data and specialist practitioner advice through the central medical system. Adoption of a Cambodian Carte Vitale system has provided every citizen with a digital health footprint. This has been achieved by providing each Cambodian with a unique national identification number from birth. This number is then utilized as a point of reference to store an individual's medical history, allowing health practitioners to more accurately diagnose ailments, illnesses, and treatments.

Alongside improvements in funding and technology, the RGC has overseen a staggering development of the healthcare curriculum throughout the country. Having broken down healthcare learning into stages, with syllabi developed from the primary level up to the doctoral level. This has resulted in nationwide improvements in preventative healthcare against communicable diseases. At

[6] For more discussion on the future of tax revenue please read Chapter 3 *Fiscal Policy* by CHEAN Sithykun contained in Cambodia 2040 Volume 1: Economic Development.

the practitioner level, the previous shortages in healthcare professionals have been addressed, with Cambodia developing an educated healthcare workforce. By 2040, this workforce constitutes 95 percent of the total Cambodian healthcare sector, with the remainder comprised of foreign specialists. This has supported the development of a Cambodian healthcare system that provides quality village-level care through general practitioners and nurses, with specialized treatments taking place at a district hospital.

The success in Cambodian healthcare throughout the above-mentioned factors has been made possible through the collaboration of healthcare stakeholder both domestically and internationally. The development of the healthcare system utilized the advice of foreign specialists from international partners and the World Health Organization in order to build out the appropriate infrastructure for a universal healthcare system. Domestically, the system is a collaboration between public and private institutions that operate under the oversight of the Ministry of Health. Cambodian nationals utilize healthcare facilities with no upfront costs to the user.

II. Scenario Space and Key Factors for Future Health

The development of the Cambodian health sector towards an efficient, responsive, and adaptive model is contingent upon the following key factors: *funding; technology; education; model of healthcare; and, collaboration between stakeholders*. Each of these factors will be explored in turn, with a subsequent discussion of the 'kingdom factor': referring to the contemporary Cambodian healthcare system that each factor will develop out from under new reform.

Funding

Pragmatically speaking, the future of the Cambodian healthcare system, as with any healthcare system, is contingent upon its funding. As framed by Tulchinsky and Varavikova (2015), the financing of healthcare systems has evolved from a personal payment at the time of service to financing through a combinational means encompassing health insurance, social security, general taxation, and supplementation, where necessary, by the private sector and non-government

actors. The level of funding, therefore, plays a considerable role in determining the form that the healthcare system takes.

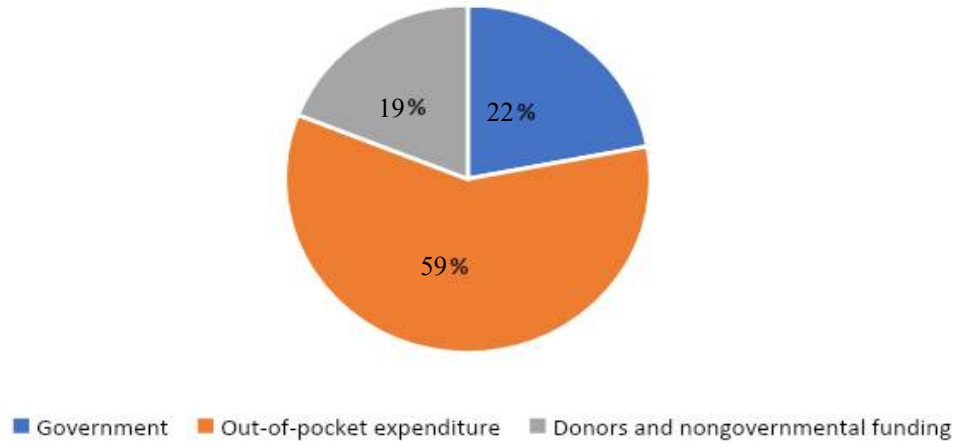
One key source of funding is government revenue in the form of gross domestic product (GDP). Cambodian GDP has increased at a significant rate throughout the past two decades with an average annual rate of 7 percent (WorldBank, 2010). According to the Asian Development Bank (2019), Cambodia's GDP is expected to continue growing at an average annual rate of 6.8 percent in 2020. In the long-run there is an expectation that continued growth will deliver the kingdom to upper-middle income status by 2030, and high-income status by 2050 (Xinhua, 2018). The RGC has developed an ambitious plan to achieve its vision of becoming an upper-middle-income country by 2030 and high-income by 2050 as stated in the Rectangular Strategy Phase 4 (RGC, 2018).

An additional source of funding for healthcare is in the form of external international donors. Over the past decade, Cambodia healthcare received financial support from many international organizations and development partners towards improving the health sector. Based on data from the World Bank in 2016, donor funding accounted for 19% (about USD 18 million) of the total current health expenditure of approximately USD 71 million while the government contributed 22%. The rest came from out-of-pocket expenditures that accounted for 59% (see: Figure 1*)*. A significant proportion of financial contributions came from international donors such as the Global Fund and the Bill & Melinda Gates Foundation which accounted for one-fourth of total donor funding in 2014 (Country Cooperation Strategy 2016-2020, 2016).

The distribution of health expenditure reflects a heavy reliance on international donors and out-of-pocket expenditures. However, recently, funding from external donors has already slightly decreased from 20% to 18% of total health expenditures from 2008 to 2014 and is anticipated to continue declining (Health Policy Project, 2016). This is perhaps a positive trend when we consider it alongside growth in GDP. As noted by Reading (2010), the reliance by the state on non-state and international actors' willingness to aid countries can lead to suboptimal domestic performance towards citizens' healthcare: with additional

domestic revenue, there is an opportunity to fill the funding gap presently covered by international donors.

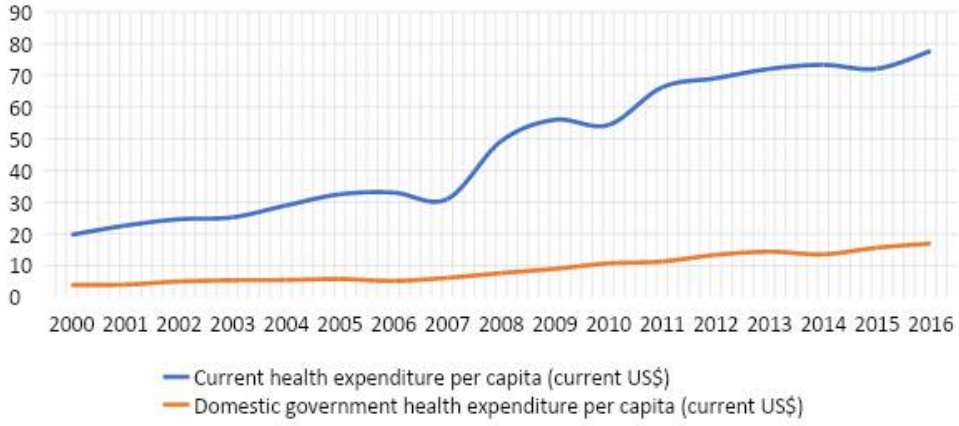
Figure 1: Estimated Cambodian national health expenditure by source (2016)



Source: World Bank (2016)

Already, the World Bank's data indicates that per capita, current health expenditure and per capita government expenditure are moving in the right, and same direction; although current, overall health expenditure per capita is rising at a much more significant rate (figure 2). During the 2008 to 2014 period, the government increased its public spending on healthcare from approximately 6.8% to 7.6% of the total healthcare budget. However, this increase falls short of the recommended 15% of the government budget to be allocated to health (Health Policy Project, 2016).

Figure 2: Health expenditure (total, millions of USD)



Source: World Bank (2020)

Technology: Technology and healthcare have been intertwined from the beginning. In broad terms, health technology describes the application of knowledge and skills in the form of devices, medicines, vaccines, procedures and systems to solve health problems (WHO, 2020). Accordingly, technology is a key factor in the determination of any health system, and of particular importance in the context of industrialization 4.0; whereby innovation is predicted to improve efficiency in diagnosis, treatment, time, and cost (Javaid and Haleem, 2019).

In the Cambodian context, the advancement of technology will aid the efficiency of both healthcare providers and the government to obtain more accurate information about the population's health and the overall healthcare market. To improve healthcare policy, the government must have accurate information about the entire system. One example of how the government and healthcare providers have successfully curated citizen's health information is the Carte Vitale of the National Health System in France that was introduced in 1998. The card stores information about health background and history of a patient and is also used as a means of payments. This information helps the French government to develop an appropriate price system for various health services and to cut down the cost of administrative work and transaction processing fees. In the long run, the RGC could innovate a similar digital platform.

Education: From a supply-side perspective, Cambodian healthcare is going to be impacted by the availability and quality of domestic healthcare workers; the WHO (2013) recognises the importance of having a healthcare workforce with sufficient capacity and appropriate capabilities. In particular, a suitably educated workforce is essential to the delivery of public health services, including emergency responses to biological, manmade, and natural disasters (Tao et al., 2018).

A likely priority area in Cambodian health education will be nursing. Currently, the kingdom suffers from a lack of of nurses, as well as a large variation in quality between urban and rural areas (CCN, 2019). This finding was backed up by a report by Sakurai-Doi et al. (2014) who found that the shortage of qualified staff is indicative of the region, where there are "critical human resource shortages." Concomitantly, a parallel shortage of doctors affects the roles and responsibilities of nurses.

Platform of Healthcare: The future of the Cambodian healthcare sector will be contingent on the platform that the Royal Government of Cambodia (RGC) develops. The RGC has already developed many healthcare schemes to improve the health outcomes of its population since 1990 when Cambodia emerged as a free-market economy. The schemes are typically supply-side and pro-poor based and aim to expand health coverage and provide basic healthcare services to the extremely poor (Annear, 2006). Some of the essential schemes developed since 1990 are outlined as follows:

- The Universal Health Coverage Plan was introduced in 1995. The RGC implemented this scheme to distribute healthcare facilities in rural areas. In the following year, a Health Financing Charter was adopted to regulate and reduce point-of-service payments at government facilities and provide revenue (Grundy et al., 2009).
- Health Equity Funds were introduced in 2000. HEF is sustained mostly by financial support from international sources. This financing system is a significant supporting role that pays for the poor the costs of access to healthcare services and facilities that include food costs, transportation costs, and user fees. The past studies find that HEF has grown to effectively reduce healthcare costs and enhance facilities-based access for

the poorest segment of the population (Annear et al., 2007, Jacobs et al., 2007, and Noirhomme et al., 2007).

- Community Based Health Insurance (CBHI) and vouchers were implemented from the mid-1990s to the late-2000s. These schemes targeted the non-poor population segments, especially pregnant women, young children and the elderly. CBHI is a not-for-profit healthcare scheme that provides affordable insurance plans for poorer families who are members of the community (Ensor et al., 2017). Vouchers cover the costs of family planning, antenatal, delivery, and postnatal care and also provide reimbursement for transport to reach the facility for these services (Brody et al., 2013).
- Other schemes with financing mechanisms have been introduced in the following years to improve health outcomes and minimize financial barriers to health access. Schemes such as Midwife Incentives in 2017, Health Strategic Plan 2 (HSP2) in 2008, National Health Policy in 2014, and Health Strategic Plan 3 (HSP3) in 2016 were innovated and implemented to advance the Cambodian healthcare system towards a universal coverage model.

In the global context, universal health coverage is the main healthcare object for many developing countries. Over the past two decades, an increasing number of low-income and middle-income countries, such as Brazil, India, Mexico, Rwanda, South Africa, and Thailand, have started implementing programs to provide UHC (Fried et al., 2013). Countries have different approaches to finance their healthcare system. Regardless, the common means to increase government public expenditure on the healthcare sector. As depicted by the World Bank's data from 2010 to 2016, countries in Southeast Asia have raised public government expenditure in recent years. Cambodia, Lao, and Myanmar, however, remain at the bottom with domestic general government health expenditure below 1.5 percent of GDP.

According to the International Labour Organization (ILO), nearly 50 countries such as Mexico and South Africa have successfully launched some form of universal health coverage schemes and provided substantial social health services. Some countries finance their UHC program through a tax deduction, while

others require a contribution from households. Several other models including Bismarck, Beverage, and NHI are being used to ensure coverage for all citizens in both formal and informal sectors. Such models are mainly followed in developed countries such as Germany, the UK, and Japan.

Globally, developing countries are moving toward UHC or developing healthcare schemes to expand healthcare coverage as the benefits thereof become more obvious. For instance, the UN system, the US Agency for International Development (USAID), Inter-American Development Bank, Bill and Melinda Gates and Rockefeller Foundations, have called for more attention to UHC (Gideon et. al., in Fried et. al., 2010). The note asserts that this call reflects a range of interests and perspectives: reducing or rationalizing health care expenditures, increasing health care and services in resource-poor settings, and securing the right to health - often bolstering the private health care system in the process (Fried et. al., 2010). It is also a United Nations Sustainable Development Goal (SDG) to achieve good health and well-being of the people in 2030 by focusing on providing better quality healthcare, more efficient funding of health system, as well as accessibility to healthcare specialists. With increased participation from all stakeholders, the development of UHC will be more promising in 2040.

Collaboration between stakeholders: The ambitious vision of the RGC to ensure healthcare for all will be more likely to succeed through solid cooperation from all partners across sectors. For instance, the UHC forum provided an important platform for experts from different areas to reflect on the progress of UHC development, financial health risk protection, and other key factors to UHC. Healthcare in Cambodia is comprised of private healthcare providers, public providers, and the support in the form of grants and donations from NGOs to expand basic health care and access to health services.

In April 2018 the Ministry of Health cooperated with other NGOs to organize the Cambodia UHC forum and convene over 120 stakeholders from various ministries, development partners, and overseas institutions to discuss and evaluate the path to UHC in Cambodia (World Health Organization, 2018). Several speakers highlighted that Cambodia needs collaborative actions to carry out the policy frameworks that are already set in place. For instance, RGC's aim, as outlined in

the National Social Protection Policy Framework 2016-2025, to minimize the financial cost of care to access health services by expanding financial protection to more Cambodians. As reported in the Third Health Strategic Plan 2016-2020 (HSP3), there have been impressive gains in providing financial risk protection to the poor through the expansion of Health Equity Fund schemes (HEFs) and the other, diverse demand-side interventions.

Although the progress of health policy development has been somewhat advanced, UHC remains an ambitious target for the Royal Government of Cambodia (RGC). The MoH has committed to moving towards UHC and to achieving the vision of: "All people in Cambodia to have better health and wellbeing, thereby contributing to sustainable socio-economic development" (HSP3). The performance of policy implementation of RGC and MoH to advance to UHC is generally evaluated positively in this report. However, it also acknowledges the limitations and challenges to sustain and to expand coverage within available resources.

Cambodian healthcare overview: Healthcare policy in Cambodia has been heavily shaped by political proactivity in Cambodia over recent decades (Liverani et al., 2018). The work of Grundy et. al., (2016) nicely outlines the background and progress of healthcare policy development in the kingdom:

- *1975-1979 (The totalitarian turning point):* Healthcare facilities, equipment, and hospitals were destroyed and closed down under the Khmer Rouge. Access to modern medicine was restricted to only elites.
- *1980-1989 (The socialist turning point):* Cambodia's healthcare system went through recovery and rehabilitation with assistance from the international community, mainly from Eastern bloc countries and the United Nations. Hospitals and health administration were re-opened and re-established. Although healthcare services and facilities were improved, a high mortality rate remained.
- *1990 – (The free market turning point):* Healthcare services, facilities, and policy were progressively reformed. There were establishments of more hospitals and health clinics across the country, expansion of immunization and communicable programming, development, and implementation of a healthcare coverage plan, and improvement in health financing

system. In addition, Cambodia achieved the Millennium Development Goals 4 & 5 (MGD) which significantly reduced the mortality rate (2/3 reduction in maternal and infant mortality rates).

Building on recent successes in Cambodian healthcare, the Ministry of Health outlined seven priority areas to target for improvement in their Health Strategic Plan 2016-2020. These are:

1. *Healthcare service delivery:* A set of health programs will be implemented to ensure that the entire population will have equitable access to safe and good quality healthcare services at private and public facilities when needed.
2. *Healthcare financing system:* An increase in healthcare financial risk protection when accessing healthcare services.
3. *Healthcare workforce development:* An increase in the number of health personnel with well-trained, appropriate skill mix and professional ethics to provide support to the healthcare sector.
4. *Essential support systems:* Provide effective medicines and advanced health technologies to improve health outcomes.
5. *Health infrastructure development:* Ensure that basic health infrastructure and facilities are equitably distributed across the country and ready to be utilized.
6. *Health information system:* High-quality and reliable health-related data/information are needed to conduct medical research. The findings are critical for decision-making and strategy choices to improve healthcare services delivery and policies.
7. *Health system governance:* Enhance leadership, management competency, and cooperation of all actors so that they can jointly take effective actions to foster equitable access to healthcare.

In considering improvements across the sector, Dr. Kumanan Rasanathan (2019), acting WHO representative in Cambodia, noted that the Royal Government of Cambodia has made important progress in providing social health protection for more Cambodians, particularly in rural regions.

III. Policy Initiatives to Achieve the Ideal Scenario

Effective policies are necessary if Cambodia is to achieve a sustainable universal healthcare system. Policy recommendations are envisioned to achieve the ideal scenario outlined in section I. They are outlined below and expanded upon accordingly.

1. The allocation and management of funding.

The government must obtain effective funding management mechanisms for both public expenditure and international donor funding. The RGC and Ministry of Health must carefully monitor the use of funding and ensure that the fund is used efficiently. The good management of international donor funding will contribute to the quality of health programs and attract more funding. The increase in government public health expenditure will benefit a number of areas in the healthcare sector. More funding can be allocated to the construction and operation of healthcare infrastructure throughout the kingdom. In particular, a funding mechanism should be prioritized around the development of infrastructure in rural Cambodia. Many hospitals and clinics at the provincial and district level still utilize old health facilities, buildings, and equipment to provide care. Allocating funding to these hospitals and clinics will bring their standard and quality closer to that of hospitals and clinics in urban areas. The process will somewhat minimize inequality in healthcare and provide low-income people access to good quality healthcare facilities and services. Sachs (2012) asserted that low-income countries would not be able to achieve UHC without external support from donors and development partners. An increase in government public expenditures along with grants and aids from non-governmental segments will excel Cambodia to UHC. In this note, Sachs suggested an international norm called the Abuja Declaration that low-income governments promoting universal health coverage should allocate at least 15% of their total budget to health (Sachs 2012).

The government should heavily invest in a digital platform to collect accurate data on citizens' health and healthcare market information. First, maintaining

patients' information via a central, digitized record is more cost-effective, more accurate, and less time-consuming than paper records. It will cut down administration fees and reduce the amount of work. The technology of Carte Vitale, as noted above, as a card that is used as a means to store health records and payments, would make things more efficient and convenient. Second, accurate and reliable healthcare market data will improve the quality of research and development in the medical field. This will help the RGC to monitor the operation and performance of the health market. Higher quality of market information will also allow both public and private providers to create healthcare products and services to better serve people.

It is also sensible to invest in advanced medical technology. Cutting-edge medical technology will improve health outcomes and reduce the cost of treatments. For instance, A cure for cancer using cutting-edge genomics technology will reduce the use of conventional treatments such as radiation therapy which takes longer and is more costly. Artificial Intelligence is being studied and utilized to diagnose the conditions and symptoms of patients. Effective medicines and treatment methodologies will improve overall care and consume less time to cure patients.

2. Development of national health education programs

There are two main aspects of educational programming that the RGC and MoH must focus on: the supply-side education program and the demand-side education program. On the supply side, it is necessary to increase the number of well-trained and professional nurses and health specialists to provide good care to patients. However, the most important issue is ensuring an equal distribution of nurses and health specialists across the country.

There are several policies that the government can explore. First of all, the MoH can create programs to recruit more people to work in the healthcare sector and provide training to existing nurses and health specialists. The RGC and MoH can create some types of incentives, such as scholarships, to attract people to work in the healthcare sector and to work in remote areas. Second, free tertiary education to train those entering the field can also be effective to produce more skilled health specialists and physicians. This approach has been practiced in

many countries already. Free university tuition allows students to gain a higher education without financial constraints or financial difficulty. Therefore, it contributes to a low cost of public healthcare expenditure since students who become doctors are more willing to work with decent wages (Reid, 2017). A variant of the free education approach has been practiced in Thailand. Thai students can attend public medical school for free, but in compensation, it is compulsory for fresh graduates to serve in rural areas for at least three years (Al Jazeera, 2010)

On the demand side, medical education programs and health literacy have a positive impact on health outcomes such as access to healthcare and self-care (Nutbeam, 2000 and Paschee-Orlow & Wolf, 2007). Such programs will improve preventative behavior and inform people about basic health information. As people are more educated about health and develop good preventative behaviors, they might be less likely to get sick as previous studies have suggested, and therefore decrease demand for basic healthcare services. In addition to medical education, the RGC and MoH must ensure that people are well-informed about health insurance policies or healthcare schemes such as health equity funds. It is necessary for people to be aware of what services are available through insurance plans and how insurance works.

3. Collaborative work with development partners

All stakeholders including NGOs and international donors are important partners and assets to help advance Cambodian UHC. These partners are essential to the development of UHC because of its association with healthcare improvements (Biermann et al., 2016). NGOs and International donors provide both financial support and healthcare delivery. They work closely with people at the community level and fill the lack of healthcare services in the rural regions. The RGC and MoH receive funding from international donors and must work collaboratively with them and adhere to their regulations and plans. It is the RGC's role to prevent any forms of fraud, misuse of funds, and corruption when using donor funding. This is the most critical step to maintain further financial support and attract more external funding in the near term. The MoH should invest in more events, such as the UHC Forum, and encourage more development

partners and health experts from across a diversity of sectors to attend. Events such as these can serve as a focal point for coordination and will help to solidify relationships with all partners; and, most importantly, they can provide extensive evaluation and consultation to the development of UHC in Cambodia.

