CAMBODIA DEVELOPMENT REVIEW

PESTICIDE USE PRACTICES IN CAMBODIA'S VEGETABLE FARMING

I. Introduction

Green revolution technologies, which include fertilisers, improved crop varieties and pesticides, have transformed agricultural production since the late 1960s through productivity improvement (Ogada, Mwabu and Muchai 2014). To maximise crop yield, pesticides are considered an important component of these technologies for effective and reliable crop protection against pests and diseases (Mengistie, Mol and Oosterveer 2017). The use of pesticides in agriculture has markedly increased in developing countries, especially in Southeast Asia. Cambodia is no exception, with annual growth in pesticide use in 2003–12 of about 61 percent (Schreinemachers et al. 2015). This significant increase implies unsafe pesticide use or misuse which poses health risks to pesticide applicators and consumers.

With the aim of contributing to agricultural development through the promotion of safe vegetable farming, this reports the situation of pesticide use in Cambodia's vegetable farming. The report is organised as follows section 1 introduction, section 2 pesticide use in Cambodia's vegetable farming which includes perceived effects of pests and diseases, pesticide dealers and wholesalers, toxicity of pesticides available, use of pesticides, and farmers' knowledge of pesticides; and section 3 is summary.

II. Pesticide use in Cambodia's vegetable farming

Vegetables are a key part of the Cambodian diet, with more than 96 percent of the population eating vegetables 4.8 days per week. Yet vegetable farming accounts for only 1.3 percent of total agricultural land (NIS 2015; FAO 2014), which is partly because the vast majority of vegetable farmers are smallholders with an average landholding of 0.41 ha (Schreinemachers et al. 2017). The vegetable sector is still dominated by fruit-bearing and leafy vegetables (NIER 2015), though the specific vegetables that are grown and consumed have changed dramatically in the last two decades. The most commonly grown vegetables by cultivation area, according to the Census of Agriculture 2013 (NIS 2015), are cucumber (7,000 ha), chilli (5,000 ha) and pumpkin (5,000 ha).

There is a wide array of dangers associated with inappropriate use of pesticides. Pesticides are poisons and they pose inherent health risks to the farmers and farm workers who are exposed to them. Health effects range from headaches, excessive sweating and dizziness to vomiting, muscle twitching and even unconsciousness (Schreinemachers et al. 2017). Inappropriate pesticide use is often linked with residues on or in food that exceed the MRL, which can cause illness in those who consume the products. MRL exceedances are commonly cited

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as the reason why few farmers are able to export their produce, as most importing countries have strict MRL (NIER 2015). Pesticide misuse can take many forms, but the most common are over-spraying, failure to use protective equipment, non-compliance with the minimum time interval between the last spray and harvest, mixing different types of pesticide in the same spray tank without checking compatibility, and incorrect use of yellow (highly toxic) and red (extremely toxic) coded pesticides.

2.1. Perceived effects of pests and diseases

It has been well documented that pests and diseases are the biggest challenge that Cambodian smallholder vegetable farmers face. As Figure 1 shows, pests and diseases had a severe effect on vegetables grown in the cycle before the survey was conducted. On average, farmers found pests or diseases on 95.14 percent of the vegetables grown during the last cycle. All survey farmers found pests or diseases on their cabbage, peas and Chinese kale. Additionally, the survey found that on average 20 percent of crops grown during the last cycle were damaged by these pests and diseases, with vegetables such as cauliflower, eggplant and Swatow mustard suffering losses of around 30 percent.

2.2. Pesticide dealers and wholesalers

Key informant interviews with pesticide wholesalers show that farmers have easy access to a wide range of chemical inputs at the local markets in their district and commune. In some cases, those products are even available at retail

Figure 1: Vegetable pests and diseases commonly found by farmers and the damage caused to crops (percent)
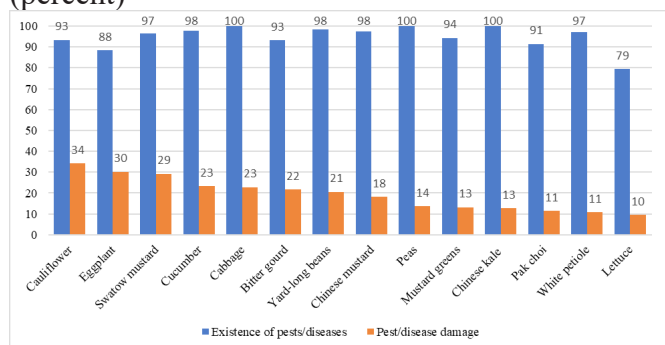
Source: Calculation based on the household survey[1]

1   Household survey was conducted with 600 commercial-oriented vegetable farmers in four provinces namely Battambang, Kandal, Kampong Cham and Tbong Khmum

Figure 2: Pesticides with Khmer instructions (percentage)
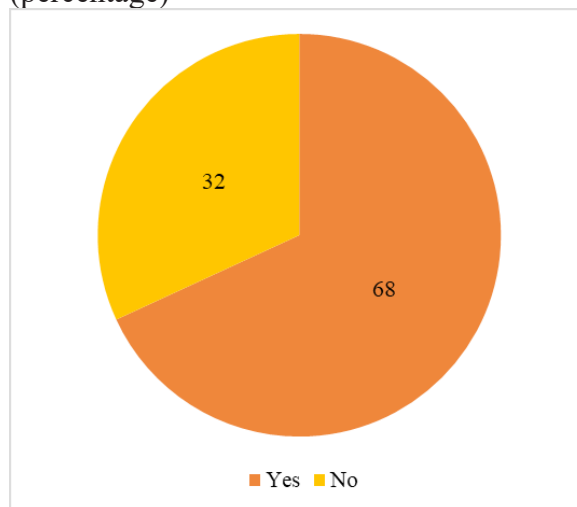
Source: Calculation based on the household survey

stores in their villages. Vietnam, Thailand and China were the main sources of pesticides sold by these wholesalers. Most products are imported by registered agricultural input distributors, demonstrated by the authorisation labels visible on the packages. Pesticides from these sources could help minimise the risks of pesticide misuse – which is hazardous to humans and the environment – given that all essential information is translated into Khmer. Presumably, unauthorised pesticides were also present in these same stores. This assumption is based on the lack of authorisation labels on the packaging and the lack of Khmer translation for any of the information (Figure 2).

Around 75 percent of pesticide dealers interviewed in the four provinces had not participated in any training on pesticides before starting their businesses. Moreover, training received shop owners were not always present at the shop, leaving the trading and consultations to untrained shopkeepers. This lack of official training among pesticide dealers is worrisome because farmers typically consult these dealers in lieu of trained personnel about effective pesticide usage.

There are two groups of pesticide buyers that frequent these shops. The first group includes farmers who source pesticides based on previous experience. In this case, they ask dealers for pesticides from specific brands or from familiar companies that have worked well in previous applications. The second group consists of farmers without prior knowledge of pesticides. Pesticide dealers play the role of consultant for these farmers, selecting and

Table 1: Observed pesticides by type in each province

Area	Insecticide	Disease control substances	Growth booster	Herbicide	Total
Battambang	62	7	16	0	87
Kandal	92	7	25	3	130
Kampong Cham and Tbong Khmum	121	7	23	0	155
Total by category	**275**	**21**	**64**	**3**	**372**

Source: Household survey

mixing pesticides based on information that the farmer provides. These mixtures typically consist of three types of pesticides; in some cases, pesticide dealers recommend mixtures of five different types. This practice goes against CamGAP codes, whose standards recommend using only one type of pesticide in each spray unless advised by trained personnel. Guidance by a trained professional is critical as they understand the ramifications that inappropriate use of pesticides can have on farmers and the food system as a whole.

2.3. Toxicity of pesticides available

A total of 372 different types of agrochemical inputs[2], consisting mainly of insecticides (275), Growth booster (64), disease control substances (21), and herbicide (3), were identified throughout the four provinces (Table 1). As shown in Table 3, among 275 insecticides identified, 156 are highly toxic, represented by a yellow label, 74 are moderately toxic, thus labelled blue, and 10 are less harmful, labelled green. It was also discovered that a very small number of farmers in Battambang,

2   List of these pesticides is available in annex 2 of working paper

3   WHO Classification of Pesticides by Hazard: Red (Class1) is toxic, Yellow (Class2) is harmful, Blue (Class3) is Caution, and Green (Class 4) means unlikely to present a hazard in normal use.

Kampong Cham and Tbong Khmum are still using extremely toxic (red label) pesticides, even though these pesticides have been banned by the Ministry of Agriculture, Forestry and Fisheries.