The private sector also plays an important role in expanding healthcare access by co-sharing the cost of health insurance with its employees. The RGC should encourage private firms of all sizes to provide some form of health insurance to their employees. Insurance through employers will manage the cost of healthcare and reduce the risk of financial difficulty for employees.

4. Innovating healthcare schemes and adopting an appropriate healthcare model

Adopting an appropriate healthcare model is the most fundamental step toward universal health coverage. As of today, Cambodia mainly utilizes an out-of-pocket system that imposes a strong financial burden on the population, especially the low-income segment Various healthcare schemes have been innovated and implemented to expand healthcare access and increase financial risk protection as outlined in the previous section. Among all of these schemes, HEF seems to be the most practical system that financially supports the poorest who seek healthcare services. There are other models such as the Bismarck model, the Beveridge model and the National Health Insurance model that might be more approachable for the RGC. These models are financed and sustained by a tax system, government subsidies, the private sector, and a contribution from people. Before it is possible to determine what policy framework should be implemented, a better understanding of alternative healthcare models is required, as summarized in the table below. The national health insurance model seems to be more approachable than the other models in that the RGC does not maintain sufficient market power or negotiate for lower costs of health insurance. It will be challenging for the RGC to adopt the Beveridge model because it does not have a solid tax system that can support this model. The same problem goes for the Bismarck model as a multi-payment system is not common among employers and employees. Therefore, a mixed model seems appropriate for the RGC to adopt.

Figure 3: The Diverse Models of UHC

The Beveridge Model	The Bismarck Model	The National Health Insurance
Financed by the government through a tax system	Use multi-payer system. The fund for the insurers is called "sickness fund" that is usually financed jointly by empolyers and employees through payroll deduction	A mix of the Beveridge and the Bismarck model
Many hospitals and clinics are owned by the government	Doctors and hospitals tend to be private	Public and private providers
Private providers collect healthcare bills from the government	Use insurance system	Payments come from a government-run insurance program that every citizen pays into. Therefore, there is no profit and no financial motives to deny claims
The system tends to have low costs per capital because the government acts a sole payer and can control what doctors can do and charge	There is a strict regulation which gives the government the power to control cost	The single payer tends to have considerable market power to negotiate for low price
Adopted by Hong Kong, The UK, Cuba, and Scandinavian countries	Adopted by France, South Korea, Taiwan, and Japan	Adopted by Cananda and Thailand

Source: Reid (2009)

Thailand has implemented the NHI system satisfactorily. It launched the Universal Healthcare Coverage Scheme (UCS) also known as the 30-Baht Scheme in 2001, financed by a tax system and co-payment of 30 Baht, to provide free healthcare at the point of service. Later in 2006, the requirement of the 30 Baht co-payment was abolished, but was reinstated with some exemptions in 2012 (Sakunphanit 2006 in Paek 2016). According to ILO, Thailand's UCS covered approximately 76% of the total population in 2016.

To achieve a UHC, Cambodia needs to improve its tax system and have a clear structure of the allocation of tax revenue, for instance, what percentage of the tax deduction must be allocated to health insurance. The government also needs a contribution from its citizens, and it can follow the example of Thailand by investigating what would be an effective and appropriate amount of co-payment. The RGC must also make it compulsory for employers to create a funding pool for health insurance and co-share the costs of insurance with their employees.

IV. Future Health Under the Baseline Scenario: Business as Usual in 2040

Without strengthened regulation and policy implementation from the Royal Government of Cambodia, universal health care seems to be a long way off for Cambodia. If we look at the data as to government public expenditures on healthcare over the past decades, the growth rate only increases by a small percentage (see figure 2). Cambodia still depends heavily on external funding from international donors and non-governmental organizations as well as the out-of-pocket expenditures. If the RGC continues to allocate the same amount, the quality of healthcare services and infrastructure will not significantly improve. Inequality in healthcare will remain severe, preventing low-income people from accessing an equal standard of healthcare.

A more effective tax system is a must in order to finance UHC. Many of the poorest segments of the population can access healthcare for free thanks to HEF and non-governmental organizations. However, the majority of the population still have to pay with their own funds at the point of service. Therefore, financial risk remains significantly higher for people from all income levels if they experience severe sickness. There are several micro health insurance companies such as BIMA Cambodia that provide affordable plans to cover basic healthcare for low-income and medium-income people. Such affordable plans can somewhat help enhance financial risk protections.

As for the healthcare market, there are only a few health insurances companies that mainly target medium income to high-income people in urban regions and the regulatory system for this sector remains minimal. Less competition in the market allows private health insurance companies to have overwhelming market power on pricing their products. The RGC should subsidize private health insurance companies in order to attract more insurance companies and increase the incentives for them to innovate affordable health insurance plans. This will encourage more firms to enter the market and increase competition.

The government has innovated and implemented different healthcare schemes in the past that contribute to the development of UHC. As mentioned earlier, HEF is a fundamental step toward achieving UHC in 2040. HEF has significantly supported the poorest in getting access to healthcare at the point of service without having to pay the fees. The goals of HEF - to increase financial risk

protection and to encourage more people to rely on healthcare services with HEF - will push Cambodia one step further toward the UHC if the goals are met. Yet, it will be very challenging for the RGC to achieve UHC in 2040 without substantial additional investment across all factors health-related.

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Chapter 7 | Food[7]

Ms. HOY Sokkea

Consumer Narrative: Ms. Sopheak Jing is so occupied at work that she forgets it is time for lunch. Thankfully, her smart watch alerts her to the time and suggests a few options based on her eating history. Having found a particularly well rated Kampot Pepper Crab stew, Sopheak taps to order and awaits delivery. Unlike times of old, her meal is prepared in the newly established KitchenLab where robotic chefs create dishes from a vast pantry of raw ingredients. Once cooked, meals are transported to the destination by a fleet of driverless tuk-tuks. Packaging is complete with a QR code that contains information on the origin of produce alongside nutritional information. She picks up her phone to scan the QR code and finds out that the farmers were from Kampot (crab), Kampong Cham (pepper) and Battambang (rice). Should she wish to explore further, she can see how long the pepper and rice took to grow and understands which types of fertilizers and seeds that were used.

Producer Narrative: Mr. Visal Hak owns a 50-hectare farm. He grows various crops including rice, pepper, corn and a cassava. Orders for his produce are

[7] **A note from the author:** This chapter will explore the concept of Future Food in Cambodia through the consumer and producer lenses. On the consumer side it will explore a generational shift in food preferences and delivery; considering the dominating role that technology is envisioned to play. From the producer side we will then consider how this consumer demand can be met in the Cambodian context. From this vantage point we are interested in the growing cultural relevance of food in the kingdom, beyond the standard discussion of agricultural processes and logistics, and instead towards the Khmer heart of the matter.

made through a platform on his smartphone developed in a public-private partnership to address food scarcity, access, and farmer equity. The application will match him to suppliers, consumers, and support personnel when needed. Hak divides his farm into different plots based on the level of land, the type of soil, the nutrient content of the soil itself, and the proximity to other farms. Information on these matters is continually collected through a range of ground sensors and drone mapping processes. In addition, Hak has employed a smart irrigation system that works alongside AI robotic instruments that are able to take remedial action in the case of a substandard change in the environment.

I. Future Food: The Ideal Scenario

The above scenarios discuss how Cambodian consumers and producers will interact with the food process in 2040. In order for these narratives to bare out anticipated realities, there must be actions across the supply (producer) and demand (consumer) sides. Accordingly, this chapter will explore the supply and demand side constraints, realities, and opportunities.

Demand Side

The demand for food is driven by a set of common factors, such as population dynamics, disposable income, prices, and consumer preferences (FAO, 2014). The world's population is projected to be at nine billion by 2040 (UNDESA 2015). In light of continued income growth, the consumption of meat and other foodstuffs per capita globally is projected to increase (OECD-FAO, 2019). Technology has allowed for more efficient and cheaper food production, which in turn has resulted in increased demand. The key factors concerning food in 2040 fall into three categories: health, social, and functional.

Higher income earners are better placed to take health into account when making decisions on their food purchases, with the demand for quality food increasing accordingly (Wharton, 2015). Safety will become a key element, with all food providers complying with the kingdom's health standards. To this end, a national food standards agency has been established to deliver consistent and quality oversight around the production, transport, and consumption of food products. Better educated, more health-aware consumers will make decisions on food

purchases based on factors such as technology allowing for easier calculation of nutritional needs and insurance companies incentivized to ensure people stay healthy. Food, aside from being a basic need, is also an individual and social experience. It has been predicted that "eating" as we currently understand it will no longer be necessary in the future, with the taking of tablets enough to meet nutritional requirements (Farrimond, 2019). Cheaper supplements will become a more widespread solution to nutrient deficiency in Cambodia.

However, culturally, Cambodians cook and enjoy food in each other's company: With humans being social creatures, it would not be as pleasurable to get together to merely ingest pills. Bonding through food has long been a rich part of Cambodian culture, and this can be seen in traditional festivities such as Pchum Ben, Khmer New Year, and Water Festival, in which strangers gather to celebrate and eat together. This will continue in the years to come, and with a greater variety of food available to enjoy based on taste and values; such as a vegan lifestyle being better catered to.

The kingdom will also have enough information on market demand to be able to supply the market with what is needed, when, where, and by whom. The orders of raw materials that currently need to be placed a few months or more ahead of delivery will only take hours given the upgraded infrastructure vastly improving delivery times. Food standards will also have improved, with consumers demanding products with quality assurance stamps and QR codes allowing easy traceability.

Supply Side

To meet the aforementioned demands, key factors including farming practices, food science, and financing will have determined the ability to supply market demand.

To feed the population and/or export to other markets, Cambodia will have learnt how to utilize less labor yet produce greater outputs by employing new methods of cultivation. The employment of technology will offset a lack of labor in the food industry, with food waste/loss minimal. Future farmers will be digitized and able to manage their farms with higher productivity and greater

efficiency. Plant-based and "laboratory-grown" meat and insect-derived protein bars are just some examples of developments to meet a growing need for food and offset predicted future limitations. Cambodia will have in place an effective committee comprised of public and private sector entities and research institutions to carry out studies into new forms of food to meet the needs of the population in both taste and quality. The underprivileged will have access to affordable food supplements to make up for a lack of nutrients. To do this effectively, heavy investment and incentivization should be put in place.

To have moved up the food industry's value chain, the purchasing of local Cambodian produce for processing into the finished product will be less expensive. The kingdom will also need to have met other challenges, such as high electricity and logistics costs[8]. Energy costs will be lower to allow for profitable production. There will be an increase in renewable energy sources, with the aforementioned traceability able to ascertain whether a product is environmentally friendly. With future consumers taking into account the sustainability of what they buy, being able to produce food that takes into account climate change impacts will allow for increased Cambodian sales. The kingdom's more efficient sourcing of energy and competitive production will drive down prices as technology allows for reduced energy consumption, resulting in higher quality food at lower prices.

One of the main difficulties Cambodian rice millers face, for example, is a lack of financial resources. Securing financial support for investments in high-risk sectors such as food and agriculture is a crucial part of providing food security for the general populace, especially to prevent people from falling back into poverty. Aware of the importance of this, by 2040 the Agricultural Bank, currently known as the Rural Development Bank (RDB), will be lending to eligible agro-processors for investment in processing local food with low to zero interest rates. Processors would then be able to make profits and gain further expertise in operating efficient facilities to produce food affordable for the local poor to purchase, helping reduce poverty in the country. The ability to produce at low

[8] These issues are discussed in greater deal in Cambodia 2040 Volume 1. Economic Development.

prices will also enable Cambodia to compete in international markets. This will incentivize Cambodian farmers to become more innovative.

Cambodia will have developed its transportation system to allow for the improved movement of products around the country. Rapid routes for trucks equipped with the cold chain system will accommodate the needs of both local and international customers. Greater volume at airports and deep seaports will also be largely available, not just for passengers, but for the shipping of products in and out of the country, with advanced technology tracking specific shipments for security and tax revenue reasons. With well-connected routes and the use of future means of transportation, such as driverless trucks, Cambodia will be able to deliver its food faster and more cheaply. Cambodia will comply with food safety standards by making products traceable back to the farm. The kingdom will have in place a warehouse system able to trace every aspect of what is considered food. To allow for this quality assurance, technological advancements in genetic testing, pesticide residue measurement, and bacteria prevention, to name just three, will be in place. Digitizing every document on different products to determine in which category and in which province, and for which price and for which customers will be a common practice.

Cambodia will have fully implemented smart city schemes in three main urban areas, Phnom Penh, Siem Reap, and Battambang; with the aim of increasing connectivity, digitalization, and incubate progressive start-ups. These projects will bring important results on improving connectivity between rural and urban Cambodia. Such connectivity will lead to improved smart irrigation management, optimal GPS use, and data collection, as well as improved logistics, thereby leading to further ideal food transactions and business practices. Cambodia will also be connected with other ASEAN cities on food trade that will allow supply and demand equilibrium that will address one of the future urban issues faced by the city poor.

The future is predicted to bring revolutions in biotechnology and information technology (Harari 2018). This could make the world more prosperous or result in many people in many countries becoming redundant if they fail to adapt. The Cambodian food industry should therefore make use of the technologies

available to introduce healthy, nutritional new tastes to the world. As today, the population in 2040 will be predominantly young, with around 50% of people under 30 (WorldPopulationReivew, 2019). This human capital will play a crucial role in developing new technologies that can help grow the Cambodian food industry to where it can meet the needs of its people as well as export abroad.

II. Scenario Space and Key Factors for Food

Agriculture and food have not only been the main drivers of the kingdom's economy, but they are also a way of life for Cambodians and will likely continue to shape and affect them. These sectors have helped promote economic growth, reduce poverty, and ensure national food security (WorldBank, 2019). They have been prioritized in many important government policies, including the Rectangular Strategy-Phase IV, the National Strategic Development Plan 2019-2023, and the Industrial Development Policy, to name but three. As Cambodia has continued its economic expansion and development, the share of agriculture in both GDP and labor has gradually decreased (WorldBank, 2019).

The kingdom was one of the few countries not impacted by the 2008 global food price spike, and it took that opportunity to leverage agricultural growth (World bank, 2015). Likewise, with production and consumption that takes into account the main factors driving the food industry, the livelihoods of Cambodian people can be improved.

Demand Factors

Food, of course, also serves the functional purpose of providing the body with the necessary energy and nutrients, something the underprivileged can find difficult meeting. Cambodia has achieved seven percent economic growth over the past decade, with poverty reduced to 13.5% in 2014 from 47.8% in 2007 (World bank, 2019). However, around 4.5 million people remain near-poor and vulnerable to falling back into poverty if exposed to economic or other external shocks (World bank, 2019). Economic growth may be a necessary ingredient for sustained poverty reduction, but it does not necessarily benefit society's poorest. Illuminating the question of how the benefits of economic growth can and do reach the poorest enables policy-makers to more effectively promote pro-poor

growth, and to implement policies to protect the poor from the potentially adverse consequences of growth (Hoy and Samson, 2011).

It is estimated that no fewer than eight out of ten of those living in the lower Mekong basin are dependent on the river for the fish catch taken from the river or for its role in agriculture and horticulture. And up to 80% of the Cambodian population's animal protein intake comes from the fish caught in the Mekong River system (Osborne, 2019). In 2019, a sustained drought in southern China and mainland Southeast Asia brought water in the Mekong River to its lowest levels in 30 years. This disturbing development has focused attention on the major changes to the river's character stemming from constructions of hydroelectric dams. The dams can reduce the amount of sediment reaching the Mekong Delta by up to 97% that can obstruct the flow of nutrients that support agriculture and reduce fishery biomass by up to 80% in 2040 (Pawar, 2019).

Food accounts for almost half the total consumption of Cambodian households; from 2009 to 2017, monthly food consumption in Cambodian households increased 75% (CSES 2017). The ability to predict demand can help eliminate food waste in the system and increase reliability in sourcing supply (de Moraeos et al., 2020). Without the knowledge needed to be able to respond to the market, Cambodian suppliers would have to wait for orders and be unable to guarantee meeting demand. Cambodia would also be a heavy consumer of imported food products, which would be expensive for lower income earners, who would then need measures from the government to address their nutritional shortages.

Supply Factors

Farming practices. Labor and skills will be key elements defining the success of all businesses in the country, not only those in the food sector. Heavy investment will be needed today in developing human capital to address the rise of automation that will remove many unskilled jobs from tomorrow's labor market. Without such investment, Cambodia will find it increasingly hard to climb the economic ladder. Smaller-scale farmers leaving agriculture for employment in other sectors will result in the expansion of the remaining farms, allowing for the more efficient deployment of technology. Labor in agriculture has decreased from 48.7% in 2013 to 37% in 2017 (MoP 2017), with this decline

predicted to continue as more and more people move away from the fields in search of jobs in the cities and neighboring countries. Agriculture's share in GDP has also decreased from 30.7% in 2014 to 23.5% in 2018 given rising sectors such as construction and services. The tables below show recent trends in agriculture.

Table 1: Agriculture as a Share of GDP

	2013	**2017**
Total labor force	7,951,000	10,416,000
Agriculture (%)	48.7	37
Industry (%)	19.9	26.2
Service (%)	31.5	36.8
Others		0.1

Source: Ministry of Planning, Cambodia Socio-Economic Survey 2017, dated November 2018

The development of food science will be a key factor in determining the availability of food options for the differing income brackets of the population. With Cambodia currently using traditional farming techniques, it will be crucial that the necessary human resources and facilities are put in place to allow the food industry to flourish. However, data from 2014 shows that fewer than six percent of Cambodian university students were enrolled on a science major, such as biology, while 46% studied accounting, finance or management (World bank, 2014).

Profitable agro-industry and financing will be able to relieve the burden of high food prices via cheaper processing costs. The food industry in Cambodia is a complicated system in which machines are not optimally used due to seasonal produce availability (Song, 2019). Guaranteed sales and prices are needed before farmers will run machinery to full capacity. Economies of scale are lacking, which makes investing in the food industry less attractive than other sectors

(Song, 2019). This market failure can be addressed with government interventions such as cheap financing and infrastructure availability such as the cold chain systems.

Infrastructure consisting of different stages, from transportation to logistics, to energy sources, will play an even more crucial role in food development. Were less to be invested in improving infrastructure, Cambodia would still have adequate roads due to their importance in driving the economy. However, the kingdom's roads would not be equipped for convenient food logistics, with this hampering the efficient operation of the sector. In addition, the efficiency of farm operations would then be limited without access to necessary equipment such as smart greenhouses that allow for the optimal time of harvest, proper input applications, and appropriate water usage. Cambodia could still increase its quality control systems despite a lack of focus on improving infrastructure by adopting those of neighboring countries. However, this would be made less efficient, with malfunctions slow to fix, the confused traceability of products, and even simple issues becoming costly. Lower energy prices are a major factor in driving down the cost of food.

Energy. Renewable energy policies should play a significant role in enabling competition in the market to bring down the cost of electricity. Electricite du Cambodge (EdC), the kingdom's main energy supplier, should be challenged in the market by other entities. Without policy that brings about increased private sector investment, Cambodia will continue to pay more for energy than its neighbors in the region. Greater renewable energy will be available given the impacts of climate change and that Cambodia has to meet the international renewable energy standards. However, the kingdom may only be able to do this to a certain extent. To mitigate the impacts of climate change, Cambodia will need to utilize smart irrigation that will not only save water but allow food to be grown more efficiently. It is important to note that drought-resistant crops are being developed to cope with a changing climate, with the supply of water becoming more expensive in Cambodia as it becomes scarcer.

III. Policy Initiatives to Achieve the Ideal Scenario

A comprehensive road map is required for Cambodia to achieve the best food sector scenarios as described, with the steps needed to be taken now so the kingdom is not to be left behind in 20 years' time outlined below. Detailed steps in key factors—market consumption demand and production that utilizes improved farming practices, a workforce with upgraded skills, the employment of food science, and improvements in agro-industry that would be ideal with the presence of good infrastructure and sufficient energy—will be needed alongside strategies to protect intellectual property rights and measures to cope with climate change.

Demand Side Policies

Employment of technology. Smart watches with tracking technology will play a critical role in informing people when and what to eat based on information on their health. Even a smart watch today can tell heart rate and blood pressure, as well as act as a fitness tracker, but they are predicted to soon be able to be sensitive to human emotions, understand nutritional needs, and alert the wearer to health problems. The employment of artificial intelligence (AI) will enhance lifestyles, with people willing to risk their privacy for the resultant health benefits (Harari, 2018). This area should be driven by the private sector, which is incentivized to better understand demand and so best able to supply products and services; however, the government should ensure the information collected is not used for purposes not agreed to by those using them. The key steps to take are:

- As an initial step, the Ministry of Agriculture, Forestry and Fisheries (MAFF), the Ministry of Health (MoH), the Ministry of Interior (MoI), and the Ministry of Posts and Telecommunications (MPTC) should develop detailed consumer protection laws to address this, especially with regard to technology platforms, with heavy punishments for companies that manipulate data.
- A working group of information technology and biotechnology experts should be formed to ensure the effective implementation of such laws.

- Health insurance companies should be encouraged and subsidized to utilize health tracking information via food consumption data as they are incentivized to keep their customers fit and healthy.

Food safety. To satisfy the local and international markets, Cambodia has to meet food safety standards. Food safety has long been a major public health concern in Cambodia. The *Khmer Times* reported that in 2016 alone, there were around 1,000 cases of food poisoning in the kingdom, with studies on the impact of unsafe food in Cambodia having never been carried out.