According to Table 2, in Battambang, 62 different pesticides were available, 37 of which are highly toxic, 18 moderately toxic, and four less harmful. In Kandal province, 92 different insecticides were collected, 53 of which are classified as highly toxic, 22 as moderately toxic, and 12 as less harmful. In Tboung Khmum and Kampong Cham, 121 different insecticides were collected. Of these, 66 are highly toxic and 34 are moderately toxic. In each province, there was also a small number of pesticides that could not be identified.

2.4. Use of pesticides

Survey data indicates that farmers clearly prefer chemical pesticides over biopesticides, with the vast majority spraying only chemical pesticides (Figure 3). In addition, the majority of farmers prefer mixing many pesticides in one application rather than using just one at a time as recommended (Figure 4). Thirty-five percent of farmers mixed up to three different types of pesticides in a single spray and another 15 percent mixed up to four types. Only 11 percent of farmers used one pesticide per spray.

As Table 3 shows, farmers who chose to use pesticides sprayed nearly every crop that they grew.

Table 2: Hazard level of the observed insecticides by province

WHO Classification[3]	Battambang	Kandal	Kampong Cham and Tboung Khmum	Total
Red	1	0	2	3
Yellow	37	53	66	156
Blue	18	22	34	74
Green	4	12	16	32
Unidentified	2	5	3	10
Total by province	**62**	**92**	**121**	**275**

Source: Household survey

Figure 3: Vegetable farmers using bio and chemical pesticides (percent)

Use of bio and chemical pesticides in vegetable farming
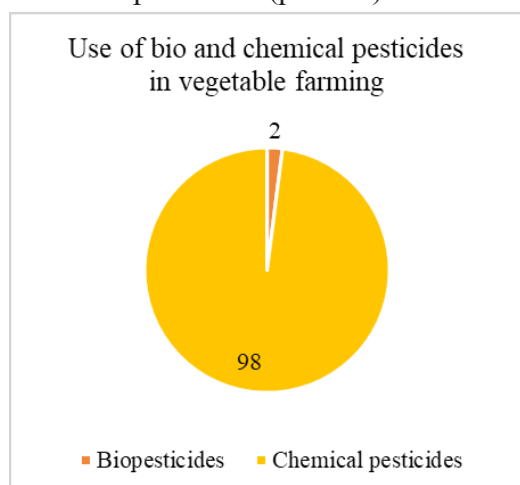
Source: calculation based on household survey

Figure 4: Vegetable farmers mixing different types of pesticides in one spray (percent)

Number of pesticides per spray

Table 3: Percentage of crops sprayed by farmers who used pesticides

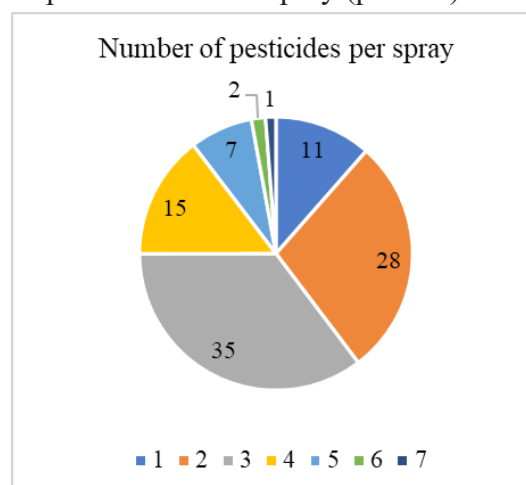| Vegetable	Use of chemical pesticide (%)	Use of biopesticides (%)	Number of pesticides mixed in one spray
Swatow mustard (60 days)	100.00	3.45	3.34
Chinese mustard (40 days)	100.00	4.88	3.05
Cabbage (90 days)	100.00	5.56	2.93
Chinese kale (60 days)	100.00	0.00	3.59
Bitter gourd (150 days)	100.00	6.90	3.24
Cucumber (80 days)	99.21	3.15	2.63
Yard-long bean (90 days)	98.36	1.64	3.05
Cauliflower (90 days)	98.33	3.33	2.29
Eggplant (90 days started from plant)	97.67	4.65	2.88
Bok choy (40 days)	97.14	4.29	3.07
White petiole (40 days)	96.97	6.06	3.31
Mustard green (40 days)	96.59	7.95	2.89
Peas	94.74	0.00	3.17
Lettuce	79.41	0.00	2.04

Source: Calculation based on household survey

All farmers using chemical pesticides sprayed their crops of bitter gourd, cabbage, Chinese mustard, Swatow mustard and kale, and the vast majority of them sprayed their other vegetable crops, except for lettuce (79 percent). The use of biopesticides is not common among the surveyed vegetable farmers in the study provinces. In addition, vegetable farmers spent around 40 percent of total input expenditure on pesticides and fertilizers (25 percent and 15 percent respectively)[4].

Farmers reported a number of reasons for mixing pesticides, but the main reason cited was that they wanted to target many pests (Table 4). This indicates the perception among farmers that using various types of pesticide together per spray is an effective way to deal with pests.

Table 4: Farmers' reasons for mixing pesticides

Reason	Percent of total households
Many pests	87.03
Only one pest but uncertain about pesticide effectiveness	6.09
Following the suggestions of others	4.38
Imitating other applicators	2.03
Other reasons	0.47

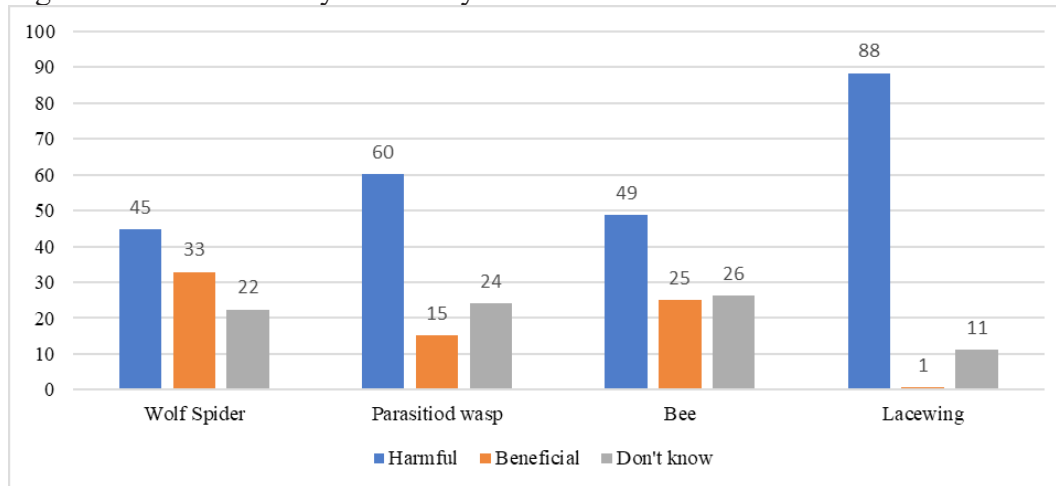Source: Calculation based on household survey

2.5. Farmers' knowledge of pesticides

Before farmers can spray pesticides on their crops, they first must know which pests and diseases are affecting their crops. Survey data[5] shows the wide

4   Refer to working paper for reported table.
5   Refer to annex1 of working paper for types of pests and diseases affecting vegetables found in survey data.

Figure 5: Farmers' ability to identify beneficial insects

Source: Calculation based on household survey

array of pests that can be found on vegetable crops. The most common pest identified across all crops was dangkov yol tong/rom. This pest accounted for nearly 38 percent of all of the pests identified by the surveyed farmers. The next most common pests were Teak Ku and Kra plern/sor/inflame, which accounted for 8.3 percent and 6.0 percent of all pests respectively. All other pests represented less than 5.0 percent of total pests. The quantity of pests present depended on the vegetables that were being grown. For example, more than half (55 percent) of the pests were found on mustard greens (17 percent), cucumber (16 percent), cabbage (12 percent) and bak choy (10 percent).

Our survey data indicates that more than 20 percent of farmers could not differentiate between harmful and beneficial species. Almost 90 percent of them believed that lacewings are harmful to their crops and only less than 10 percent thought otherwise. Similarly, higher percentages of farmers misjudged wolf spiders, parasitic wasps and bees as being harmful rather than beneficial (Figure 5). When this result was further observed, it was clear that farmers were familiar with identifying harmful insects and struggled to identify beneficial ones. Also, farmers were not noticeably better at identifying arthropods common to any specific vegetable, indicating that the inadequacy of knowledge about that is common among farmers.

Farmers are not only reliant on their own knowledge; there is a wide network that they can use to gather information and advice on pest management. The data in Table 5 shows that most of the surveyed farmers received information related to their pest and disease problems from various important sources such as local pesticide shops (52 percent) and friends and neighbours (37 percent).