The excessive and inappropriate use of pesticides in Cambodia's farming practices negatively impact public health, presenting dangers to consumers in Cambodia who have few other options. Cold chain systems that play a crucial role in maintaining food quality are not widely available, with wet markets considered to sell fresh produce often not meeting food safety standards. It is clearly visible in wet markets in Cambodia that there is no segregation of meat and other fresh/dry foods. The Asia Development Bank conducted research in 2008 where wet markets were commonplace for cross contamination risks. The report continued on to point out that although large animals were not slaughtered at the market, poultry and fish were slaughtered with no separation between retail and slaughtering (dirty and clean) and water for the slaughter process spilt into the very narrow and uneven walkways leading to difficulties in cleaning (ADB, 2008).

More than a decade later today, the experience in Cambodia's wet markets, a common food place for locals, has not changed much. Inter-ministerial Prakas 868 on Food Safety in Cambodia is still loosely implemented, with a lack of quality checks at food production facilities, while the Law on Food Safety, which aims to cover a wide range of food safety aspects, is yet to be approved and implemented. A lack of food data presents a challenge to the implementation of Prakas 868 and the Law on Food Safety. Outlined are some key steps for achieving food safety standards for both the local and international market.

- The Law on the Management of Pesticides and Fertilizers must be strictly enforced, with serious checks made on the import of hazardous pesticides that do carry labels in Khmer. MAFF officials should punish breaches of the law with the provision of fines.

- Good Agricultural Practices (GAP) - as defined by FAO, are a "collection of principles to apply for on-farm production and postproduction processes, resulting in safe and healthy food and non-food agricultural products, while taking into account economic, social and environmental sustainability." - should be implemented countrywide, and quality control must be made available, with products labelled as such.
- The implementation of food safety standards should be enforced by market authorities closely connected to traders. Daily random checks on stalls are feasible if implemented by local market personnel.
- The MAFF and the Ministry of Commerce (MoC) should train vendors to recognize unsafe ingredients in food, as well as give them trusted advice. Random checks can be made by higher authorities at the MAFF level to regulate common practices.
- Slaughterhouses are the sources of viruses that lead to pandemics such as Severe Acute Respiratory Syndrome (SARS) or Novel CoronaVirus or COVID-19 and should be closely monitored.
- Food science researchers, MAFF, and the private sector should invest in available technology that allows data collection on the contents of food products, the location of suppliers, and safe preparation methods.
- The education of the public via public food safety forums would also play a crucial role in raising awareness of the issue.
- The creation of a top-quality wet markets that compartmentalize different food sections and is equipped with reliable cold storage will also need to be put in place to maintain food quality and freshness. The MoC should attract investment in the food hub/market by subsidizing rental fees and land use, but in turn require investors to install refrigeration for retailers.

Food for poverty reduction. Some key steps in using food measures to reduce poverty are outlined below:

- A reduction in food prices will serve as a social protection mechanism preventing the near-poor from falling back into poverty. Making healthy food affordable is also a policy measure that would tackle preventable health problems that result in avoidable government expenditure.

Therefore, branches of government such as the Ministry of Economy and Finance (MEF) and MAFF should work with emerging companies such as Agribuddy, Farmforce, and BlocRice, to name just three, and invest in their growth as they have the means of reducing the price of food while increasing quality via their wide network of farmers and consumers.

- Food supplements that help meet nutritional needs should be developed and made available at low costs for the less affluent. Food may be a social and leisure experience for the better-off, but for those on lower incomes, it is a basic need to ensure sustenance and physical development; therefore, certain food products should be developed and made available for this group. The debate will center on how to make sure it is only the underprivileged that benefit from these products. The answer will lie in a process that discourages the more affluent from wishing to take supplements instead of enjoying traditional meals. Further measures to reduce food prices will be illustrated in the section on profitable agro-processing.

Supply Side Policies

Enhancement of farming and agri-business techniques. The ability to efficiently make the best use of inputs to create maximum outputs will be the main factor determining success in producing food. Some key steps to take are:

Farm level:

- Setting clear policy as to the distinctions between public and private extension services that are incentivized differently to minimize inefficiency and incorrect practices. The government can provide training to inform suppliers on applications that have been researched and developed by independent agencies, for example. The suppliers can then spread information to farmers with whom they interact with every day. However, this could allow for unethical conduct, with unscrupulous suppliers pushing the sale of inappropriate products by telling farmers they were needed to increase yields.

- Incorporate the applications created by tech companies that manage farming practices, such as calculating the correct usage of pesticides and fertilizers and clearly indicating the amount, time and on which crops, specifically for the Cambodian soil and climate. MoC and MAFF should encourage this type of investment by providing free field testing, staffing, the data available on the current practices, and expertise on best practices. Lead farmers can then be trained on how to properly use the technology and thereafter pass the information on to their peers.
- Mainstreaming information and knowledge dissemination through various extension services from both the private and public sectors. An extension service should be formed at each village, either at the input retailer or local government. These groups should be equipped with applications that allow the management of the aforementioned farming practices.

Market level: Blockchain technology that independently records information and transactions between different players in the food market can act as a platform to optimize market demand and supply. Oxfam Novib in Cambodia has facilitated BlocRice technology, which allows organic rice farmers in Preah Vihear province to produce and supply to the international market. Each step of the transaction from farm to supermarket to consumers is fully captured. The size and number of orders made via the system, importantly, allows producers to make an informed decision on what to grow, when to harvest, and to whom to sell. However, this practice is still at a very early stage of utilization of technology that reduces the dead weight loss in the rice sector and challenges are still pervasive. The key steps are as follows:

- The lessons learned from BlocRice – such as challenges faced during the application process including violation of contracts by farmers, low skills of farming and the lack of data on drought/flood - should be remedied and expanded to other crops and agricultural products in Cambodia. Agribuddy, another example of a home-grown technology company that targets food production in Cambodia, has implemented an application whereby farmers, input suppliers, bankers, and consumers are gathered in one place to make transactions. The government should encourage

such businesses and incentivize their continued growth by providing financial support and allowing them to operate without being taxed.

- Improve data collection via new investment in available technology; form a team led by the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Commerce to collect data from all producers in the country.

Advanced development of food science. To support the aforementioned new and innovative farming techniques, it is crucial that food science and agronomy are expanded on and developed, with studies and research carried out at universities. Here are the key steps:

- MAFF must increase funding for projects carried out by researchers at the Royal University of Agriculture and other universities. The collection of data specifically on Cambodian soil conditions alongside with the employment of available technology developed by more advanced countries would allow an informed decision on both current and future farming practices. This would also make the most of the human resources available to support the future of the Cambodian food industry.
- The Department of Drugs and Food at MoH should further accommodate food technology, with more research and development conducted on specific active substances in the food grown in Cambodia. Food biotechnology and biosecurity are critical subjects, and their study must be encouraged.
- With ethical behavior playing a critical role in developing food, investment in technology alone will not suffice if learning does not come with an understanding of ethics. Ethics in food development takes into account environmental impacts, animal rights, and social development. Such issues will become increasingly important and will require Cambodian food production to comply.
- Universities and companies teaching computer engineering should add ethics to their curriculums. It may take a long time for this to take off, but it would be an investment made today for a better tomorrow. In a decade's time, Cambodia will have reaped the benefits and there will be better practices.

Agro industry and financing. To achieve the goal of cheaper food, costs need to be reduced. Policies to correct market failure in this sector need strong measures and penalties to avoid regulatory capture and rent seeking. In order to reduce costs, public investment needs to be made via different streams. First, the government should not tax the agro food processing industry, which is forever at a stage of infancy, merely for reasons of targeted economic growth. In early 2019, the government introduced a suspension of profit tax prepayment for the agro-processing industry in Cambodia. The government should measure the success of this measure and draw lessons learnt accordingly. Below are some further key steps to take for the industry to flourish:

- The agricultural bank and the SME bank should, for example, provide loans to food processing players needing to employ the latest technology to drive down costs on post-harvest losses. Approximately one-third of food produced for human consumption is lost or wasted globally, around 1.3 billion tons per year (FAO, 2011). According to the same source, more than 40% of food losses occur post-harvest and during processing in developing countries. Purchasing raw materials from local producers also needs to be made cheaper to drive down costs. The Rural Development Bank, established by the Royal Government of Cambodia—which will have been converted into a commercial agricultural bank to assist government policies on agriculture—gets funding every year from MEF, such as for emergency loans. However, these should not be labeled "emergency", rather annual budgeted spending that targets improvements in food processing.
- In addition to making these loans available at competitive rates, the government should ensure that they are provided to processors with a genuine competitive edge to optimize their operations. To do this, clearly defined steps to screen eligible processors must be put in place, with the competition law fully implemented.
- To carry out this policy, restructuring the bank by recruiting experienced and competent experts who are properly incentivized is key. As well as using government funding to drive down the costs of production, investing should also be made convenient for private investors both inside and

outside Cambodia. Food investment hubs can play an important role in negotiating financial investments from different sources into the food industry. While the Cambodian stock market is still in its infancy, these have been in play around the world for centuries. With financial technology (fintech) a complicated emerging industry that not many people fully understand, artificial intelligence will therefore be a better fit. Here are some key steps:

- Cambodia must catch up quickly, and the government, MEF, and the National Bank of Cambodia (NBC) should form a blockchain association or encourage the creation of one. This will serve the specific purpose of enhancing expertise in the sector. This would not only bring more suitable investments into the food industry but also in other sectors. In addition, regulations will again be important role encouraging and protecting private investment. Algorithms that calculate the ability to invest, borrow, and save will be needed by both the public and private sectors. If Cambodia wants to encourage greater investment in the food sector and other industries, it will need to maximize learning in this area.

Food infrastructure. Investment in skills is crucial in ensuring a bright future for the country, and not only in the food industry. However, the necessary infrastructure will need to be in place to gain the most from these skills. Here are some key steps to develop infrastructure for the future food industry in Cambodia:

- Cambodia should set up food laboratories available for testing in various food categories and shift focus away from what is already in the fields today to facilitate this more efficiently. The growing of rice, vegetables, and industrial crops, and the raising of animals on farms will be less relevant in the future, when land will be scarce.
- Energy plays an important role in the food industry. Current energy sources are divided into hydropower, biomass, and coal. Hydropower, which is currently the source of around half of total energy (EAC, 2018), is a somewhat risky given its dependence on the Mekong, a river system that is likely to be heavily impacted by climate change and geopolitical issues (which are not going to be discussed here). Evidence for this can

be taken from the shortages of electricity throughout Cambodia in March 2019 when there was not enough water to generate power. The kingdom should continue to raise the bar in clean energy production, with the right policies put in place to encourage investment.

- EdC should create new sources of sustainable energy. This will not only play an important role in the food industry but all other sectors if Cambodia wants to become self-sufficient.
- EdC and the Ministry of Mines and Energy (MIME) have made a commitment for electricity to reach every household in Cambodia by 2030, with the share of solar energy-generated electricity coming into the grid to increase to 20% before 2022 from less than five percent in 2019 (Keo, 2019). These are positive steps; however, the government should encourage further investment from players other than EdC to encourage faster innovation.

Cross-cutting Policy Requirements

Intellectual Property Rights. It will be difficult to develop the best possible innovations for future food production in Cambodia if the kingdom allows inventions to be copied without proper recognition. Without the protection of intellectual property (IP), innovation will be constrained in all sectors, but the food industry will be particularly affected.

It is easy to ignore the protection of IP in DVDs, in books, or in clothing design, but if IP in the food industry is disregarded, real human development and lifestyle enhancement will be jeopardized. Cambodia will not be able to attract investment in food technology from either inside or outside the country if IP protection is not properly implemented. However, while IP protection in food supplement development, for example, is important to implement, it is also very difficult to ensure. When the lower income segments of the population will depend on food supplements to fill their nutrient needs as mentioned throughout the chapter, IP violations regarding illegal copy of samples of these products may take place. However, to go deeper into flavors, ingredients, designs, color combinations, and the packaging of food products that are mixed with many other micro-elements make protecting food IP rights complicated.

Set out below are some of what Cambodia can put into practice to ensure the safe future of the food industry in Cambodia:

- AI will act as a patent screener, inspector, and analyst. For all the micro ingredients that go into each innovation, food will be scrutinized and investigated before the rights are given to anyone. The program will analyze and look through the massive amounts of data that will have been collected, not only in Cambodia but worldwide. The kingdom will not only trade food within the country but will do so with other parts of the world; therefore, abiding by IP rights protection will become more and more important. The employment of AI will enable the traceability of the invention, with better accuracy in pinpointing the sources and thereby providing better accountability.
- Whole new varieties of devices will likely aid IP protection, and maximizing such technology will depend on the investments Cambodia makes today in collecting the available data on the combinations of food ingredients and genes, and creating a learning space that will prepare for the future.
- Besides the tools needed to protect IP rights in the food industry, putting in place laws and regulations that work alongside these will be crucial. IP rights protection in Cambodia is currently on an upward trajectory, although it remains constrained by many factors. The expansion of IP rights protection into further areas, particularly food, must be accelerated if Cambodia is to catch up and then be on the front line of innovation.
- This will have to start with the understanding that IP rights in food will be a must in the future, and that Cambodia needs to start taking steps to ensure their protection now.
- Measures the government and other bodies can take are to put greater financial and human resources into the sector to enhance the current management system into one that will be able to use technology to efficiently tackle IP issues in a complicated food sector.
- The employment of technologies as tools to both develop and protect IP, backed up by the strict enforcement of IP rights violation laws, will

only be fully effective when people are educated as to why the issue is important. Changing mindsets will necessitate convincing the general populace. Steps, including regularly conducted discussions and utilizing educational spaces, should therefore be taken to embed the importance of IP.

- IP rights protection is an alien concept at the moment because most people do not see the harm in flouting it. However, the harm will be realized when the rest of the world rejects Cambodian food products—and by then it will be too late, with competitors already ahead and the opportunity missed. Reaching the ideal future scenario should be the goal of every country that wants to develop to its full potential.

Climate change. While climate change will be a huge challenge that everyone will have to adapt to, its impacts will likely push today's poorer farmers out of the system. The farmers of the future will be those who own extensive land and are equipped with the knowledge and skills needed to excel in the food industry of the 21st century. The children of poorer farmers, unlike today, will no longer be able to work abroad and send remittances home, unless they possess needed skills, as automation replaces unskilled labor. The world will be taking serious climate change measures that every country in the food trade will have to abide by. Cambodia will need to prepare for such tremendous changes. It is therefore crucial to invest in clean energy and green food production now, learning from mistakes to be operating fully efficiently in the future. Smart irrigation systems, land intensification, drought-resistant crops, and food wastage reduction mechanisms are just a few examples of the measures to be taken as part of climate change adaptation efforts. In addition, the current lack of fish supply and the blockage of sediment necessary for agriculture is anticipated to become worse in the future as a result of the continued construction of hydropower dams along the Mekong. The measures needed to be taken to mitigate these issues are, however, too broad a subject to be explored in detail in this chapter.

IV. Food Under the Baseline Scenario: Business as Usual in 2040.

Demand Side

Cambodian consumers take health factors into consideration when choosing food, ahead of price or whether it is organic. However, the availability of healthy food in the market is limited. Small- and medium-sized enterprises (SMEs) are urged to adopt food safety standards such as the Good Manufacturing Practice (GMP), HACCP (Hazard Analysis Critical Control Point) and ISO 22000. However, it was estimated in 2008 that of 530,000 SMEs operating in Cambodia, only 30 met such standards (Cheng and Spengler, 2016). In 2016 there were around 1,000 reported cases of food poisoning throughout the country.

Cambodia will have the Law on Food Safety in place by 2040 but lack detailed action plans if information regarding the food chain, infrastructure, and technology is limited. Future technology will mean people are better informed, with them more health conscious and demanding of quality food. Many Cambodians may therefore still trust imported food over their own and consume more of it accordingly.

Food security will be another key factor resulting from a lack of food safety as previously mentioned. If demand is high for better quality imported products, Cambodian food businesses will face fierce competition just to remain in the market, let alone produce cheaper food for the less affluent. Food supplements to offset a lack of nutrients and cheaper food to meet the needs of poorer households would then become expensive for the government to supply.

Socially, Cambodians will still flock together in various traditional events where food will be a main content and options may be limited based on the different classes of people.

Supply Side

Farming practices - Labor and skills. Agricultural labor is currently decreasing given the opportunities for younger members of rural communities to work abroad for higher incomes than farming at home in a volatile market. Smaller farms will likely join together to form larger concerns run by richer industrial farmers. These farmers will like today use technology spillover from neighboring countries such as Vietnam and Thailand but on a larger economy of scale.

It is estimated that there were around 1.5 million Cambodians working abroad in 2017 (ILO 2017), mainly in Thailand, the Republic of Korea, and Malaysia, sending home remittances to help their families. This trend will continue for some time until their labor is replaced by automation. Without needed skills in a future of anticipated automation, these workers will have to return home or look for work elsewhere. If they choose to come home, the Cambodian garment industry of today will no longer be able to employ them because factories in California, for example, will be using automation that will not only be more efficient, but will not be able to threaten industrial action. During the industrial revolution, workers were needed and often exploited; however; in the era of robots, they will no longer be at risk of exploitation, but will simply become irrelevant.

What is certain is that technological advances will gather momentum over the next two decades and Cambodia will face huge challenges. It will be difficult for the kingdom to deal with the technological revolution in food if it has not prepared well enough for what is to happen.

The Cambodian 2040 food industry vision does not touch much on technological disruption. Much of it focuses on organic living, promoting SMEs, contract farming, and the one village, one product movement, to name but a few, which may have become irrelevant by 2040. Advancements in food technology, such as automated farming techniques, "laboratory-grown" cell-based meat, and drone delivery systems, may well constrict the Cambodian food sector. The kingdom will import more food to meet local demand, which would not necessarily be problematic should it enjoy higher incomes.

However, it remains questionable whether Cambodia will achieve its goals of reaching upper middle-income status by 2030 and becoming a high-income country by 2050 when there are many challenges to be overcome. What will become of Cambodia's agriculture sector, which currently employs more than one-third of the population, if it is unable to compete in an increasingly specialized arena?

Without the necessary investment in the food science subject, facilities relating to the development of the sector such as labs will be even more irrelevant. The transportation may generally be developed, although not specifically for the

food purposes. Fast tracks that shall be assigned for fresh produce to reach consumers may not be there, but Cambodian food sector will be able to take advantage of the general improvement of more quality roads. Difficulties in tracing food from farm to table will be a challenge in 2040, especially when consumers demand more information about the food they consume, such as the quality status and the accountability that comes with the production of food. Energy costs may be cheaper than today's given its emphasis on cost reduction in other sectors in the economy. However, the price will still be more expensive than the neighboring countries that are more advanced. Therefore, competition in prices of food with, for example, Vietnam and Thailand, will still be an issue.

The agro-industry is currently struggling to be profitable, limiting its size. Most, if not all, agro food processing companies in the kingdom are small and medium-sized businesses that lack the investment necessary to expand. Without intervention, Cambodia's agro-processing sector will be under financial pressure as it faces greater competition from abroad. Financing food processing could take the sector to the level described in the ideal scenario at the beginning of this chapter. Without investment, Cambodians could instead be supporting the food industries of other countries in 2040. Private and public investments that drive this sector will be crucial in allowing food start-ups to continue to develop quality and safe food for subsequent generations.

Infrastructure in 2040 will be improved with faster routes for the general operations of businesses. However, without a specific focus on food systems, the agribusiness competitiveness in Cambodia will still be a challenge.

Energy will be more sufficient as there will be more renewable sources resulting from knowledge and the availability of more advanced technology spillover from the neighboring countries. Energy consumption in the food sector will still be higher than the competitive neighboring countries which will exacerbate the exports of Cambodia's main agricultural products.

Climate change. Climate change will make the food market in 2040 ever more challenging. Production will require a many different techniques to yield the same result. This will require a whole new technology to address. The population that used to make a living off of farming today will not be the same population

that will make food in the future. Countries like Cambodia where land is abundant will not be the same. Land prices will rise to the extent where less educated farmers find it difficult to afford. Therefore, those that will be in the farming sector in the future will be the ones who will not only be able to afford land and/or will have to be very innovative in the sector. If Cambodia does not inject into its human capital the ability to adapt to climate change today, it is hard to imagine Cambodia being able to be outside the consumer zone of food. The dependence on water, land, and the condition of the weather will not be the variables determining the result of food as much as they are today. Biometric data, geographical data, calories consumption, to name just three, will play more roles in the food sector. Countries that are ahead of the curve in food technology will be able to lead the market and be profitable from it. Others that are lagging behind will have to depend on these suppliers to survive.

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Chapter 8 | Media

Mr. SOEUNG Sophat[9]

What is an informed society? And how does it affect ordinary Cambodians? This is best illustrated by a day in the life of a student in 2040. Virak is a third-year architecture student in Battambang city. It is Friday morning after a busy final exam day yesterday and Virak wakes up to finally catch up on the week's news via podcast which he voice-command to his room's smart speaker. Virak follows both local and national news from his favorite and most trusted outlets, a local one in Battambang and a national one based out of Phnom Penh. Though an architecture student, Virak is also an avid news consumer and loves following political, economic, and social issues. He learned early this morning that there is a planned protest by students from his university in front of the city hall against authorities' plan to allow developers to build a restaurant and stores inside the main park on the Sanker river. The students believe the building is unnecessary and will take up already limited space from the public park. Virak plans to stop by the protest site on his way to the university. After the protest, Virak decides to take the ride-hailing app instead of the bus to save time. During the shared ride, the app also updated him on the national news of the day, a common feature of apps that partner with news outlets. Turns out the news was relevant to Virak. It was about disagreements between Thailand and Cambodia on allowing long-time Cambodian workers of any skill level in Thailand access to Thai or dual

[9] SOEUNG Sophat is a digital strategist and reporter at the Voice of America Khmer-language Service (VOA Khmer), a U.S. Government multimedia international broadcaster. The views expressed here are his alone and do not represent the views of VOA or that of the U.S. Government.

citizenships. Virak's sister is a nurse and has been living and working in Bangkok for ten years. She has a family there and hopes to at least get permanent residency card. In fact, Virak plans to visit her for the weekend so he now will prepare additional documents in case Thai immigration asks about his sister. While buying his last-minute flight to Bangkok during class break, Virak learned some shocking news from his national news outlet's Facebook page that a five-storey three-year-old condo building in Phnom Penh has collapsed. As a future architect, he is angry that this had happened. Given that next week will be school break, Virak decided that after Thailand, he and two of his friends will travel to Phnom Penh next week to visit their friends and learn more about the building situation and how the public will demand authorities to find those to hold accountable. After school, Virak was still following the news about casualty numbers from his smart glasses while taking the bus to a little end-of-semester friend gathering. While packing for Thailand later that evening, Virak was again getting the latest updates via podcasts about both the latest situation in Bangkok and Phnom Penh. He plans to bring his smartphone with an e-SIM card to Bangkok. These phones are not as popular anymore but are easier to use as devices during travels because they have Internet roaming, making it easy for him to still get easy news access while in Bangkok tomorrow.