Table 5: Sources of information for pest and disease problems

Source of information	Percentage
Pesticide shop	51.83
Friend or neighbour	36.53
Lead farmer	4.09
Extension office or official	3.77
NGO	2.91
TV program	0.75
Other	0.11

Source: Calculation based on household survey

Farmers also have had access to training in pest management techniques (Figure 6). Of the 14 alternative techniques that were referenced by farmers, the most commonly adopted are "regularly scouting plants for pests and diseases" (82 percent), "rotating with non-host crops" (73 percent), and "picking and destroying insects by hand" (55 percent). These training programs appear to be highly effective, given that the four most commonly used pesticide-alternative techniques are also the ones which are most widely taught.

When it comes to the reasons why farmers did not apply the improved farm practices that they learned, our survey data indicates that more than three quarters of them reported the high cost of raw materials (30 percent), their habits (24 percent) and additional time requirements (22 percent) as barriers to adoption. The main sources of their knowledge about these improved farm practices are social networking (i.e., neighbours, friends

Figure 6: Pest management techniques used and training received (percent)
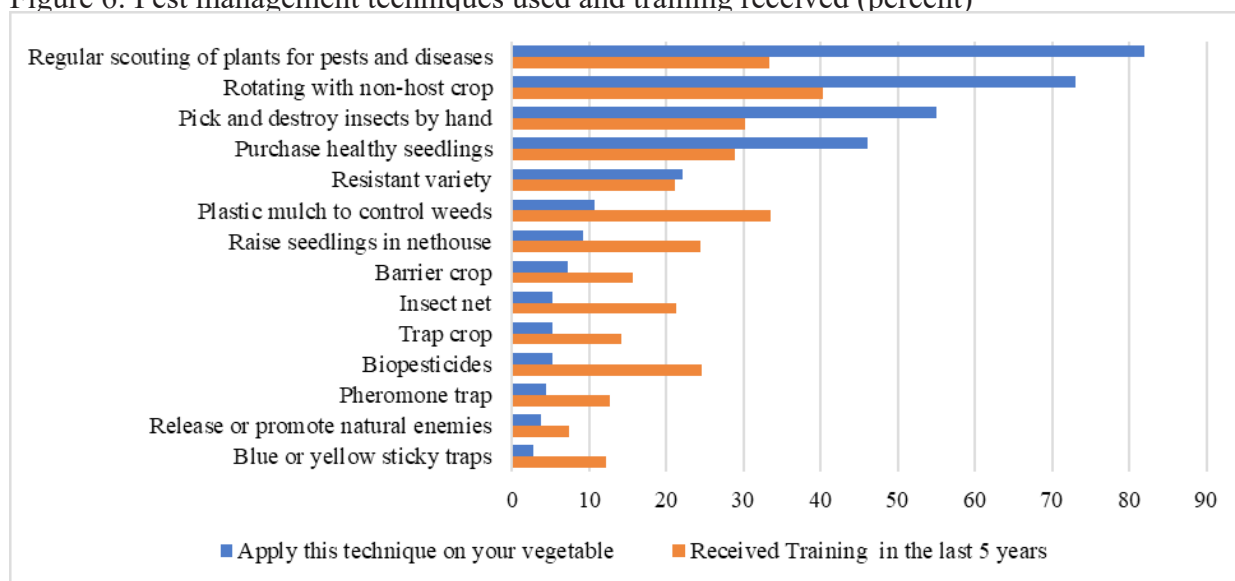
Source: Calculation based on household survey

or relatives) and extension services provided by NGOs and extension officials from the Provincial Department of Agriculture (Table 6).

Table 6: Reasons why farmers do not implement the techniques taught in training

Reasons	Percent
High cost of raw materials	30.29
Habit	23.51
Time consuming	22.46
Other	5.38
Have tried, but unsuccessful	4.21
Instructions are complicated	4.09
Training not useful	3.86
Raw materials not available locally	3.51
Don't understand about the instructions	2.69

Source: Calculation based on household survey

III. Summary

Farmers in Cambodia, rely heavily on chemical pesticides to protect their vegetable crops from pest damage. The descriptive statistics obtained from the household survey reveal that pests and diseases are the biggest challenge facing the smallholder vegetable farmers in our sample. Linked to this, our data also indicates that pesticides/herbicides account for the largest share in the input expenditure of vegetable farming in the study areas, suggesting that chemical pesticides are commonly used in vegetable farming in Cambodia. Additionally, farmers commonly mix different types of pesticides in a single spray which is not good practice.

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NO PLACE LIKE HOME: THE CAMBODIAN GARMENT WORKERS' PERSPECTIVE ON THEIR SKILLS DEVELOPMENT NEEDS

Introduction

Skills training is an integral component for the improvement of employment, productivity and competitiveness. It not only helps to enhance individual workers with work-related skills but also makes them more genuinely productive, especially within the context of changes in technology and job requirements (Adhvaryu, Nyshadham and Tamayo 2019). Despite such importance, not every individual worker is willing to invest in more education or training. Indeed, prior studies have reported similar results on the limited participation especially in programs that target workers with low levels of education and qualifications (Thangavelu et al. 2011; Carneiro and Heckman 2002; Carneiro, Dearden and Vignoles 2010). This suggests a need to understand their situation in order to effectively encourage their skill development.

In Cambodia, the government have tended to accept the premise that investment in education and training is a good thing and has committed to investment in human capital, including Technical and Vocational Education and Training (TVET), as a mean to secure higher economic growth and national prosperity. However, until now, we have gathered only a limited understanding about workers in a particular sector − namely garments and related textiles− regarding their aspirations for skills development, and the challenges they face in taking part in training or learning activities. This paper, therefore, attempts to provide a better understanding about garment workers' employment, skills possession and desire for skills development. It also attempts to raise awareness about the barriers workers face in terms of skills development, and proposes some solutions to encourage and facilitate them in training activities including TVET. In this way, it aims to be an important document for everyone who cares about the garment workers and their skills and career prospects.

The Cambodian TVET system consists of short- and long-term courses as well as higher learning. The former is the most popular in Cambodia, and includes workshops and non-formal training that spans less than a year. It has been found that this type of training generally takes between 3.6 and 4 months, and the quality is below industry expectations (Jeong 2014). In contrast, long-term training requires one full year, and those who complete such a program will be granted a vocational training certificate that comprises 3 levels. This type of training normally absorbs only a small number of participants who are predominantly male. Moreover, the content of the training also seems to be problematic. In the academic year 2018-2019, roughly 80 percent of all participants who took part in short course training conducted by some kind of TVET institution, enrolled on a program related to agriculture, forestry and fisheries, followed by repairing and maintaining electrical or electronic devices, at 12 percent, and beauty and wedding embellishment, at 3 percent (Department of Labour Market Information, 2020). Seemingly, the training is not really intended for industrial workers but rather targets the rural population whose main source of income is farming and growing crops. Therefore, serious attention should be paid to offering skills development for workers who are employed in the garment and apparel industries that have been recognised as the backbone of the Cambodian economy.

The remainder of the paper is organised as follows. The next section contains a description of why there is low investment in skills training. Thereafter, we present the methodology. The following sections introduce the results from the survey. The final section offers a conclusion and recommendations.

What Make a Low Investment in Skills Training?

Derived from Human Capital Theory (HCT) - a dominant paradigm in the economics of education (Becker 1962) - education and training are seen as individual investments. The belief is that individuals

choose to trade their potential income for education in the hope that they will be more productive and will be able to secure the higher rewards associated with their educational degree in the future. Therefore, it is posited that a person is willing to incur the high cost of learning if they know that the return will be sufficiently high to justify the short-term loss. Similarly, in respect of skills training, individuals might trade their opportunity costs and out-of-pocket money for new skills to increase their productivity and hence income. Indeed, some studies have proven the correlation between job-related training and higher wages (Leuven and Oosterbeek 2008). Since the economic return on investing in education or training is relevant - with a net gain in lifetime earnings - the theory also argues that young employees are more likely to attend training programs given that they have a longer horizon to enjoy the advantages stemming from such an outlay. Investment in training also provides employees with employment benefits, such as opportunities to move to another occupation where there is a high demand. Likewise, employers can offer internal training to re-skill employees who have become redundant in a particular position to take up occupations in which there is a shortage of labour: this will reduce the skills mismatch within firms.