I. Media: The Ideal Scenario

The Cambodian news media[10] industry in 2040 has undergone tremendous change. It has developed and grown to become a viable institution of free press that can support the goal of building an informed citizenry; in addition to supporting a more open, knowledge-based, and connected Cambodia. Despite

[10] The term "media" in this chapter is used narrowly to refer to news and journalism media rather the broader definition of media content that also includes entertainment media and the movie industry. In addition, while the chapter tries to stay focused on our traditional concepts of 'sector' and 'industry', with the dominance of digital media and consequential increased participation and role in the sector of digital audience, social media influencers, and citizen journalists, the lines of the sector are more blurred today and likely more so in 2040 (UNESCO, 2019).

witnessing a period of dissatisfaction on approach to 2020, Cambodia's news media has regained its status as one of the most vibrant in mainland Southeast Asia and to a lesser extent the Asia-Pacific region.

In 2040 Cambodia's media sector consists of a high-level access to public information and a high degree of freedom of expression as guaranteed by Cambodia's Constitution, a more independent judicial system, and overall a more transparent and democratic Cambodian government. As a social institution, Cambodia's 'free press' of 2040 plays a crucial role in informing and engaging the public on important topics and policy discussions, providing checks on the political system and, arguably equally important and related, help the country better guarantee equitable economic growth and sustainable development to better realize its stated goal of becoming a knowledge-based economy and developed country by 2050 (Xinhua 2018).

Building on these fundamentals, this ideal well-functioning Cambodian news media industry in 2040 is able to boast a number of sizable leading independent news media organizations; a nationwide digitization, or digital-first, operation; a highly professionalized human resource network; high level public engagement and involvement in content production; and a strong industry association support system.

Development along five key factors will determine the path toward a meaningful and pluralistic Cambodian news media sector:

1. Cambodia's political system will have gradually evolved into one with more democratic and pluralistic institutions (Levitsky, S., & Way, L. A., 2010).
2. There will be comprehensive legal and institutional framework in place to guarantee the fundamental functions of a free press and news media sector.
3. Democratic countries continue to have a major influence on Cambodia's development direction. In the country's media sector, in particular, Western-owned, funded, or initiated independent media have remained hugely popular despite the rise of Chinese influence and local competitors.

4. Strong education investment and reform with a focus on critical thinking skills and digital media literacy.[11]
5. A national embrace of emerging technologies and the continued strong adaptation of Cambodian news producers and consumers to digital transformation of news and media.

In 2040 there is a stable liberal democratic state, with a strong media sector. This system guarantees an overall open freedom of expression and flow of information for citizens and the media sector. The cornerstone of this institution-building are the existence of a public-oriented media sector led by a number of strong domestic independent outlets, a new public broadcaster *'the Cambodian Public Broadcasting Service'*, a diverse private media ecosystem, and return of prominent foreign broadcasters, alongside existenting state-owned or self-censoring domestic media outlets. In this best-case scenario, the relative liberal political system of 2040 is a result of a gradual political evolution of the past two decades that was also accompanied by a slow reemergence of Cambodia's vibrant free press to provide some checks on the system and help ensure a more informed democracy.

Cementing this ideal political environment for a meaningful news media sector is the strong legal and institutional framework that is a necessary standard for any informed democratic system, as outlined in international human rights declarations and principles.[12] Cambodia's legal guarantees in 2040 includes its Constitutionally-enshrined provisions on freedom of expression (including press, publication and assembly), a strong and updated press law, and a robust access to information law. All these legal guarantees have been updated to adapt to

[11] For clarification and simplification, the author prefers to use "digital media literacy" rather than "digital and media literacy" or Unesco's definition of digital literacy which includes media literacy and defined as "the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy." (Unesco 2018)

[12] A summary of some of these principles is outlined in the charter of Pen International, retrievable here: https://pen-international.org/who-we-are/the-pen-charter

trends in digital media and a now mostly digitized global information ecosystem in 2040. In this era of sophisticated disinformation and citizen journalists, these strong and nuanced legal guarantees ensure both the digital freedom (Pen International) and necessary responsibilities of a professional Cambodian press. As can be inferred, the institutional guarantee behind this legal framework is a relatively independent judicial system. In addition, a robust press is also backed by strong press or journalists associations and unions.

Due to Cambodia's increased integration into regional and international politico-economic order, its media system in 2040 continues to benefit from investment by its development partners, particularly democratic countries in the West as well as its neighboring ASEAN partners, that can provide both practical and idealistic goals for the industry. Industry lessons from Southeast Asian partners have also helped accommodate the rise of Chinese-style media, ensuring their meaningful contribution to a diverse Cambodian news media sector. Western-led Cambodian media continues to be crucial in capacity-building and professionalization of Cambodian news media and a necessary alternative news source for Cambodian citizens.

Any discussion of the 2040 best case scenario for Cambodia's media sector cannot avoid the importance of the demand side, i.e. the news consumers. An effectively functioning and vibrant Cambodian news media sector in 2040 depends on a population that has strong civic engagement and demand for factual information and quality news content. The majority of the projected 20 million Cambodians in 2040 are digital news consumers, having either experienced digitization as digital immigrants or growing up as digital natives. For the media industry to fully benefit from this demographic dividend, this educated and digitally literate citizenry will ideally have benefited from two decades of the right educational investment, particularly in critical thinking skills and digital media literacy. Such education is necessary for this new generation to be critically informed and digital media literate enough to become the core consumer base that sustains demand for quality news production and drive a robust news media ecosystem. This engaging two-way communication between news producers and news consumers also contributes to both a more dynamic knowledge-based Cambodian digital economy and informed democracy in 2040.

Related to educational investment, Cambodia's mostly digital-first news sector in 2040 has also benefited from rapid digitization over the past twenty years but also the meaningful adoption of relevant new technologies. In addition to fully utilising the positive aspects of digital and social media as necessary platforms of social communications and information dissemination, both Cambodian news producers and news consumers have also adopted new technologies such as artificial intelligence (AI) and blockchain to help innovate Cambodian concepts of newsrooms and journalism. In addition, social media, particularly Facebook, continues to play a major role as a fairly uncensored distribution platform for Cambodia's media sector and ordinary citizens to voice their concerns, while still relatively difficult for the Cambodian state to effectively sensor. For this author's vision, the technological affordability that will bridge the urban-rural 'digital divide', in combination with increased media production skills nationwide, and a good press freedom climate in 2040 will allow for small and large outlets to sustain quality news production in both urban and rural Cambodia.

II. Scenario Space key factors for Media

The nature of Cambodian news media, like that of the press of any country, is shaped, first and foremost, by the country's political system. The country's domestic Khmer-language media sector has historically been tightly controlled and partisan, although there had been strong history of Khmer newspapers since the French colonial days, with names such as *Koh Santepheap* surviving today (Mehta 1997). The country's post-1990s nascent free press, partly led by foreign-owned English-language newspapers like the Cambodia Daily and Phnom Penh Post and followed by Khmer outlets like Beehive or VOD - is a fairly recent phenomenon in Cambodia's post-independence political history.

Given that the Cambodian political system was never immune from external geopolitical forces, particularly after the Paris Peace Accord, foreign-owned media have historically been a key factor in shaping the domestic free press. In this context, to ordinary Cambodians, alternative news sources have primarily come in the forms of foreign broadcasters, particularly US-funded Voice of America Khmer-language broadcast and later, US-funded Radio Free Asia. This is a rather unique feature of Cambodia's media landscape. In particular, radio broadcasters

-- unlike English newspapers aimed at expats, policy makers and tourists -- reach a mass audience in the Khmer language, particularly in rural areas. With a more liberal political system in Cambodia, by the early 2000s, both US-funded broadcasters were able to open newsrooms in Phnom Penh, hire local journalists, and distribute their radio content domestically via partner local radio stations across the country. Being on local FM further established their brand recognition and such household names made them seemingly local household news brands.[13] These foreign broadcasters continue to play a role as an alternative independent news sources after the crackdown on opposing voices in 2017.

In this context, the Khmer press has been shaped by two related long-term key factors, the degree of openness of the Cambodian political system at any given time to allow Western democracies to help build and support local free press through aid or their owned media. As a result, the truly domestic Khmer-language independent press has remained relatively small (names like Beehive radio, Women's Media Center and Voice of Democracy) and rather dependent on Western support and/or editorial leadership. This is despite the fact that Cambodia's news media sector overall has grown steadily in quantity from the early 1990s and into the digital and social media age. Local independent media after the 1990s is sandwiched between the numerous and well-resourced pro-government private television and radio stations, on the one hand, and the more well-known foreign-owned English newspapers and mass media broadcasters. After Cambodia's arguably worst crackdown on media since the early 1990s (Chhor 2018), Voice of Democracy (VOD), a radio and digital news service run by the NGO Cambodian Center for Independent Media, remains the only significant domestic news outlet with the capacity to produce original news content and further innovate into digital space. As an NGO-run news outlet, it too is dependent on financial support from donors.

Furthermore, the prominent role that Khmer-language foreign broadcasters have established themselves in the Khmer press has both pros and cons. While

[13] The author himself grew up to be avid listeners of both broadcasters in Phnom Penh's 1990s and 2000s, before joining VOA Khmer in 2010.

their presence significantly increases Cambodian citizen's access to critical and unbiased news from abroad, their sheer popularity makes it more difficult for domestic brands like VOD to establish themselves more prominently, even in the digital realm. As of August 2019, VOA Khmer and RFA Khmer own the second and third largest Facebook pages in Cambodia, with 7 million and 6 million fans respectively (Socialbakers 2019) while the local VOD Khmer trails with over 1 million fans. The eventual growth of Cambodia's domestic free press will partly depend on whether foreign brands will help support rather replace local news brands.

The continued survival inside the country of some independent news outlets on the eve of 2020 can be further seen as a product of emerging new key factors that will positively influence the evolution of Cambodia's press in the next two decades.

One new key factor as a result of Cambodia's more democratic political system from the 1990s is the opportunity to set in place long-term institution-building mechanisms for the news media sector, particularly strengthening of legal frameworks to guarantee protection and professionalism of the sector. Article 41 of Cambodia's 1993 Constitution (Constitution of the Kingdom of Cambodia) sets the overarching legal framework for freedom of expression for its citizens and media entities alike:

> ***"****Khmer citizens shall have freedom of expression, press, publication and assembly. No one shall exercise this right to infringe upon the rights of others, to affect the good traditions of the society, to violate public law and order and national security.*
>
> *The regime of the media shall be determined by law."*

As will be discussed further in the policy step section, it is necessary to build on this existing Constitutionally-guaranteed freedom of expression and the press to implement more specific legal guarantees through the country's increasingly specific and systematic rules-based policies that cater to economic, demographic and technological changes. For the news media sector, updated or new legal instruments are needed to accommodate the rise of digital media and news concepts of digital freedom, citizen journalism, digital literacy and fake

news, etc. This framework can ensure that Cambodian citizens in 2040 and beyond have access to a broad range of news and information sources and move the country away from the days of state-propaganda monopoly or the existence of a Khmer press that depends on the ebb and flow of political climate.

As will be discussed further in the policy section, while human resource development in the media sector has grown over the past two decades, available university programs remain limited to a few. In addition, their program also struggles to keep up to date with the rapid changes in the industry brought about by digital technologies. A good example is from one of the few available programs at the Department of Media and Communications, Royal University of Phnom Penh. A July 2018 survey of its 144 graduates found that only 16 or 11% of graduates were working as actual journalists at the time. The largest group of 48 graduates or 33% said they were working in the "private sector" while the second largest group of 24 graduates or 16% were working for NGOs (DMC 2018). This ability for future journalists to create their own opportunities will be important as it is unclear whether there will be as much opportunity in the future as in the past two decades.

Before looking at more external and supply-side key factors, is important to look at the demand side - critical educational investment for a Cambodian population of 2040 that prefers factual information and quality news content - that will be a key factor, if not the most important favorable factor, in supporting that year's vision of an informed Cambodia. Cambodia's population is projected to reach around 20 million people in 2040,[14] of which the "post-Khmer Rouge baby-boomer generation"--those born after 1979 and should roughly be under 60 years of age in 2040, are projected to make up almost 90% of the population in 2040. A sizable segment of the elder subgroup of this large generation -- those between the ages of 30 and 60 in 2040 – unlike their counterparts in more authoritarian states like Vietnam or China and more like their counterparts in Malaysia – will have 'tasted' some form of relative democratic elections and free media' especially in 2013 (Soeung 2013). Their worldview now and then will be

[14] Outlined in the United Nations' World Population Prospect 2019

shaped by those experiences. Their offspring – those under 30 in 2040 and who could informally be termed for this chapter as "post-Khmer Rouge 2.0 or 3.0" – will be equally if not even more significant as a demographic factor that will shape a 2040 vision. Those digital natives born after 2010, will grow up mainly with technology that is 5G and beyond.

There are two additional emerging key factors not yet fully understood that will impact the 2040 scenario outlined above. As with mobile and digital technologies above, emerging technologies like artificial intelligence and blockchain too will likely have a profound impact on any sector and certainly the news media. We can foresee that by 2040 today's digital and social media – in its format and distribution nature known today as "new media" – will likely have become old or "traditional media" and Cambodia's digital natives rely completely on digital platforms as the main source of news. Also, while the adoption of emerging technologies over the next two decades like wearable devices, AI, and blockchain, will dramatically change the way Cambodian produce and consume news, the prominence of digital media itself will unlikely change and today's already significantly digitized media ecosystem can fairly well inform us of the 2040 scenarios. As with the disruption caused by the Internet, concepts of newsroom and journalism have been transformed, not replaced.

III. Policy Initiatives to Achieve the Ideal Scenario

The ability to bring about the vision of a free Cambodian press rests on the outcomes across five key factors:

1. The political environment;
2. Legal and institutional safeguards;
3. Investment and influence from democratic and Western stakeholders;
4. Demographic change; and,
5. Technology and digitization.

A number of policy steps are required across these factors to realize the ideal media vision 2040. These are discussed in turn below.

Trust and institution-building

A vibrant free press and news media sector is, first and foremost, dependent on the political and social space it is allowed to operate in and grow. As Cambodia has moved from its post-Khmer Rouge and civil war reconstruction towards middle-income, the machinery of governance has struggled to incorporate a clear and progressive media and information strategy. A feature of this disconnect can be disruptive incidents of tension between independent media and government. Accordingly, there is a requirement for policies that will help reinforce the perception that a vibrant and independent news media sector is a necessary social and political institution of the country.

One mechanism that can be utilised to this end is legislation. Currently, the latest update of the government's Rectangular Strategy (Royal Government of Cambodia 2018) lacks specifics around access to information and platforms for media communication. Relevant policy makers, including the Ministry of Information and Ministry of Education, should incorporate the role of balanced and independent news as a key element in the country's political direction toward a well-functioning multiparty democracy.

The government's tolerance of independent news outlets like VOD, along with the formal recognition of the VOA news bureau in Phnom Penh (Cheang 2019), are positive steps to build from. In continuance of this progress, the government and relevant media stakeholders should follow the recommendation by the Cambodian Centre for Independent Media for the creation of an independent body overseeing the licensing and registration of media outlets and issuing credentials to journalists (CCIM 2018). This would be a major step in the right direction as regards enhancing trust between the media sector and the government, in addition to supplying the institutional groundwork for an independent and vibrant media space.

An enhanced legal framework

As discussed earlier, another fundamental policy step toward a freer 2040 media environment is the advanced establishment of legal guarantees and frameworks. Whilst currently Cambodia's Constitution guarantees overall freedom of expression (see Article 41 above), other laws either contradict the liberal spirit of the Constitution or form legal nuances that restrict the full exercise of such

freedom (Chak 2015). For instance, Article 13 of the 1995 press law (National Assembly 2015) states that the press "shall not publish or reproduce false information which humiliates or contempt national institution" and journalist who violate this vague provision can be fined from 2,000,000 riels (USD500) to 10,000,000 riels (USD2,500). In addition, in the Internet domain, Freedom house pointed out that a number of subsequent "prakas" in May 2018 can impact freedom online (Freedom House 2018), outlining that relevant ministries should "block or close" websites or social media sites that the government deems discriminatory or a threat to national security.

As a next policy step, where necessary and possible, provisions that are deemed restrictive should be clarified or revised. For example, where press freedom is already guaranteed and enshrined in existing laws (as discussed above) it should be fully implemented through existing institutions and media outlets. In addition, there should be active development of new institutions, such as an independent media licensing body and a donor-supported independent Cambodian Public Broadcasting Service.

A number of more recently approved and drafted laws also need revision to help become a supportive legal framework for a future free press. These include the Law on Associations and non-Governmental Organization, commonly referred to as "NGO Law", needs to be revisited and updated. A more promising law still in drafting stage by the Ministry of Information with UNESCO, the draft Law on Access to Information[15] would, in theory, place a burden on public institutions to provide the public with necessary information, especially when requested. The law would certainly benefit the news media sector directly. But given that traditional news consumers play a more important role in the two-way communication nature of digital journalism, the scope of the law would further help media professionals by potentially empowering their news consumers to become "citizen journalists" and contribute to news production. As a necessary policy step, work on the law should involve all relevant stakeholders, including

[15] Current draft can be publicly retrieved at http://a2i.info.gov.kh/khmer/a2i/A2I-draft-law-ENG.pdf

citizens, civil society, journalists and media professionals, to reflect its best possible version for the vision 2040 (Taing 2019).

Within this comprehensive legal framework, there will require further carefully crafted regulations and amendments of these laws to accommodate the rapid advent of digital media technologies – and even newer technologies like AI and blockchain - that have and will create new forms of communications and news and information distribution models. Outside of traditional journalism there is already policy discussion on how to regulate 'fake news' or disinformation that can rapidly spread online (Livsier 2019), unregistered news websites, non-journalist digital influencers like video bloggers, and even citizen journalists.

While the continued development of a regulatory framework is necessary, it is vital to ensure that these regulations do not evolve, in practice, as a set of barriers that will ultimately undermine press freedom and the development of the media sector. Rather, their regulatory nature should be to uphold the professionalism of the sector. Part of securing political and legal safeguards for a future free media sector will depend on the institution-building, sector professionalization, and some degree of building trust and respect, particularly between the government and Cambodia's independent media.

Firstly, one positive action already taken by government ministries and institutions in response to some degree of professional media development in Cambodia is the creation of spokespersons and communications specialists for state institutions. This has allowed the government to be more confident in dealing with independent media inquiries and provided more access to more sensitive public information for journalists. Secondly, such trust-building mechanisms can also be further achieved through associations that advocate for the interests of independent journalists and media sector. While there are currently at least 39 press associations (Hun 2019), they are generally considered as not independent or not representing independent journalists. As of writing, a group of Cambodian journalists are awaiting registration of a new association that they hope will better help independent and freelance journalists in the country. The government, the Ministry of Information, and all relevant stakeholders should allow and support such professional associations.

A final, more political, channel for engaging and building trust with independent media and is the now three-year old annual Prime Minister's dinner with journalists, organized by the Ministry of Information. The annual event started in January 2017. Still in early stages of developing into a useful space for collaboration and exchange, it has the potential for building trust and respect with independent media outlets.

Foreign media investment

Also over the next two decades, specific steps need to be taken to strengthen the supply side of media production. This is where democratic and Western stakeholders have been working on and could continue to be most helpful. First of all, relevant stakeholders need to find more ways to more extensively and strategically invest in human resources, capacity building and professionalism of the Cambodian news media industry, not only in Phnom Penh but also in provincial urban areas and small towns. This approach includes creating or expanding journalism training programs, for current journalists, media and communications professionals, news media organizations, as well as citizen journalists across the country. In addition, relevant stakeholders, including the Ministry of Education and Ministry of Information, and development partners should create more academic degree programs in journalism, media and communications, not only in Phnom Penh but also in provincial universities. Since opening the country's first degree program in journalism and communications in 2001, the Department of Media and Communications at the Royal University of Phnom Penh remains one of the very few journalism schools in the country.[16]

Secondly, existing and future training and academic programs should include more relevant skills in digital media, innovation, and media entrepreneurship to allow journalists and media professionals to create new types of sustainable media business models and take advantage of the digital revolution that has disrupted the industry for decades now and for decades to come. It would partly enable journalists to create opportunities for themselves. As a case study, a July

[16] A generally known fact by the author but also confirmed by current acting head of DMC/RUPP

2018 survey of 144 Department of Media and Communications graduates found that only 16 or 11% of graduates were working as actual journalists at the time. The largest group of 48 graduates or 33% said they were working in the "private sector" while the second largest group of 24 graduates or 16% were working for NGOs. This ability for future journalists to create their own opportunities will be important as it is unclear whether there will be as much opportunity in the future as in the past two decades.[17]

As of September 2019, only two sizable Khmer-language independent media outlets VOD and VOA are still operational inside the country and able to provide job opportunities for those hoping to practice Western-style journalism. However, in a future scenario of gradual political liberalization, a number of independent media outlets like the Cambodia Daily, Radio Free Asia, could reopen their journalism operations inside the country or more domestic credible news outlet could emerge.

Semi-independent or semi-professional state or private sector news outlets, digital publications, as well as new sustainable news media startups, could further provide an overall environment of more available jobs for journalism graduates. Government documents show that as of July 2019, there were 550 print newspapers, 148 online newspapers, 211 radio stations, 21 TV networks, 113 TV cable channels and 39 press associations (Hun 2019). Finding ways to raise the professional standards of these existing news media operations by engaging them away from overlay state-controlled or self-censored content production, will not only help gradually increase the overall quality of news content but also increase job opportunities for Cambodian journalists and media professionals who seek non-censored work environments. These professionals and professional news operations will hopefully form the core of the Cambodian free press in 2040.

[17] The DMC survey was conducted after a large number of journalism jobs in Cambodia disappeared following the worst government crackdown on independent media in 2017 and with the closure of the Cambodia Daily, Radio Free Asia's Cambodia operation, and the licence suspensions or closure nationwide of a dozen or so radio stations, many of which carry RFA/VOA programming. https://www.voacambodia.com/a/cambodian-journalist-sees-media-situation-deteriorating/4905439.html

Another major policy step to building this vibrant free press in 2040 is to find ways to create and grow domestic independent Khmer-language news media outlets to slowly reduce dependency and eventually replace the dominant free press role that foreign-owned English-language papers and foreign-funded Khmer-language broadcasters have played so far. For the majority local language news media consumers of the past few decades, the Khmer-language broadcasts of VOA, RFA, and to a lesser extent Radio France International (RFI), ABC Australia have been their primary news alternative to state-controlled public or private news. While this dependency greatly enhanced Cambodian citizens' access to uncensored critical news, the prominence of these established foreign broadcasters made it much harder for domestic outlets like VOD to compete. In investing in domestic news outlets, stakeholders could look into establishing a future Cambodian Public Broadcasting Service (PBS) or simply investing in existing outlets like NGO-run VOD or transform state media like TVK/AKP into a Cambodian PBS.

To do so, one step that can be implemented immediately is improved partnerships or alignment of existing related initiatives or projects that focus on different components of media development. For instance, in August 2019, UNDP launched the Cambodia Media Lab as part of its Media Alternatives Project (UNDP Cambodia 2019) that focuses on supporting media entrepreneurship in Cambodia. While this project focuses on solutions to important challenges such as finding a sustainable business model for digital media and women empowerment, it does not focus on the larger question of freedom of the press that these successful models would operate under. In fact, a Cambodia media landscaping report commissioned by UNDP released at the launch, calls for the broadening of the definition of media and civic space from just "independent" media to accommodate new digital media products and services (Soon, A & Patel, R.). While such redefinition better embraces the cultural richness brought about by the Internet, it could potentially undermine the values of quality journalism that are the foundation of an informed democracy. Another UN entity with that mandate, Unesco, is currently focusing more on those issues of freedom of expression, press, and access to information. Some of its new initiative appear to focus directly (rightly so) with freelance independent journalists,

possibly also due to the lack of sizable independent media institutions to work with directly after the 2017 closures of the Cambodia Daily, Radio Free Asia office, and later ownership change at the Phnom Penh Post. However, as of September 2019, there appears to be a number of viable independent or professional news outlets that Unesco could collaborate with directly on press freedom issues with, including VOA/CCIM, VOA, RFI, and Southeast Asia Globe.

Expert interviews conducted for this research also agree that professional training in editorial processes, especially in ethical issues of digital journalism, is key to building a visionary professional social institution. This is because from a content production perspective, new and sophisticated production equipment and technology – like smartphones, drones, or artificial intelligence – will likely continue to allow journalists, bloggers, media producers, and citizens, to affordably produce and distribute high-level production quality digital content with ease but they cannot guaranteed an editorially strong news story. In addition, the news media industry was one of the earliest sectors that was disrupted by the digital revolution, and like any other industry today, more mundane jobs within the industry will be replaced by new technologies, particularly artificial intelligence (AI) [China has already showcased and AI broadcaster (Kuo 2018)]. Therefore, reporters and editors need to be trained further to focus on innovative and sophisticated content production that will be difficult to replace by machines. Overall, one Cambodian expert interviewed believed that the social science and creative nature of the journalism profession will make it one of the hardest professions to be replaced by AI and by 2040, journalism and media-related jobs could potentially be a more desirable and abundant profession than even today (Ky 2019).

Investing in the future: quality news media consumers

Cambodia's population is projected to reach 20 million in 2040, which almost around 90% are born after the Khmer Rouge, of which a majority will be digital natives. To fully transform this more educated and less traumatized post-war generation into an engaged and informed public, and, thus, a robust critical media consumer, some major education reforms must take place.

Firstly, there should be a shift in national education towards the prioritisation syllabuses promoting critical thinking. Observers and education experts are frustrated with today's education system's lack of critical thinking and the abundance of digital content with no educational values that take up time for potential learning.[18] Some also suggest that Cambodia's higher educational reform efforts have produced a "hybrid governmentality", where policy discourses are associated with modern democratic values while in practice they are rooted in Cambodia's traditional socio-cultural hierarchical order (Sen, 2017).

Secondly, relevant education policymakers, particularly the ministry of education, need to push for the systematic inclusion of digital media literacy training in national curriculum by partnering with media outlets, technology platforms, and relevant public or private sector partners. The ministry is in early stage of working with Facebook on a policy to integrate digital literacy into the national education framework.[19]

Broadly speaking, Cambodia's vision to shift to a complete digital, knowledge-based economy based on innovation as part of its "Industry 4.0" policy would require its labor force to possess more sophisticated technical capacity as well as analytical skills. Although Cambodia's innovation capacity has slowly improved, it still lags behind its Southeast Asian neighbors. While the country is following its neighbor in investing more in STEM (science, technology, engineering, mathematics) education, there is also growing discussion in the West that the next stage of innovation jobs may require a more well-rounded education with additional soft skills, humanities and arts in 'STEAM' education (American University 2018), subjects that arguably thrive best under academic freedom and free societies that allow for critical debate. The most recent Cambodia Youth Development Index (CYDI) suggests that in general, the quality of education and high drop-out rates between primary and higher education remain a major concern for the country's education system (Ministry of Education 2018). In this regard, the Ministry of Education, with relevant development partners should view

[18] Various interviews and anecdotes from discussion with observers and experts.
[19] I personally discussed this with the Facebook policy representative in Cambodia.

investment in critical thinking in education as potentially creating innovation competitive advantage to accelerate towards a 2040 knowledge-based economy in addition to its benefits for an informed citizenry. To produce this generation of 'smart' news consumer in 2040, stakeholders need to create policies that provide adequate digital and media literacy education to the next generation as they grow up in a digital world of information overload and more sophisticated information manipulation.

The author prefers to use "digital media literacy" for clarification and simplification to refer to the distinct skills of new digital literacy and traditional media literacy capacities that are now considered essential in the age of digital democracy (Hobbs 2010). Increasingly, digital literacy is used to also include media literacy, as is the case of the definition in Unesco's A Global Framework of Reference on Digital Literacy Skills for Indicator, which defines digital literacy as "the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy" (Unesco 2018).

In the context of digital media consumption, only such education allows a user to "[be] able to determine the authority or time of the information retrieved online" from news websites, unlike getting information from books or journals that would have already been verified by reputable organizations (Unesco & Karpati 2011).

IV. Media Under the Baseline Scenario: Business as Usual in 2040

Given that Cambodia's news media and freedom of expression is tied to the country's political realities – and assuming that those realities will not experience any major changes within the next twenty years – the baseline without any major intervention is a return to the status quo of co-existence between some quality journalism in a state-controlled media ecosystem of propaganda and state-aligned media. Even so, with a future Cambodian political system generally

expected to be less authoritarian and with a 2040 population almost born entirely after the Khmer Rouge, we should reasonably also expect the baseline for Cambodian news media to be likely better than the pre-2017 crackdown status quo.

This status quo as a result of some changes in the political system should see the restoration of a fair degree of freedom of expression enjoyed by ordinary citizens, free political activities of opposition politicians and freedom of NGOs to operate. In terms of the news media, this should overall translate into higher level of access to official and public information and more press freedom than today.

This status quo should also generally reflect a 2040 legal and institutional framework if there are no changes. The broad Constitutional guarantee for freedom of expression and press would remain the same. However, a new access to information law and some updates to existing laws are expected in any case that should in theory support a more open information climate. However, with continued weak domestic media institutions while expected increase in legal bureaucratic process to regulate specific new concepts like fake news or citizen journalists, it is possible that any increase access to information or freedom of expression is evened out by the required bureaucratic or legal processes. Hypothetically, for instance, while a freelance journalist or citizen journalist has more freedom to start a news blog, he or she may be less motivated to do so because of newly required and complicated registration process.

Likewise, without much intervention in the next twenty years, the Cambodian media industry will likely organically evolve into a pre-2017 crackdown state of quantity and quality news outlets (in Khmer and English), mainly concentrated in urban areas. In terms of the independent media part of the industry, we could potentially see emergence of new domestic mass media-level news outlets that have strong innovation and independence characteristics, given a more favorable political environment. However, in that scenario, it would still be hard for these new local outlets to completely replace the established prominences of foreign-owned critical media like RFA or VOA.

As such, an unchanged current level of Western and democratic countries' engagement would likely also lead to a status quo that resembles the pre-2017 crackdown media environment. Quality journalism operations could be larger in size but will like be led or co-led by Western initiatives or owned-media like US broadcasters discussed earlier. These independent operations would co-exist with Cambodian state-owned or state-aligned media, that may or may not get support from Chinese media that also co-exist to serve the Chinese and Mandarin-speaking community.

On the demand side, while overall the average Cambodian of 2040 will likely be more educated than the average Cambodian in 2019, if the current Cambodian education system with its lack of critical thinking emphasis remains unchanged, the digital native population of 2040 will unlikely be significantly more news-savvy or more media literate, if not less or the same, than the generation of today.

As discussed above, digital and social media, also known as 'new media' today, remains the most promising democratic platform of social expression and by 2040, will have likely become 'traditional media' itself. On the technical side, the last two decades of Cambodia's leapfrogging into the mobile, digital, and social media revolution suggests that the country will not have any major problems adapting to new technologies of the next two decades. However, if any lessons can be drawn from the rise of social media in the last decade on democracy and social change, it is that social and digital media are only as impactful and meaningful as the existing off-line institutions, cultures, and structures on which its content is based on.

In the Cambodian context, if there is not much action taken in the next two decades, social media, particularly Western-platforms like Facebook, in one scenario will continue to be the most important news and social communication channel, however, its potential could also be strongly hindered by government imposed online censorship, self-censorship, and cyber-attacks. The key factors in this baseline then will largely be the nature of Cambodia's political transition into a yet unknown post-Hun Sen form of government. Without any intervention, furthermore, the Chinese factor on Cambodian media ecosystem could

potentially be very significant and within a period of twenty years, it is not implausible that Chinese platforms like WeChat could partly or entirely replace the popularity of Facebook and Western social media platforms in Cambodia, if it has the political and logistical advantages to do so. As can be seen from the growing popularity of Telegram, partly due to the Cambodian government's mandated use of it for official and internal communications purposes, it is clear that no digital platform can maintain its prominence forever without proactive engagement and innovation.

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Chapter 9 | Cashless Cambodia

Mr. YOU Sokunpanha

What is a cashless society? And how does it affect ordinary Cambodians? This is best illustrated by a day in the life of a student in 2040. She just left her hometown of Kandal to study at a university in Phnom Penh. It is the first day of the month and she wakes up to find that her early-riser parents have already transferred her monthly allowance into her bank account. Through the bank's mobile app on her phone, she takes two minutes to make rent payment to her landlord. Before leaving the house for school, she orders a cup of coffee online from her local café and pays for it with a credit card. She picks up the drink on her way to the bus stop. When the bus arrives, she pays for the fare by scanning a QR code with her mobile wallet app. Later in the day, during a class break, she makes plans with a few classmates to see a movie during the weekend. She buys tickets on the cinema's website and pays for them with her mobile wallet account. She then uses the app's bill splitting function to request the money her friends owe her for the tickets. After school, as it is raining, she skips the bus and uses her phone to order a taxi. The ride is automatically paid for with the credit card linked to her ride-hailing app profile. At home in the evening, she uses a food delivery app to order dinner. When the delivery person arrives, she pays by swiping her credit card on a card reader connected to his phone. While eating dinner, she receives a text from a friend asking to borrow $50. She clicks on the request and uses her fingerprint to authorize the loan in several seconds. And just before going to bed, she arranges and pays for a cleaner to clean her house later in the week.

I. Cashless Cambodia: The Ideal Scenario

This situation may sound like a fairy tale, but the days of paying for goods and services with bills and coins are already over in many countries. In Sweden, 80 percent of all purchases are already paid for digitally. Payments via cards and apps are so common that many Swedes have stopped carrying cash (Sweden.se, n.d.). For the first time in 2018, debit cards were set to replace cash as the most frequently used payment method in the United Kingdom. While cash made up 62 percent of all payment transactions there in 2006, this share is projected to slide to just 21 percent by 2026 (Lyons et al., 2018). In India, cash use is decreasing and digital payment transaction turnover reached 7.85 times of GDP in 2017 (Reserve Bank of India, 2019).

Cambodia will be no exception. In 2040 digital payments will replace physical cash as the predominant medium of exchange.

This means two things: universal access to and significant use of digital payments by 2040. First, e-payments will be available to everyone through near-universal financial account ownership for individuals and near-universal acceptance by businesses. All urban residents and four in five of their rural counterparts will have at least one account with either a traditional financial institution (banks and microfinances) or an alternative payments service provider (mobile wallets and mobile money operators). Similarly, regardless of whether they conduct business online or in physical stores, 100 percent of urban-based merchants and 80 percent of those in rural areas will offer digital payment options. And second, both the number and value of digital payment transactions will exceed those of cash transactions.

It is useful at this point to clearly define digital payments. A payment happens when money changes hands. This can be between one person and another (splitting a restaurant bill with friends), from a person to a business (for goods or services), from a business to a person (private-sector salaries), from a person to a government (personal taxes), from a government to a person (public salaries and pensions), from a business to a government (businesses taxes), or from a government to a business (subsidies). Following the methodology developed by the Better Than Cash Alliance (n.d.), digital payments are transactions in

which both parties (payers and payees) use digital interfaces to initiate and receive payments through non-paper instruments. Non-paper payment instruments include, but are not limited to, debit and credit cards, stored-value cards, bank transfers and direct debits, and e-money. They do not include cash (bills, notes, coins), checks, and money orders. We use the terms cashless payments, non-cash payments, digital payments, electronic payments, and e-payments interchangeably.

II. Scenario Space and Key Factors for a Cashless Cambodia

To paraphrase a famous Bill Gates quote, we often overestimate what we can accomplish in two years and underestimate what can be done in ten (BrainyQuote, n.d.). If it is hard to picture Cambodia becoming a truly cashless society in the next 20 years, it may be helpful to reflect on the country's experience with mobile phone and social media adoption over the past 20 years.

At the beginning, things did not go smoothly for Cambodia's adoption of a major digital technology. Mobitel (now Cellcard) was launched in 1997 and became the country's first mobile network operator (Cellcard, n.d.b). It signed up just 15,000 subscribers by September 1998 (Nahano, 1998). Catering to even this small user base was challenging: up to half of calls between mobile phones and land lines were unsuccessful due to network congestion (Nahano, 1998).

About a year after Mobitel's market debut, this author's father bought his first mobile phone, a palm-sized Alcatel handset that cost several months of his public-school teacher's salary. Call rates were so high that he mostly used the phone to receive calls. Making calls were strictly reserved for emergency. Indoor service coverage was so unreliable that he had to place the unit in a plastic bag and hang it on a tree branch in front of the house where coverage was still spotty but significantly better than inside. When the phone rang, he had to run from whatever he was doing to answer the call before it dropped, which it often did. He had to dash faster still to collect the phone and return it to proper shelter if it started raining, clearly an untenable arrangement in a tropical country like Cambodia where it rains six months out of the year. He learned this the hard

way one day when a sudden downpour soaked and damaged the phone while he was visiting a neighbor. If somebody had told him then that someday he would be able to purchase a phone that is far better than the unfortunate maiden Alcatel for far less money and that he could have unlimited call for the price of a cup of coffee a month, he would likely have dismissed the suggestion with a laugh.

But that is exactly what is happening today. A study in late 2017 showed that approximately seven in ten Cambodians between the ages of 16 and 65 owned a mobile phone (though only 5 percent owned a personal computer) (LIRNEasia, 2019, p. 23). Data from the Ministry of Posts and Telecommunications (MPTC) paint an even more striking picture. SIM card users numbered 19.4 million in 2018 or 120 percent of the population (Chea, 2019), putting Cambodia's mobile phone penetration rate among the world's top ten (Raintree & Mekong Strategic Partners, 2019, p. 8). Though this represents a dramatic rise in phone ownership from those pioneering 15,000 subscribers 20 years ago, the momentum is far from over: a full 45 percent of all mobile subscribers in 2017 only got connected in the last five years (LIRNEasia, 2019, p. 31).

Almost half of Cambodians who had a phone owned a smartphone (LIRNEasia, 2019, p. 28) and 88 percent of smartphone users connected to the Internet on their smart devices (LIRNEasia, 2019, p. 39). Furthermore, six out of ten mobile Internet users had access to fast broadband (3G and 4G) connections (DataReportal, 2019, p. 35). This is driven by two key factors: affordable handsets and cheap mobile data. A 4G-equipped smartphone now costs less than $50 (Smart, n.d.). And for a dollar a week, subscribers can enjoy virtually unlimited on-net calls and up to ten gigabytes of mobile data (Cellcard, n.d.a).

Once armed with Internet-connected smartphones, Cambodian consumers have proven adept at embracing new digital technologies and services. A prime example is social media whose user base has exploded in the past several years. 8.4 million Cambodians had social media accounts in 2018, a 20 percent rise compared to just a year earlier (DataReportal, 2019, pp. 15-16). The biggest platform was Facebook with 8.3 million active monthly users (DataReportal, 2019, p. 26). Facebook is so pervasive in Cambodia that more than half of its users use it

not just for staying in touch with friends but also for looking up educational content and reading news (LIRNEasia, 2019, p. 55). In fact, according to a 2016 report, Facebook was the most important news source in Cambodia (surpassing television and radio) and users had a relatively high level of trust in information shared on the platform (USAID et al., 2016, pp. 18-19).

The breakneck speed with which Cambodia has embraced mobile phones, the Internet, and social media offers relevant lessons for its quest to become a cashless society: first, the country is not unaccustomed to technology leapfrogs and, second, the digital infrastructure for such a cashless future is already in place.

There are significant opportunities from the widespread adoption of digital payments. One of the biggest benefits to consumers is a sharp reduction in transaction costs. Being able to transact through digital channels allows Cambodians, especially those in rural areas, to avoid traveling great distances to a face-to-face meeting or a bank branch to make and receive payments. This saves them not only traveling expenses but also time which they can use for work or leisure. Furthermore, digital payment options offer alternatives to expensive and unreliable informal services. A 2013 impact assessment on Wing, a mobile money operator, estimated that customers of its domestic remittance services paid between $0.5 to $1 per transaction, a drop from the $2.5 they would have paid to send money through money changers or taxi drivers. This reduced transaction costs for an average customer by $19 a year (Hoffman & McVay, 2013, p. 20).

Just as importantly, broader financial inclusion enabled by digital technologies particularly benefit disadvantaged segments of society. Digital payments and e-commerce make it possible for women in China to start businesses and sell products from home, resulting in half of all online enterprises being women-owned, a higher proportion than their offline counterparts (Luohan Academy, 2019, p. 4). And Laku Pandai, a branchless banking initiative backed by Indonesia's financial regulator and some of the country's biggest banks, allowed 1.1 million new rural customers to save $3 billion in deposits in less than a year (Oliver Wyman & MicroSave, 2017, p. 19).

And individuals are not the only ones to benefit from digital payments; governments and businesses do too. Cashless payments make possible a level of

accountability, transparency, and traceability that helps governments strengthen revenue collections and combat corruption. Last but not least, digitizing payments and signing up millions of previously unserved consumers present vast opportunities (and profits) for the private sector. Overall a report by the Asian Development Bank, Oliver Wyman, and MicroSave estimated that inclusive financial services enabled by digital technologies can boost Cambodia's GDP by as much as six percent (Asian Development Bank, 2017).

Realizing the ideal scenario of a cashless Cambodia requires developments within the spaces of five key factors:

1. Access to technology and the Internet;
2. Digital identification;
3. Proper regulatory frameworks;
4. Full government participation in digital payments; and
5. Market support initiatives.

These factors are necessary conditions for the ultimate success of cashless payments and policy solutions required to that end are developed in Section 3 below.

III. Policy Initiatives to Achieve the Ideal Scenario

We have just established that a cashless society is both possible and desirable. Now the question is, how do we get there?

There are good reasons why cash is king. According to Jesus Rosano of G4S, a multinational security company that provides cash handling services for banks: "People trust cash; it's free to use and readily available for consumers, it's confidential, it can't be hacked and it doesn't run out of battery power – these unique qualities continue to hold significant value to people living on all continents" (G4S, 2018). This is particularly true for Cambodians, for many of whom cash remains the only available form of payments.

In the next 20 years, the shift from cash to digital payments in Cambodia will be propelled by the convergence of four market forces: unmet consumer needs, ubiquitous uptake of mobile technology and the Internet, innovative

approaches by financial technology (FinTech) challengers to serve unbanked Cambodians, and efforts by incumbent financial institutions to defend their market positions. These forces will happen irrespective of policy choices; they will push Cambodia in a general direction of travel away from cash dependence.

In the absence of coordinated policy efforts to address market failures and system-level challenges, however, market forces alone are not sufficient to move Cambodia to the ideal scenario described earlier. The government recognizes it has an important role to play and there is evidence that political will exists at the highest level to create an accommodative regulatory environment. The Royal Government of Cambodia's (2016) Financial Sector Development Strategy 2016-2025, for example, outlines a vision "to achieve a sound, efficient, diversified, and inclusive market-based financial system that can broadly fulfill domestic demand for financial services and is able to effectively support sustainable growth, raise people's income, reduce poverty, and align with regional and financial integration" (p. XI).

But getting to a cashless future is by no means a given. Political will must be translated into concrete policy actions. Government leadership has been absolutely indispensable to the success of the drive towards cashless society in countries such as India and Singapore, for example.

The Cambodian government can and must pull five needle-moving policy levers to accelerate the transition from cash to digital payments. As noted, these five key factors will ultimately determine whether Cambodia can truly become a cashless society in 2040. Their headline outcomes are as follows:

1. Universal phone ownership and Internet access, closing the access gap between urban and rural areas;
2. Some forms of digital legal identification for all Cambodians, enabling them to fully participate in the economic, social, and political spheres;
3. A supportive regulatory framework, particularly regarding consumer protection and interoperability, that fosters confidence in the financial system and reduces costs of adopting cashless payments options;
4. The government leading by example by enabling and encouraging digital payments in public revenue collections and expenditures; and

5. The targeted use of subsidies and tax incentives to encourage merchants, especially SMEs, to embrace digital payments.

Universal Connectivity

In 2016, MPTC introduced the Telecommunications and ICT Development Policy. One of the key objectives of the policy was to improve telecom infrastructure and usage in Cambodia through the expansion of mobile phone and Internet penetration rates. It set ambitious connectivity goals for 2020, including:

Table 1: Connectivity Goals by 2020

Indicators	2020 Goals
Broadband Internet coverage in urban areas	100%
Broadband Internet coverage in rural areas	70%
Mobile phone penetration rate	100%
Internet penetration rate	80%
Broadband Internet penetration rate	70%
Percentage of households with Internet access	30%
Percentage of households with personal computers	30%
Internet of Things (IoT) connection rate	10%

Source: MPTC, Telecommunications and ICT Development Policy, 2016

Despite some great strides, many Cambodians living in rural areas are still excluded from the rapid rise in mobile phone and Internet access.

As of June 2019, data from the Telecom Regulator of Cambodia (TRC, n.d.a, n.d.b) show that there were 19.5 million mobile phone subscribers and 13.9 million fixed and mobile Internet subscribers in Cambodia. This suggests penetration rates of 122 and 87 percent, respectively. These data rely on self-reporting from mobile network operators (MNOs) on the number of SIM cards sold, including those that are Internet-enabled. They do not take into account inactive SIMs and multi-SIM users and likely overestimate the total number of mobile subscribers and Internet users.

A more reliable source of data is the 2017 LIRNEasia study cited above as insights on phone and Internet use were extracted from face-to-face interviews of more than 2,000 households and individuals in a nationally representative survey. The results showed stark geographical gaps in mobile phone ownership and Internet use. Though eight in ten Cambodians living in urban areas owned a mobile phone, only six in ten of their rural counterparts did (LIRNEasia, 2019, p. 24). And a higher proportion of urban Cambodians (51 percent) used the Internet compared to rural Cambodians (31 percent) (LIRNEasia, 2019, pp. 37-38)

The first step towards becoming a cashless society is to ensure that all Cambodians, regardless of where they live, have access to the Internet. And since financial services are likely to be accessed through mobile devices, universal phone ownership is also a prerequisite.

The geographical inequality of access can be addressed by prioritizing improved funding for rural telecom infrastructure. While the private sector has plenty of incentives to connect and serve lucrative urban markets, they are often reluctant to allocate capital expenditure to sparsely populated areas. The government has a responsibility to correct this market failure.

A funding mechanism for this purpose already exists: the 2015 Law on Telecommunications requires telecom operators to contribute two percent of their annual gross revenues into a Universal Service Obligation (USO) fund to be used to build networks in rural areas and reduce the urban-rural access gap (Telecommunication Regulator of Cambodia, 2015).

The USO fund is, however, very small. In 2017, only 27 of 31 operators paid, resulting in MPTC collecting just $9 million or 70 percent of target (Hor, 2018). Even assuming full compliance, total contribution would be less than $13 million. For comparison Smart, Cambodia's largest MNO, spends $80 million a year on network upgrade and expansion (Smart, 2018).

MPTC must start enforcing USO payments by all operators, though this action alone is not going to be adequate. The current funding model places the onus of universal service on telecom service providers (MNOs and ISPs) while letting other businesses (such as social media and e-commerce) that benefit from improved connectivity off the hook. The Cambodian government needs to change

this and drastically expand rural infrastructure funding from other sources of taxes and contributions. It should explore imposing a digital tax, along the line of what France recently introduced (Schulze, 2019), aimed at making Internet companies such as Facebook and Google pay a certain percentage of the revenues they generate in Cambodia. And in addition to taxing e-commerce firms on the same basis as their offline counterparts, the government should also introduce additional levies similar to USO on e-commerce transactions. While details of these taxes require careful consideration, the key design principle is to ensure that businesses who benefit most from the expansion of rural Internet connectivity will also bear some of the cost of that expansion.

Universal National Digital ID

The UN General Assembly set the goal of "legal identity for all, including birth registration" by 2030 as one of the targets of the Sustainable Development Goals (SDGs) (United Nations, 2016). However, according to the World Bank, one billion people around the world still face challenges in proving who they are (Desai et al., 2018).

In Cambodia legal identity serves three crucial functions for individuals: economic (e.g. meet Know Your Customer or KYC process for financial services), social (e.g. qualify for subsidized health services), and political (e.g. voter registration) (International Telecommunication Union, 2016, p. 39). But in 2018 an estimated 2.1 million Cambodians had no recogsnized form of legal identity (World Bank, 2018). Coverage for the National Identity Card (National ID), the main form of legal identity in Cambodia, is likely to be lower still. Only residents above the age of 15 are eligible and, though enrolment is free, citizens need to travel to their places of birth or permanent residency to apply, a process that is expensive or impossible for many migrant and foreign workers. Furthermore, obtaining the National IDs outside of sporadic nationwide enrollment drives is difficult.

This poses one of the biggest challenges to financial inclusion. Universal account ownership is impossible without universal identification. The National ID is one of the key documents required to open a bank account (ACLEDA Bank, n.d.b). In 2017, one in three Cambodian adults who did not have an account attributed the situation to the lack of proper identification documents (World Bank, 2017).

And universal account ownership is improbable without universal *digital* identification. Even when they have National IDs, many Cambodians are still unable to access financial services given the hassles of traveling in person to a financial institution branch to open an account or handle transactions. In 2017, there were only 7.5 bank branches per 100,000 Cambodian adults (World Bank, 2019). Thirty-one percent of those who did not have a bank account said they were prevented from getting one because financial institutions were too far away (World Bank, 2017).

Any national identity program needs to be well designed. To adopt the criteria defined in a McKinsey Global Institute (2019) report, "good digital ID" is identification that is "verified and authenticated to a high degree of assurance over digital channels, is unique, is established with individual consent, and protects user privacy and ensures control over personal data" (p. vii). A good example is India's Aadhaar, a program that issues 12-digit unique identity numbers linked to demographic and biometric information to residents (Unique Identity Authority of India, n.d.). More than 99 percent of Indian adults enrolled in the program between its launch in 2009 and January 2017 (Special Correspondent, 2017). It has had significant impact on account ownership in the country: the number of bank accounts opened through Aadhaar-based digital KYC rose from 48 million in 2016–17 to 138 million in 2017–18 (Abraham et al., 2018, p. 19).

Not only will universal national digital identity drive financial inclusion, it will also unlock significant economic value for Cambodia. It will open up access to financial services to those who previously lack legal identification. Additionally, by making it possible to open and operate accounts through digital channels, it will encourage millions more Cambodians to sign up for accounts. The ubiquity of Internet-connected and camera-equipped phones will allow consumers to easily complete account opening forms and securely share and authenticate identity on the websites and mobile apps of financial and payments service institutions.

The MGI report cited above estimated that full digital ID coverage could unlock economic value equivalent to 3 to 13 percent of GDP in 2030 for the seven countries it studied in depth (McKinsey Global Institute, 2019, p. vi). In emerging economies, the economic potential could be 6 percent of GDP, much of which can be

realized through authentication enabled by digital ID alone. Sixty-five percent of this economic value accrues directly to individuals with the rest going to institutions (businesses, employers, and governments). If we assume that introducing universal national digital ID will contribute six percent of GDP in economic value in 2030, Cambodia stands to reap $1.33 billion in economic benefit, a sum that is more than three times the combined net profit all commercial banks in Cambodia made in 2017.

Two Key Pillars of Regulations: [1] Consumer Protection

Due to Cambodia's recent history, consumers do not have high confidence in the country's financial institutions. The Khmer Rouge regime banned all forms of private property and commercial exchange and abolished the use of money during 1975-1979. The national currency riel was reintroduced in 1980. But in the early years, with the still-fresh memory of the Khmer Rouge, people preferred the use precious metals such as gold or even foodstuff such as rice and salt as mediums of exchange and stores of value. More recently, bank collapses in the aftermath of the 1997 Asian Financial Crisis wiped out deposits and savings of many Cambodians. These factors explain, at least partly, the low level of account ownership in Cambodia. When trust is lacking, stashing cash under the mattress becomes the default financial management strategy for many.

Since then the National Bank of Cambodia (NBC), the country's central bank and main financial sector regulator, has played an increasingly active role in promoting consumer protection among banks, microfinance institutions (MFIs), and other financial institutions. An updated Law on Banking and Financial Institutions was adopted in 1999. Furthermore, the NBC has on multiple occasions raised the capital requirements of different kinds of financial institutions, lowering risks of failures caused by financial shocks.

Despite this progress, the standards of consumer protection in Cambodia today remain woefully inadequate. To take just one example, consumers quickly realize that lodging, tracking, and resolving complaints is time-consuming and ineffective. In a prakas (regulation) on the handling of consumer complaints, the NBC requires every financial institution to publicly disclose its complaint management process on its website (National Bank of Cambodia, 2017, p. 6). A quick

search of the websites of Cambodia's top ten banks by assets (National Bank of Cambodia, 2019a, p. 35), however, shows that only one (ACLEDA) has a page with details on steps customers can take to have their complaints resolved (ACLEDA Bank, n.d.a). The other nine websites only provide generic contact information and/or web forms to collect complaints without clearly explaining how they are tracked and when consumers can expect them to be addressed. When the author made calls to ANZ Royal Bank (now J Trust Royal Bank) and ABA Bank call centers, the banks' employees were also unable to provide copies of complaint management processes or point out how to access them on the banks' websites.

If their banks fail to resolve complaints, consumers will find the NBC not much help either. There is currently no way to submit complaints online to the regulator; its complaint procedure requires customers to call a phone hotline or submit letters. This poses a challenge to consumers who are illiterate or unfamiliar with how to write in the proper language so beloved by bureaucrats. Even if complaints are successfully submitted, the NBC seems to have no effective mechanisms to track those complaints and notify consumers of outcomes.

To gain consumers' trust in the financial system, the NBC must drastically step up its consumer protection efforts. An easy-hanging fruit is to encourage more effective self-regulations by financial institutions. A framework for this already exists in the form of the Code of Banking Practice that was voluntarily adopted by numerous banks and MFIs in 2015 (Ou, 2015). The Code's content is good, but implementation has been lackluster. There is no evidence that the Complaint Committee that is supposed to mediate disputes between financial institutions and consumers has ever been convened. Signatories also have not conducted and released results of the annual self-assessment of compliance with the Code that they committed themselves to (Association of Banks in Cambodia, n.d. p. 4). The NBC can improve the situation by doing two things. First, it should make compliance with the Code compulsory for all regulated financial institutions unless they opt out, in which case the NBC should name and shame them by publishing a list of the absconders. Secondly there must be strict enforcement of the Code.

Cambodia also needs a comprehensive consumer financial protection legislation. Though a law on health protection and false advertising is being prepared by the Ministry of Commerce and expected to be passed by parliament this year (Chea, 2019), a framework to safeguard the financial rights and interests of consumers does not exist yet. The NBC must take the lead in developing one. This new legal instrument should consider setting up, either as a department inside the NBC or a separate agency, a consumer financial protection body similar to America's Consumer Financial Protection Bureau (CFPB). The CFPB was created after the Global Financial Crisis and is authorized to write and enforce rules against abusive practices by financial institutions as well as to collect and track consumer complaints (Reuters Staff, 2010). One of the major innovations of the agency is its compilation and publication of hundreds of thousands of complaints in an online Consumer Complaint Database (Consumer Financial Protection Bureau, n.d.). This has the effect of encouraging banks and other firms to resolve problems raised by complainants and improving the overall financial marketplace by helping other consumers avoid the same issues.

A digital payments ecosystem can only thrive in an environment of trust and confidence. By implementing these necessary measures, the NBC will create a strong regulatory foundation to support a cashless future for Cambodia.

Two Key Pillars of Regulations: [2] Interoperability

Cambodia's financial sector is already a crowded field made up of 43 commercial banks, 14 specialized banks, 7 microfinance deposit-taking institutions, 74 MFIs, and 16 payment services institutions (as of April 2019) (National Bank of Cambodia, 2019b). But, despite this appearance of choice, fund transfers between banks are highly inconvenient due to fees and the time required to settle transactions (it currently can take days). Many banks do not even offer the option of online fund transfers to other banks. And it is pretty much impossible to move the balance between two different mobile wallets unless a customer physically cashes out the balance from one wallet and deposits it into the other.

The NBC has a key role to play in addressing this fragmentation by championing interoperability between different payment players, systems and technologies. Interoperability here refers to the ability of customers of any financial institution

to make and receive payments using the infrastructure of any other service provider. It is similar to the concept of interconnection in telecommunications where subscribers on one network can easily call or text subscribers on other networks. (Imagine if Smart users are barred from contacting Cellcard or Metfone users!)

According to CGAP (n.d.), a global partnership of development organizations working to advance financial inclusion, effective interoperability "requires good governance, practical economic agreements, and sufficient support from policy makers to ensure safe and reliable connections" among different service providers. Effective interoperability is a win-win: it lowers transaction costs and expands options for consumers as well as helps service providers avoid redundant infrastructure investments. All these factors can lead to enhanced competition and significantly higher account numbers and transaction volumes for the whole industry.

As Cambodians become more comfortable with digital payments and the number of service providers proliferates even further, the NBC needs to promote two aspects of interoperability. On the consumer side, it must make it possible for any user to move money conveniently, cheaply, and in real-time from her account to any other account even if it is held at a different financial institution. This can be done by mandating all payments service providers to join a national payment system with common technology and governance standards such as those that have been successfully introduced around the world, including India's Unified Payment Interface, Singapore's PayNow, and Hong Kong's Faster Payment System. In addition to interoperability by design, these schemes also share common attributes like a mobile-first user-friendly interface for consumers, the use of phone numbers or virtual addresses (instead of hard-to-remember bank account details) for identification, secure API-based two-factor authentication, and the implementation of open technology standards that allow developers to easily build services and solutions on top of the payments layer.

And on the merchant side, successfully moving away from cash to digital payments may paradoxically create an unintended issue: being presented with too many e-payment options, confused consumers find it easier to just pay with

cash. Singapore's central bank has come up with an ingenious solution to this problem by introducing the Singapore Quick Response Code, the world's first common set of specifications for quick response (QR) codes (Monetary Authority of Singapore, n.d.). With SGQR, merchants only need to display one QR code that consumers can scan and pay with the app of any of the participating mobile wallets and banks. The NBC should develop similar unified QR standards. All parties in Cambodia's payments ecosystem will benefit from such a scheme: consumers will find it convenient to pay on their phones, merchants will save costs by adopting one solution instead of many, and service providers will be able to avoid duplication of efforts and share the costs of acquiring merchants.

Government-Led Adoption of Digital Payments

In Cambodia, government expenditure makes up nearly one-fourth of GDP (Ministry of Economy and Finance, 2019). Not only does it pay salaries and pensions to public employees, it also spends large sums on the construction of schools, roads, bridges, canals, and other public infrastructure (not to mention weapons and equipment for national defense). To pay for these, the government collects billions of dollars in taxes, customs and import duties, and other revenues from individuals and businesses.

The government has a critical role to play in moving Cambodian towards a cashless future by shifting as much of these public payments as possible from cash to digital. Its full participation in the ecosystem is important for two reasons. First, the sheer scale of payments the government makes and receives can add billions in transaction volume every year to the budding digital payments industry. And more importantly, by paying civil servants and pensioners across the country through digital channels, the government directly creates hundreds of thousands of new customers for financial and payments service institutions, making it commercially viable for them to expand services to rural areas where they would not have been able to serve previously.

The Royal Government of Cambodia is probably Cambodia's largest payer and payee in dollar terms. It can leverage this power to encourage digital payments on both ends of the transactions. On the receipt side, allowing citizens to make payments to the government through online or digital channels needs to be a

priority. In 2019 the government expects to collect close to $2 billion in taxes, $2.3 billion in customs and import duties, and $0.9 billion in non-tax revenues (Ministry of Economy and Finance, 2019). Parts of the last category of revenues come from payments for public services and fines such as vehicle registration, official documents, and traffic violations. These small-value transactions touch the lives of a large number of Cambodians and should be digitized as much as possible. Similarly, major government-owned utility companies such as Electricity du Cambodge and the Phnom Penh Water Supply Authority serve millions of customers. They must collaborate with financial and payments service providers to make digital bill payments widely available, convenient, and cheap.

On the spending side, the government holds the strings to a $6.8-billion purse (Kong, 2018). Of this annual budget, approximately $4.5 billion is allocated for recurring current expenses (paying civil servant salaries, suppliers and contractors, and so on) and the rest for capital expenditure (building schools and roads, paying interest on debt, etc.). Since capital spending is likely already made through banks, the main opportunity for moving from cash to digital payments lies in the distribution of current expenditure.

The government has already made good progress on this score: beginning in 2014 it started paying civil servants and military personnel through accounts at formal financial institutions (Hul, 2013). The policy was responsible for bringing account ownership to hundreds of thousands of Cambodians for the first time. The Ministry of Education, Youth and Sport alone employs 111 thousand staff members (92 thousand teachers and 19 thousand non-teaching staff) (Ministry of Education, Youth and Sport, 2018), all of whom now have their monthly salaries paid directly into bank or mobile-money accounts. This is most probably the reason behind a huge increase in account ownership rate among Cambodian adults from less than four percent in 2011 to 22 percent in 2014 (World Bank, 2017). Account ownership then remained essentially unchanged between 2014 and 2017.

The government deserves plaudits for the success of the policy, but it can do even better by allowing government employees a choice of where to receive their salaries. Currently they can only get paid through ACLEDA, Canadia, or

Wing (Hul, 2013). Observations suggest that many civil servants immediately withdraw their salaries upon payments, leaving minimal balance in their accounts and making it very hard for them to save. A possible reason is that the distance to the nearest ACLEDA, Canadia, or Wing branch is too great for these government employees to make multiple trips for smaller but more frequent withdrawals. Whatever the real reasons, consumers are best placed to know which financial institution can provide services that most closely match their needs. Letting civil servants have the final say on where their salaries are paid will enable them to make the right decision for themselves while also promoting competition among service providers.

Government Initiatives to Drive Merchant Acceptance

Payments is inherently a two-sided market in the sense that any payments scheme or product is only truly useful when a large number of people are willing to use it (consumers) and accept it (merchants) *simultaneously* (Rysman, 2009). This is why cash is such a successful form of payments: it is used by all and accepted by all.

We made an observation earlier that many public employees in Cambodia immediately withdraw their salaries after they are deposited into their bank accounts. The inconvenience of making multiple trips to a bank branch that is too far away may be one reason. Another possible explanation is that their bank balance is not a useful medium of exchange as most businesses in Cambodia currently only accept cash. This illustrates one of the biggest challenges faced by any nascent payments system: not enough merchants are willing to accept payments through it.

Cambodia will no doubt experience this problem in the early days of its quest to become a cashless society. While initiatives such as universal digital ID and Internet access will enable many more Cambodians to adopt digital payments, extensive merchant acceptance will likely not happen automatically or will take a really long time to develop. In the absence of extensive merchant acceptance, consumers will not be able to use funds in their bank or mobile-money accounts to pay for goods and services, disincentivizing them from having those accounts

in the first place. This will, in turn, lead to even fewer merchants willing to accept non-cash payments.

The government must cut through this Gordian knot by playing a leading role in encouraging digital payments acceptance among Cambodian businesses, especially small and medium enterprises. Many businesses are unwilling to adopt new technologies or practices because of costs. The first thing the government should do is to remove these costs from the equation. Merchants who accept digital payments usually have to pay a transaction fee called the Merchant Discount Rate (MDR) to service providers. They may continue to accept only cash to avoid the fee. The government should help merchants defray this new cost, at least for a limited time at the beginning. An example is the Singapore government's initiative to reduce cash use at coffee shops and hawker centers across the island. To encourage café and restaurant owners to offer cashless options, the government agrees to bear the 0.5 percent MDR for three years (Wong & Heng, 2019). Additionally, the Cambodian government should consider tax incentives to reward those businesses that accept digital payments. One possibility is to impose a lower Value Added Tax (VAT) – say one or two percentage points below the regular rate of ten percent – on transactions that are paid for digitally, making it desirable for businesses to move as much of their sales as they can away from cash.

Over the past several decades, in an effort to foster financial inclusion, governments around the world have given a lot of support to the branchless banking model of mobile money operators. An important component of this model is the substitution of expensive branches of traditional financial institutions with smaller, more cost-efficient third-party agents. In Cambodia, the most successful company using this service model is Wing who claims to have a nationwide network of over 6,000 agents (Wing, n.d.). These are valuable service points, but they still require consumers to handle cash to agents over the counter to make remittances or pay bills. Now is the time to shift focus from cash-in and cash-out points (like Wing agents) to promoting acceptance points where consumers can easily pay with their bank accounts or mobile wallets. Cambodia can become a truly cashless society only when hundreds of thousands of businesses start accepting digital payments.

IV. Cashless Cambodia Under the Baseline Scenario: Business as Usual in 2040

Knowing what the future looks like and how we can get there, let's step back to the present for a moment.

Despite rising smartphone and mobile broadband penetration as well as consumers' increasing comfort in using digital products and solutions, progress remains slow in Cambodia in improving access to financial services in general and the adoption of digital payments in particular. The most comprehensive dataset on financial inclusion is the World Bank's Global Findex database (World Bank, 2017). Through a triennial survey covering 140 countries, the database records how adults (defined as people above the age of 15) make payments, save, borrow, and manage risks. According to the 2017 survey, only 22 percent of Cambodian adults reported having an account of some sort, virtually no change from the last survey in 2014. This is far below the world average (69 percent) and compares unfavorably with countries in East Asia and the Pacific (74 percent) and peers in the lower-middle-income group (58 percent).

This low level of account ownership appears to be a result of the failure of traditional financial institutions to provide what consumers want. The three key reasons Cambodian respondents gave for not having an account were insufficient funds (likely because the minimum balance required to open a bank account is beyond what most respondents could set aside), a lack of necessary documentation (possibly because the know-your-customer process during account opening is too onerous), and the distance to the nearest financial institution. Without a basic bank account, it is no surprise that only a very small proportion of Cambodian adults had access to traditional payments and credit products such as debit cards (7.19 percent) and credit cards (0.55 percent).

What is more surprising is that, despite the gap between current customer needs and what traditional financial institutions are able to provide, alternative payments service institutions such as mobile money providers are no more successful at signing up a meaningful share of unbanked Cambodians. Only 5.7 percent of Cambodian adults had a mobile money account in 2017. Moreover, even though the uptake of social media in Cambodia has been nothing short of

phenomenal, Cambodian consumers are still reluctant to adopt mobile banking and digital payments. In 2017 just six and two percent of Cambodians aged 15-65 reported using e-commerce and payments apps, respectively (LIRNEasia, 2019, p. 48).

While comprehensive statistics on cash vs. non-cash transactions in Cambodia are absent, available data suggest that current use of digital payments is negligible. The value of mobile payments in Cambodia was approximately $3 billion or just 14 percent of GDP in 2017 (Chea, 2018, p. 9). For comparison, digital payments totaled $41.5 trillion in China in 2018, an amount equivalent to almost 300 percent of GDP (Caixin Global, 2019). Furthermore, though a significant portion (42 percent) of Cambodian adults send and receive domestic remittances, the vast majority of these transactions (63 percent) still occur over-the-counter in cash. Very few Cambodians make or receive payments through their mobile phones (see Table 2).

Table 2: Cambodian adults using their mobile phone for different kinds of transactions in the past year (%)

Access Accounts	Domestic Remittances		Paid		Received		
	Sent	Received	Utility Bills	School Fees	Wages	Government Payments	Payments for Agricultural Products
5.91%	2.07%	3.43%	0.87%	0%	0.22%	0.06%	0.17%

Source: Global Findex database (2017)

If these trends continue, Cambodia will still be a predominantly cash-based economy in 2040 and a significant portion of the population will be excluded from the formal financial sector. A straight-line extrapolation of account ownership between the early 1990s and 2017 is illustrative.

The early 1990s is a natural starting point as it was then that financial regulators began issuing commercial banking licenses for fully private-owned banks again after the fall of the Khmer Rouge. For ten years after 1979, Cambodia remained a socialist republic with a command economy. A new constitution in 1989 legalized the privatization of state-owned companies and once again allowed private enterprises, marking the beginning of Cambodia's transformation into a market economy. In 1992, there were only two commercial banks – the Cambodian Commercial Bank and the Canada Gold and Trust Corporation. Both were public-private joint ventures with the NBC holding a 30 percent stake. By then, however, the NBC had approved 45 applications to start new banks, and at least seven had plans to open imminently (World Bank, 1992, p. 32). We can safely assume that account ownership rate among Cambodians were close to zero in that year.

And 2017 was the year the latest Findex survey was conducted. It showed 22 percent of Cambodian adults had accounts with either traditional financial institutions or mobile money providers. We already discussed how account ownership increased sharply between 2011 and 2014. But that was most likely as a result of a one-off event, i.e. the 2014 government policy to pay public salaries through banking channels. With only organic growth driving it, account ownership stagnated between 2014 and 2017.

The rise in account ownership from zero in 1992 to 22 percent in 2017 implies a growth rate of less than one percentage point per year. At this rate, only four in ten Cambodians would have an account in 2040. This would clearly be an unacceptable outcome. Cambodia would fall far behind neighboring countries. In Thailand, 82 percent of adults already had accounts in 2017 (World Bank, 2017). And a major government cashless initiative in Vietnam (Fintechnews Singapore, 2017) is driving up account ownership and digital payment adoption (Fintechnews Vietnam, 2018). But most importantly, this would be a tragedy as more than half of Cambodia's population would still lack access to even the most basic financial services.

If the five key factors discussed earlier are not achieved, it is highly unlikely that Cambodia can become cashless in 2040. Without innovative funding

mechanisms for infrastructure development, last-mile access to the Internet in rural areas will remain a critical issue, locking millions of Cambodians out of digital payments and the digital economy more broadly. In the absence of a significant overhaul, the existing national ID program will continue to struggle to provide the most basic forms of legal identification, let alone digital identification for all Cambodians that serves as the backbone for inclusive financial services and inclusive growth. Short of some very bold thinking, the current regulatory framework cannot support a financial system that is robust and trust-based. And without active government support for the burgeoning digital payment ecosystem, the private sector on its own is not be able to overcome the challenges and costs of adoption.

The role of the government is clear. A useful but imperfect analogy is city planning. Once the municipal authority has built basic infrastructure (roads, water, electricity, sewage, waste collection, and so on), developers will take care of the design, financing, construction, and sales of real-estate projects. Similarly, with the support of a comprehensive public policy program that incorporates the five key factors examined in this chapter, consumer demands and market forces will move Cambodia towards financial inclusion and a cashless society by 2040. This is by no means easy, but the most challenging undertaking offers the biggest payoff. And as the story mobile phone adoption shows, twenty years is plenty of time for big changes to happen.

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Chapter 10 | Tourism

Mr. CHHORN Theara

It is the 25th of May, 2040 and Mytha's smart watch rang in the early morning. Mytha and her family were ready to leave from Phnom Penh for their vacation. They left their home unburdened by luggage for the Phnom Penh International Airport to travel to Siem Reap province. As they lived up in Toul Kork they embarked on the sky train, taking 30 minutes to reach the airport. Their luggage was collected from their home the night before by BagGo, a logistics company who specialise in luggage transit for travellers who will be reunited with their possessions upon arrival. The family's itinerary for their vacation in the ancient heartland of the kingdom is typical of the modern family. They spend their first day exploring the ancient city of Angkor, taking in the virtual reality-assisted tour of the architectural splendor. On the second day they participate in a meditation retreat with many local and foreign tourists in a mediation center which is one amongst the biggest in the region. The next day, Mytha and her family take the interprovincial train along to Battambang; known for its ecotourism and beautiful scenery. On arrival they undertake a two-day guided exploration with the help of their local guide 'Rithy'; matched through the KhmerTour platform. With their holiday coming to an end, the family travel back down to Phnom Penh on the Kingdom Cruseliner, soaking in the splendor of nature on a six hour ride home.

I. Tourism: The Ideal Scenario

In 2040, the Cambodian tourism industry is a model of success in the region. With an increasingly dynamic and mobile population with growing disposable

income, domestic tourists have further fueled the sector's remarkable development. The further diversification of tourism products through avenues such as entertainment and vacation zones, alongside the development of a highly efficient transportation network, has increased accessibility to destinations such as Mondulkiri. The burgeoning Cambodian middle class is increasingly able to travel and views their heartland as a destination offering significant travel opportunities and experiences.

As well as appealing to a considerable domestic market, Cambodian tourism has built on its pre-2020 success in attracting international clients: growing to 12 million by 2030, and to more than 15 million by 2040. This rests on the kingdom's enriched cultural heritage, modern city ecotourism, and the development of coastal areas. The roadmap for tourism strategy has required joint cooperation between the public and private sectors and local people to enhance the awareness, identity, uniqueness, and reputation of Cambodia's tourism sector.

Future tourism has additionally taken shape in the interplay of global megatrends.[20] In particular, technological transformations through the Fourth Industrial Revolution have augmented visitor requirements. Technology has been incorporated into market strategies regarding the supply of tourism products. The smart use of technology has become increasingly key in enabling investment in start-up companies in Cambodia. Technological developments have allowed the government and private sector the opportunity to move to the next level in the development of the tourism industry, namely "smart tourism".

This has enabled such developments as a tour of the Angkor Archaeological Park using virtual reality (VR) technology as part of an exhibition. Additionally, technology has provided opportunities to access the "free independent travelers" market. This allows tourists either in small groups or individually to utilize technology to make travel bookings and arrangements, rather than depend on traditional tourism modes, i.e. through tour operators.

[20] An OECD report (2017) reveals the form of the megatrends, which are slow to form but once taken root exercise a profound and lasting influence on human activities, processes, and perceptions, including on tourism.

The Cambodian population has continued to grow to around 20.6 million by 2040 (World Population Review, 2019), with GDP per capita meeting forecasts to increase by 4.4% per annum by 2040 (Sarasy, 2016). A young population, together with a monied middle class, has resulted in new consumer pools and fresh approaches. Technology has impacted the desire to travel and the expectations of reaching a greater number of travel destinations. Cambodia's digital economy has grown steadily, and it is changing the way people live and do business, with online purchasing and e-payments becoming the norm. The kingdom has developed its desirability by looking at what tourists are demanding; such as being able to appreciate a strong national identity, biodiversity, a range of entertainment options, adventure parks, and trekking: and seeking to increase the opportunities for them to pursue them. This has increased Cambodia's relatively small share of this market regionally to one competing with Thailand and Vietnam.

Increased industrialization, coupled with a growing urbanized population, has also shape the future of tourism in the kingdom. In 2040, product diversification presents enormous opportunities for the industry. The capital has witnessed significant urban growth and has developed into a clean, green, and competitive city, offering its residents a safe environment and high standards of living. Experiences in best practice show that certain investments can have a substantial impact and help shape a city's opportunities for growth, while attracting visitors for both leisure and business.

Where tourism in 2040 has been shaped by globalization and urbanization, institutional quality-based government effectiveness has been necessary for ensuring quality and competitiveness. This has included the diversification of available tourism products, such as further developing community based-tourism (CBT) opportunities, upgrading ecotourism and agri-tourism, and further enhancing cultural tourism. A more effectively integrated transport system is key, with more bridges and further road, river, sea, and air connections proving essential to better connection between the provinces.

II. Scenario Space and Key Factors for Tourism

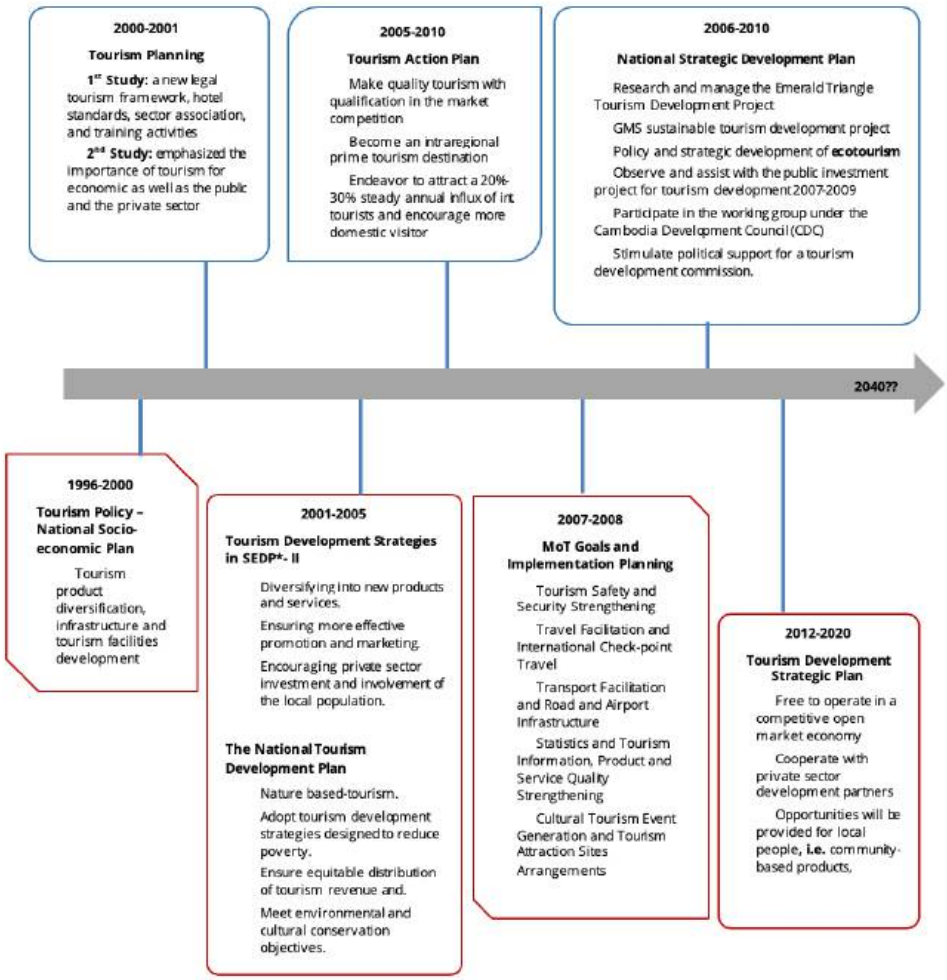
Over several years of sector reconstruction, capacity constraints have represented a serious obstacle to Cambodia's tourism growth, despite the kingdom's strong progress year-on-year. There has been significant growth in many sectors, including through public-private partnerships and direct investment, resulting in multiple high-end luxury hotels, shopping facilities and coffee shops. However, the basic systems for sector planning are not yet fully in place. The sector already has ample potential to attract not only international visitors, but also domestic tourists to explore every corner of the kingdom, through environmentally friendly ecotourism and celebrating the cultural importance of Angkor Wat. Unfortunately, the problems related to capacity constraints are severely compounded by many factors. The World Bank in 2005 made a call for action encouraging "strong directives from government", "better communication", and "guarantees that business is safe" to "secure the reputation of Cambodia", and to "take authority", which has contributed to the sustainable development of tourism in Cambodia, (World Bank, 2005). The government has worked closely with relevant international agencies and tourism units to plan for the growth of tourism in Cambodia. An outline of tourism strategy and policies since 1993 is detailed in Figure 1.

The ultimate success of development within the tourism space will be contingent on the following key factors: **Globalization, Economic Development, Public-Private Partnerships, Governance, and Technology.**

Globalization in tourism is a crucial area, bringing both promise and concern (Larry, 2015). Several important aspects of globalization have affected the progress of tourism in Cambodia. These include technology and economics, as well as social and political factors. Emerging new technologies continue to develop the market in the kingdom. These, coupled with the associated economic developments, are the keys to unlocking greater opportunities for Cambodia as a nation that has not utilized the full potential of these developments thus far. The digital era, with the introduction of the internet, mobile phones, social media, and digital transactions, has transformed Cambodian society. While ICT development was slow until 2008, the sector has grown remarkably since then. Household behavior has undergone rapid change, with the use of social media sites such as Facebook and YouTube increasing. The number of active internet

users has increased by 2.1 million, while active social media and mobile internet users has increased to 4.9 million and 4.4 million, respectively. Regarding tourism, this growth has manifested itself in an increase in the number of online reservations observed over recent years. Prior to investment in digital platforms and the adoption of technology, such as smartphones with tourism site connections, users may have missed the opportunity to access Cambodia as a destination. Advancements in tourism platforms gives the kingdom opportunities to promote itself more effectively.

Figure 1. Tourism Strategy and Policy Overview (1996-2020)



Simultaneously, social media platforms and campaigns have emerged that attempt to influence tourist choices, presenting another opportunity for Cambodia. Ramos and Rodrigues (2013) show that electronic distribution in tourism has facilitated the sharing, communication, and booking of products, while contributing to an increase in tourism demand and to the emergence of a new type of traveler: one who seeks more sophisticated travel experiences.

Competitiveness is another form of globalization, in this instance defined as a destination's ability to add value to products that sustain its resources while maintaining market position relative to competitors (Hassan, 2000). Considered a key driving force, it is an explicit way to show the level of socio-economic development of tourism destinations, with special attention being paid to the quality of life. The competitiveness of tourism is identified through comparing tour companies, hotels, transport, and other tourism services. Under tourism competitiveness, it can be seen that countries can take steps to increase tourist numbers. The Travel and Tourism Competitiveness Report 2017 ranked Cambodia 101st out of 136 countries—behind both Thailand and Vietnam—an improvement on 125th place in 2015. The kingdom scores well in categories such as the prioritization of travel and tourism (29th), price competitiveness (51st), and international openness (58th), but is weak in business environment (125th), human resources and labor market (110th), tourist service infrastructure (108th), health and hygiene (109th), safety and security, and environmental stability (130th). While diversifying the tourist base is a priority, Cambodia fails to generate a substantial number of second time-visitors, in contrast to neighboring Thailand and Vietnam.

Thailand has traditionally attracted tourists from its neighbors, and there is nothing to suggest that Cambodia cannot do the same. The recent significant economic development should provide the kingdom with the opportunity to do so. Like Thailand, the country has many different types of tourism that emphasize adventure and ecotourism. To build on this, the government should pinpoint the unique identity of each province and city and promote it as the core of tourist activities. For example, this could include emphasizing Battambang's special identity, i.e. the historical influence of the Siamese occupation and French administration, which is shown in the province's cuisine and architecture. The

provinces surrounding the Tonle Sap lake, meanwhile, could promote boat cruises. The government will need to focus on preserving the beauty of these areas, particularly the architecture, in order to attract visitors. Unique characteristics can draw more tourists to these areas while helping preserve their identity.

Inevitably, if investment is made through public-private partnerships, those making the investments will want to see returns. This can be achieved by understanding the country's untapped tourism potential. The Cambodian government has been making efforts to improve physical and institutional infrastructure to attract further foreign direct investment (FDI) and tourists. The demand for tourism services has attracted increased investment into the tourism sector, including in hotels, resorts, and casinos. FDI in the sector has helped increase the supply of hospitality services. The majority of the kingdom's investment has been from China. There has been some negative publicity around this, and the government will need to work on ways to improve this perception if it wishes to attract tourists from outside China.

Urbanization and infrastructure planning are also key to tourism development. Cambodia continues to rapidly urbanize: while 21% of people currently live in cities. Maintaining Cambodia as a desirable tourist destination while this takes place requires considered and sustainable planning. This ties in with smart city development, a key component of the kingdom's development vision.[21] Infrastructure is one of the most challenging factors for Cambodia's economy, including the tourism sector. There is the opportunity to make the country more appealing to tourists and increase the kingdom's competitiveness. Effective improvements to tourism-related infrastructure will bring major social benefits to residents in and around urban areas through increased incomes, better transport systems, and improvements in associated amenities. Cambodian tourism needs a high level of government intervention. This involves multiple interrelationships among numerous actors including the authorities, private companies, and the tourists themselves. Dupeyras (2013) stresses that the standard of

[21] The vision follows the inspiration of the ASEAN Smart Cities Network (ASCN) established in 2018 with an aim to improve lives of the people, using technology as an enabler to capture visitor behavior and web-based promotion to the new strategies.

government plays a wider role in promoting the image and international perception of a country. Good governance can increase the desirability of a destination and bring additional benefits as tourists are attracted to secure and safe countries. Some studies also show that the institutional standards of a country play an important role in explaining inbound tourism demand and the behavior of international tourists. Both are more concerned with political stability, governmental effectiveness, regulations, laws, and corruption than voice and accountability (Tang, 2018). In 2017, the Cambodian government recorded effectiveness index scores of -0.66 out of 2.5 and an institutional quality index average of -0.75.[22] Figure 3 shows the Cambodian government's effectiveness score in providing quality in public services and the civil service, and the degree of its independence from political pressures. This perception negatively affects the number of tourist arrivals. Accordingly, the Cambodian government and associated agencies should provide regulations and controls for tourism to ensure that the kingdom can compete with other countries on these measures.

Recognizing these key factors and their causal role in the development of the industry can boost growth in the sustainable tourism sector. While the northern part of Cambodia has the potential to attract more tourists through ecotourism, it is currently difficult to reach. Improved transportation links, reducing both travel duration and the number of accidents, would more effectively promote the area and increase its attractiveness to tourists.

III. Policy Initiatives to Achieve the Ideal Scenario

Cambodian tourism will have to undergo a significant transformation to achieve the desired number of tourists. The government should take the lead on effective strategic initiatives, in partnership with those involved in the sector. While some policies have been embraced, some locally and some nationally, these have often focused only on up-market visitors and a few cities, and been too domestically focused or not looked at attracting return visitors. The focus should

22 It measures different aspects of governance quality indicators, such as voice and accountability, political stability and absence of violence and terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption.

now move to a national strategy. With respect to who should drive the developments to make tourism more competitive and innovative, the kingdom should utilize two existing government mechanisms. First, the Ministry of Tourism, the governmental administrative office in charge of promoting and managing the tourism sector, and second, the Council for the Development of Cambodia (CDC), the organization in charge of improving, developing, and controlling investment activities. In order to achieve the 2040 target, the following proposed strategic policies should be employed.

Prioritized Strategic Policy 1: Center on Cambodia's themes, landmarks, and reputation.

The kingdom's tourism products are well known: history and culture, biodiversity, and French colonial architecture. With Cambodia having seen impressive growth in terms of foreign tourist arrivals in the past two decades, it is therefore possible to generate greater numbers of return visitors. The policies outlined previously would result in a more memorable experience, with visitors wanting to further explore the kingdom. Tourists would then more positively review their experience of Cambodia and encourage others to visit via word of mouth. Positive reports are hugely influential when people decide on destinations, whether shared via direct communication or online platforms. Cambodian tourism statistics currently show a short length of stay, with visitors not convinced to return. Policy makers should accordingly collect positive reviews and statistics to proactively harness goodwill for promotional measures.

Prioritized Strategic Policy 2: Employ data-driven analysis integrated with advanced technology to look into tourism competitiveness.

To be more competitive, the tourism sector needs to be more innovative and offer increasingly diversified products to connect travelers and destinations. Competitiveness in tourism should be a key driver for any destination when it comes to reviewing its performance. If a destination is performing well in the broad sense of sustainability, its competitiveness will be enhanced by what the visitor sees, experiences, and shares with their networks. Experts in tourism

development as well as policy makers should therefore explore employing data to address the weaker components in the tourism and travel competitiveness index. The data has a huge impact on a range of sectors, and it can be combined to support efforts to boost tourism in many different ways. These statistics can also improve the quality assurance of the supply side. While issues can be addressed through applying data-driven solutions, there will additionally be room to promote new ways of traveling for more meaningful getaways.

Prioritized Strategic Policy 3: Digitalize tourist-related businesses and establish social media channels.

There is currently a huge revolution in technology underway, which has led to thousands of online platforms offering greater accessibility and convenience for exploring tourism products and services. However, the need to go beyond this online model is increasing day by day due to customers wanting a more interactive and tailor-made experience. To address this, all tourism websites should include social media as part of their core offer.

Looking to Western tourists, for example, decisions on travel destinations are based largely on the experiences of others. However, priority is also given to researching tourism sites such as Booking.Com, TripAdvisor, Expedia, etc., to see the experiences of other travelers during a visit to a country. Currently, Cambodia's tourism industry lacks e-promotion and the use of social media. The kingdom needs to move toward a more integrated approach, which includes using web-based and mobile technologies to turn communication into an interactive dialogue between organizations, communities, and individuals around the globe. Blogs, content communities, videos, and social networking are sources of attracting tourists that should be prioritized. Targeted e-marketing, for example, could build good hospitality quality assurance and provide access to global market segments. While not targeting specific groups, promoting tourism through ICT adoption, e-marketing, and e-promotion is proving a popular tool to access the global market portfolio. These tools need further development to ensure increased tourist demand, such as video content that can shape travel destination choices. Marketing for the secondary provinces should be created to emphasize their unique identity.

Furthermore, rather than simply focusing on business/investment-based tourism, the relevant authorities should prioritize consumer-generated media as this can build further customer interest. However, if it is decided to use such online platforms for promotions or market segment updates, it is crucial to understand how to use social media to become more effective influencers. Tourism authorities should bear in mind that people have become resistant to direct social marketing and should therefore find other ways of influencing behavior change.

Prioritized Strategic Policy 4: Increase the awareness of popularity in secondary provinces, yet keep tourism focused on up-market customers.

As each of the kingdom's provinces has its own unique qualities and under-reported history, the secondary provinces should be promoted and developed to attract a greater number of tourists. To achieve this, the government should support areas with low visitor numbers by allocating money from the national tourism budget. Furthermore, local people and tourism authorities should closely collaborate to increase market segments and investment opportunities, either from local business operators or the government. While such provinces have hitherto received limited attention in spreading awareness of what they have to offer, this must change. By focusing on up-market tourists, these provinces could become attractive destinations. How would such an approach work? It must offer something different, emphasizing the traditional culture, the local people, and the positive impact of tourism on livelihoods. This also requires investment to ensure the destination can be easily reached.

In brief, these provinces can be made appealing to up-market tourists by:

- Addressing environmental and community safety concerns;
- Offering the attraction of visiting the "real, traditional Cambodia";
- Linking Khmer life and culture through village tours beyond the main tourism areas;
- Improving tour services and operators, including but not limited to tourist information, as well as transportation to and from the district and village.

Prioritized Strategic Policy 5: Build an atmosphere of safety and security.

Visitors desire peace of mind and seek travel destinations that are safe and secure. Cambodia should continue to be heavily involved in regional policies to put an end to perceptions of the kingdom as being unsafe and not secure. Additionally, the government should continue working on activities and plans including but not limited to the following:

- Involving everyone in crime prevention programs as safety is the responsibility of all. This includes all related tourism suppliers, including hoteliers, airlines, the local population, transportation agencies, restaurants, bar tenders, and taxi drivers, to coordinate through appropriate planning and awareness campaigns;
- The government should invest the necessary budget;
- A special professional tourism force should be formed. It is crucial for tourism areas to have security professionals who can ensure safety and be sensitive to the needs of tourists.

Additional strategic plans should be put in place to ensure quality outcomes. These are as follows:

Followed Strategic Plan 1: Establish transparent systems for investment through public-private partnerships.

This approach is costly as it incorporates multiple investments from the government, the private sector, and the community itself. While the government budget needs to be ring-fenced, the strategy also identifies the need for developing a targeted portfolio of investment requirements. To absorb the increased capital flow from foreign investors, clear financial management policies should be linked. Additionally, to make the approach work effectively, existing visa policies[23] should be maintained.

[23] The visa policies are considered as a facilitative way for foreign investors:

- Open Skies Policy for travel by air, overland and water;

Followed Strategic Plan 2: Strengthen institutional quality and capacity-building based workforce development.

The quality of governance and local administration capacity in tourism has played a crucial role in accelerating the attractiveness and competitiveness of the sector. Government agencies must reformulate the role of the provincial governor to strengthen the tourism workforce and provide more short-term training, which is already a policy of the Ministry of Tourism. Developing the skills of the workforce is considered a key need in the sector,[24] because while the human element creates a competitive advantage, it can also ruin a tourist experience. Steps to building capacity are as follows:

- Develop a sustainable workforce through short-term and regional training;
- Implement appropriate educational policies for all tourism organizations and agencies. These policies should be designed by relevant tourism bodies working closely with the government and not by other

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- Visa on Arrival;
- Visa Exemption for Cambodians living abroad policy (Visa K), which has been appreciated by the national and international Cambodian community

+ AMRO (2018) stresses an Open Sky policy has been implemented to increase connectivity between Cambodia and the regional aviation hubs. With the Open Sky policy, Cambodia has seen air capacity rapidly expand from seven aircraft operated by two domestic airlines in 2013 to a total of 30 aircraft owned by seven domestic airlines as of H1 2018. International airlines have also dedicated more resources to this booming market, helping connect Cambodia with other countries and increasing connectivity within the kingdom as well, with more than 260 flights per day. There are around 210 flights a day to and from Cambodia and 50 within Cambodia: Of this number, 140 flights are to and from Phnom Penh International Airport, 110 to and from Siem Reap, and around 10 to and from Sihanoukville.

[24] The World Economic Forum's Global Human Capital Report 2017 gave Cambodia the poorest score in ASEAN for educating and training its citizens to develop a competitive workforce and put their skills to productive use. Cambodia ranked 92nd out of 130 countries in terms of human capital development. While this was up from 100 in 2016, Myanmar and Laos both made comparatively bigger improvements. Myanmar jumped from 109th in 2016 to 90th in 2017, while Laos went from 106th to 84th. Looking at the breakdown of the overall rating, it was education where the country scored particularly poorly (Open Development Cambodia, 2019).

entities. Some educational policies are set by the Ministry of Education, Youth and Sports, for instance;

- Create tourism assemblies or conventions in provincial areas that are relevant to workforce development and respond to future demands at both the local and national level.

Followed Strategic Plan 3: Promote city-based urbanization development and make it more sustainable through physical public infrastructure.

In view of harmonizing the city with both local people and foreigners, and improving standards of living, promoting sustainable urbanization is proposed as a strategic plan for tourism development. In this initiative, the government and investment partners play an important role. Any strategy to modernize a city should be guided by a clear master plan. A fundamental task is to establish a consistent, transparent, and strong framework in planning a city's development so that it can be visibly demonstrated it will enhance the attractiveness of the urban space for tourists.

- It is essential to balance a city's attractiveness to tourists with its sustainability. Promoting environmentally friendly transportation, coupled with green urban planning criteria, will be the norm and reduce pollution. Some provinces of Cambodia are already environmentally sustainable, which will add value to tourist destinations.
- With infrastructure to be used by both tourists and locals, investment-related infrastructure should have a clear master plan in place as it is the base of economic development. The development of sustainable tourism is dependent on the provision of public infrastructure, which supports the capacity for growth in the sector.

Followed Strategic Plan 4: Develop more community-based tourism to maximize local people's benefits from growing tourism demand.

The community-based tourism (CBT) model exists across the globe, particularly in neighboring Laos, Thailand, and Vietnam. The model focuses on supporting and developing local communities, while building awareness. The community continues to practice its living traditions, but additionally benefits from income from tourists. There are currently more than 10 CBTs in Cambodia, with the kingdom having much to offer those wanting a CBT experience. The number of these should increase, with the proviso that most of the revenue goes to local people and their communities. The development of CBTs would not only be attractive to tourists, but also provide local people with opportunities for development. Some key actions of the CBT model are:

- Supporting communities to engage in the tourism sector by overcoming knowledge barriers;
- Improving existing attractions to meet tourist visitation expectations and promoting local brands;
- Expanding and diversifying the available range of natural, cultural, and heritage products;
- Providing guidelines and training from tourism developers or experts, with coordination from local authorities, NGOs, and authorities; etc.

This popular approach would create employment and increase the awareness of local communities. It would also help integrate rural economies into the tourism sector by promoting CBT through products that could be incorporated into the tourism market.

Following Strategic Plan 5: Build international collaboration and joint global tourism associations.

Entire nations are connecting with the world increasingly close in the era of globalization. Being a part of such collaborations boosts reputation and identity, with more market segments reached and greater opportunities provided to increase awareness of the kingdom. The government agencies making tourism policy should collaborate internationally and regionally, and ensure that the gains made from tourism are inclusive and equitable.

Achieving 12 million visitors by 2025 and more than 15 million by 2040 must be modeled on global best practices, with clear leadership and substantial levels of coordination and cooperation, while utilizing the benefits of advanced technologies. A long-term view of Cambodian tourism will enable the kingdom to overcome challenges and achieve the target of doubling current tourism numbers.

IV. Tourism Under the Baseline Scenario: Business as Usual in 2040

While the Cambodian tourism sector is playing a crucial part in sustaining economic growth and broadening the growth base (AMRO, 2018), with a significant role in driving the national economy, the sector is still in need of modernization. Tourist arrivals have grown dramatically, with 118,000 visitors in 1993 increasing to 6 million in 2018 (Figure 2). The kingdom has reaped benefits from this, including increased income, employment, and investment. However, without action, such growth may stall.

The number of tourists visiting Cambodia has increased substantially over the years, with 12 million visitors expected by 2025 (Khidhir, 2018). However, the kingdom lags behind its neighbors in attracting high-income tourists, who tend to stay longer and have larger budgets. To hit the 2025 target, the sector will need to increase efficiency both to maintain its current market segments and increase the number of high-end Western tourists. Without such changes, the 2025 and 2040 targets will be difficult to achieve.

Against this backdrop, job creation in the tourism sector will remain strong, although high seasonal variations are expected to continue hampering skills development.[25] The tourism industry provided 2.6 million jobs in 2017, with this

[25] According to WTTC report, direct contribution of Travel & Tourism to GDP in 2017 was 14.1% of GDP and was forecast to rise by 4.2% in 2018. It is expected to grow by 5.9% per annum (12.1% of GDP) by 2028. The total contribution of Travel and Tourism to employment (including wider effects from investment, the supply chain, and induced income impacts) was 2,663,500 jobs in 2017 (30.4% of total employment). This is forecast to rise by 2.5% in 2018 to 2,729,000 jobs (30.5% of total employment). By 2028, it will support 3,642,000 jobs (35.0% of total employment).

forecast to rise to 3.6 million by 2028, when it will account for 28.3% of GDP[26] (Figure 6). Such a large fluctuation has also led to difficulties for businesses, and reduces the incentive to hire long-term contract employees and provide substantial training (AMRO, 2019).

Most tourism products, such as hotel and restaurant supply,[27] are import based. As a result, the sector does not benefit as much as it should. Some studies agree that focusing the sector using value chain analysis, with a particular focus on sustainable tourism, could help identify specific administrative and market-based barriers to create a more efficient sector and determine opportunities for improved backward and forward linkages. Moreover, tourism potential remains untapped. Diversifying tourist destinations remains to be realized, but could lead to an increase in benefits for local people.

The number of Chinese tourists has been growing rapidly in recent years, but there is still room for further increases (AMRO, 2019). China's structural shift from manufacturing to services is likely to boost demand for tourism. There has also been a huge increase in the number of investors in Cambodia, a large proportion of them Chinese. In addition, multiple-entry business and tourist visas

[26] WTTC (2018) defines economic impacts methodology as follows:

1) The direct impact to GDP reflects the 'internal' spending on Travel & Tourism (total spending within a particular country on Travel & Tourism by residents and non-residents for business and leisure purposes) and government individual spending - spending by government on Travel & Tourism services directly linked to visitors, such as cultural or recreational.
2) The indirect impact includes the GDP and jobs supported by:
    a. *Travel & Tourism investment spending;*
    b. *Government 'collective' spending; and*
    c. *Domestic purchases of goods and services by the sectors dealing directly with tourists*
3) The induced impact measures the GDP and jobs supported by the spending of those who are directly or indirectly employed by the Travel & Tourism sector.

[27] According to the tourism authorities, the number of hospitality institutions has increased noticeably, to about 730 hotels with about 40,000 rooms, 2,405 guesthouses with 35,200 rooms, 2,440 restaurants, 410 massage centers, 682 travel agents, and more than 5,000 licensed tour guides. At the same time, to ease traffic congestion, especially in Phnom Penh, the tourism authorities have also increased city bus routes across the capital to 17 from 12 last year (AMRO, 2019).

has seen the number of visitors to Cambodia from China increase, with some local people reporting being negatively impacted by this. To meet the increased demand, the Cambodian Ministry of Tourism launched the "China Ready" policy[28] that targeted attracting 2 million tourists from China by 2020. More than 1.2 million Chinese visited Cambodia, equal to 22%, in 2017, rising 67.2% in 2018, followed by 15% from Vietnam.

Cambodia's tourism competitiveness remains challenged and needs further assessment. The kingdom's sector shares the combined number of tourists to three countries with Thailand and Vietnam, which together welcomed 50 million tourists in 2017, more than three times the Cambodian population. The kingdom's tourism sector lags behind these two countries. Cambodia accounted for a mere 10%, and its share is trending downward. This small fraction reflects substantial untapped potential as the country has not been successful in luring across those tourists who visit its neighbors.

It is important to reiterate that more than 80% of foreign tourists to the kingdom are first-time visitors, with only around 17% returning tourists. This is compared with the more than 50% of tourists who return to Thailand (World Bank, 2018). Factors accounting for repeat tourist arrivals include, but are not limited to, satisfaction with accommodation, shopping, restaurants and food; security and safety; prices; and public infrastructure; as well as the attitude of local people in helping visitors enjoy their stay. In order to be more competitive, in comparison with Thailand and Vietnam, Cambodia should develop more diversified tourism products with respect to improving capacity constraints and improving on the weak points in the TTCI. Product development is another key factor prior to developing human resources in the tourism sector.

[28] The initiatives include special arrival gates for Chinese tour groups with easy visa services, language training for tour guides, and the "China Ready" accreditation system, which has provisions for food and beverages, accommodation, transportation, resorts, shopping, entertainment, and travel agents. By the end of 2017, 29 business institutes across the seven areas had been accredited as "China Ready" (AMRO, 2019).

Cambodia, although enjoying enrichment from natural and cultural assets, needs to extend its offer beyond the so-called Smiley Face[29] of the current popular tourism zones. The kingdom has to ensure that tourists across the world have greater awareness of all it has to offer. Engagement between the public and private sectors to deliver tourists a great experience with the services to match has to be embraced. While the focus should be on developing attractive and competitive tourism, change should not just be surface level, but to ensure longer term growth in both foreign and domestic tourism.

Moving the sector into the top tier of tourism- and business-oriented destinations is timely and conditionally attached to the roadmap to 2040, particularly regarding Industry 4.0. Current statistics show tourists from Western countries are decreasing, as are those from South Korea, with a further decline forecast. However, there have been rising numbers of tourists from Asia, particularly China. It would not be prudent for the sector to rely too heavily on one market, as this would make Cambodia vulnerable to shifts in the preference of that market.

Internal tourism should continue to increase due to Cambodia's rising middle class, but this opportunity could be missed if the kingdom does not become more competitive. Further challenges need to be addressed in order to ensure sustainability, inclusion, and seasonality. At the same time, competition will also increase, particularly from the ASEAN region, from the countries that offer more diversity in tourism products. In order to create higher-quality tourism, the public and private sectors have to collaborate to diversify their marketing strategies from the traditional forms to penetrate emerging markets and to seek new tourist market segments. Furthermore, with new technologies, the tourism customer will become more demanding, with the kingdom needing to keep up with untapped market segments. The sector also needs to be mindful of changes in

[29] The Cambodian priority tourism zones are referred to as the "Smiley Face" because that is what they resemble if you highlight them by location. The left "eye" refers to the cultural zone of Siem Reap and surrounding areas, while the right eye is the ecotourism zone of Ratanakkiri and surrounding areas. The nose is Phnom Penh, while the coastal zone, including Sihanoukville, is the mouth.

the political environment, which could affect the number of tourists wishing to visit Cambodia.

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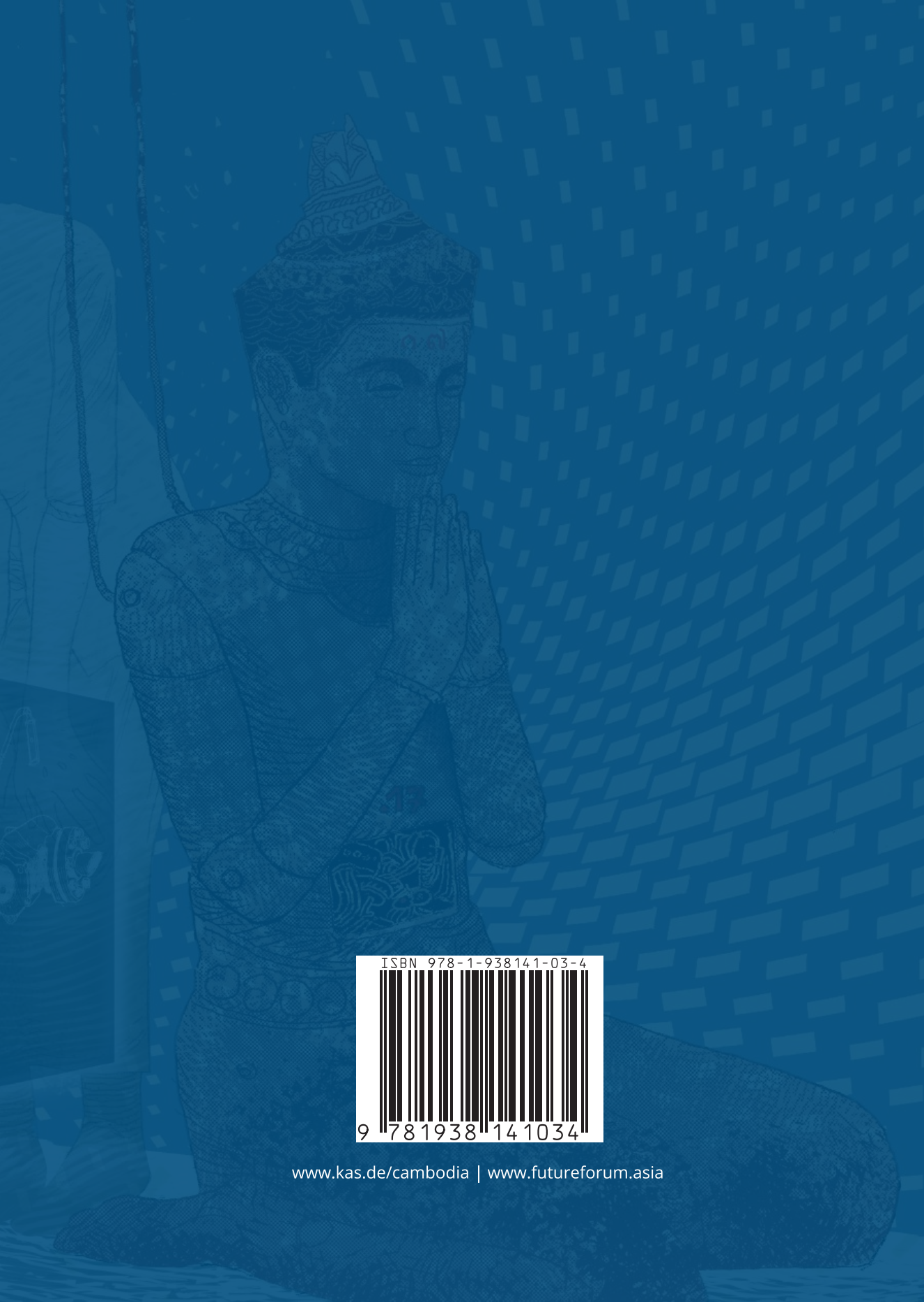

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