However, persuading individuals to take part in skills training programs has always been a challenge even for some developed economies. The participation rate has remained surprisingly low and has differed considerably across countries (Thangavelu et al. 2011). Some training programs, provided by public institutions for unskilled employees, have almost universally ended in fiasco, as the ensuing assessments often showed that they had offered very little economic value (Carneiro, Dearden and Vignoles 2010; Torgerson et al. 2004). In relation to this, some economists have argued that credit constraints might be a reason, as low-skilled employees are likely to lack the financial resources to pay for the direct and indirect costs of training (Stevens 2008; Acemoglu and Pischke 1999). But a number of empirical reports have contradicted the claim of financial limitations and have asserted that this is not always true (Dalziel 2017). For example, the Federal Pell Grants and Perkins Loans in the U.S. (Carneiro and Heckman 2002) and the Train to Gain in the U.K. (Carneiro, Dearden and Vignoles 2010), both of which provide financial support for vulnerable students and workers, were unsuccessful from the beginning due to lack of applicantAnother convincing study indicates a problem in firms' internal efficiency as the main cause of under-investment in training, as well as excessive turnover, both of which reduce the private and social return on training itself (Moen and Rosén 2004). From a workers' perspective, many of these skills are highly firm-specific and not transferable, and are therefore unappreciated by other firms to which individuals could potentially move. Therefore, investing in such enterprises is a risky venture and not worth the cost unless the employer can offer worker incentives such as promotion or wage increases after employees have managed to acquire such skills. But there is a possibility that a firm will renege on its promise, or only marginally raise salaries after the training to save labour costs (Sloof, Sonnemans and Oosterbeek 2007). Reviewing the literature, Leuven (2007) finds that the return on training is generally unattractive which justifies workers' lack of enthusiasm about investing in it.

Methodology

This study used a quantitative research design with a structured questionnaire that captured data on five aspects, namely: (1) demographic profile; (2) employment information and personal and working skills assessment; (3) plan for future career prospects and aspirations relating to skills development; (4) family background; and (5) use of social media and the internet. Several questions in Section 2 were adopted from the Background Questionnaire of the Program for the International Assessment of Adult Competencies, developed by the Organisation for Economic Cooperation and Development (OECD) in 2010. To evaluate their skills level, individual workers were asked to give a ranking score from 1 (extremely poor) to 5 (excellent) for a set of 40 questions.

The sample in this study comprised 787 individuals. We conducted a two-stage sampling procedure to ensure that samples would be randomly selected. In the first stage, a stratified sampling with probability equal to size was implemented to pick enumeration areas and how many samples should be collected in each area. In the second stage, a simple random sampling method was carried out to select individual workers. The survey was taken

in June and July 2019, covering Phnom Penh and seven provinces - Banteay Meanchey, Kampong Cham, Kampong Speu, Kandal, Preah Sihanouk, Svay Rieng and Takeo. Face-to-face interviews with each respondent lasted an average of 45 minutes, and the collected data were then entered into CSPro and analysed with R computer software.

Results and Discussion
Respondents' Characteristics
The participants in this study were mostly young adults with an average age of 27.8 years. More than 60 percent of them were aged less than 30 years. In terms of gender, female respondents comprised up to 89 percent of the total, while males accounted for only 11 percent. Roughly 12 percent of the respondents had achieved educational qualifications equivalent to upper secondary level, revealing that the majority of them were early-school-leavers. Moreover, over 80 percent of respondents reported their income to be between USD200-300. Their average monthly expenditure was USD187.

Employment
From Table 1, showing garment workers' experience by age group, we can see that age has a strong correlation with working experience. Simply put, when the workers become older, their working duration in the garment factory also increases

Table 1: Summary Statistics of Garment Workers' Working Experience by Age Group

Age Group	# Months in Garment Work	# Months in Current Position	Working Hours Per Week
15-19	15.99	9.52	60.82
20-24	40.51	23.04	58.67
25-29	72.5	35.12	59.03
30-34	97.95	43.95	57.34
35-39	120.56	48.02	59.46
40+	132.5	57.93	59.02

linearly. But it is important to highlight that, on average, many people remain in the same position for a long period of time. Some have spent even more than three years doing the same job, and this means that they are unlikely to have been promoted or to have switched position. In addition, the Table reveals a similar share of working hours across age groups: that is, on average, 58.9 hours per week. This means that they work approximately 10 hour per day and six days per week.

As presented in Figure 1, we simply asked whether or not they would want to change their job if there were an opportunity to do so. The answer, quite surprisingly, was that the majority of them (almost 70 percent) said "Yes". What is even more surprising is that most of them did not want to change to employment that was higher-paid or

Figure 1: Percentage Distribution of Garment Workers Who Prefer to Change Their Job by Age Group
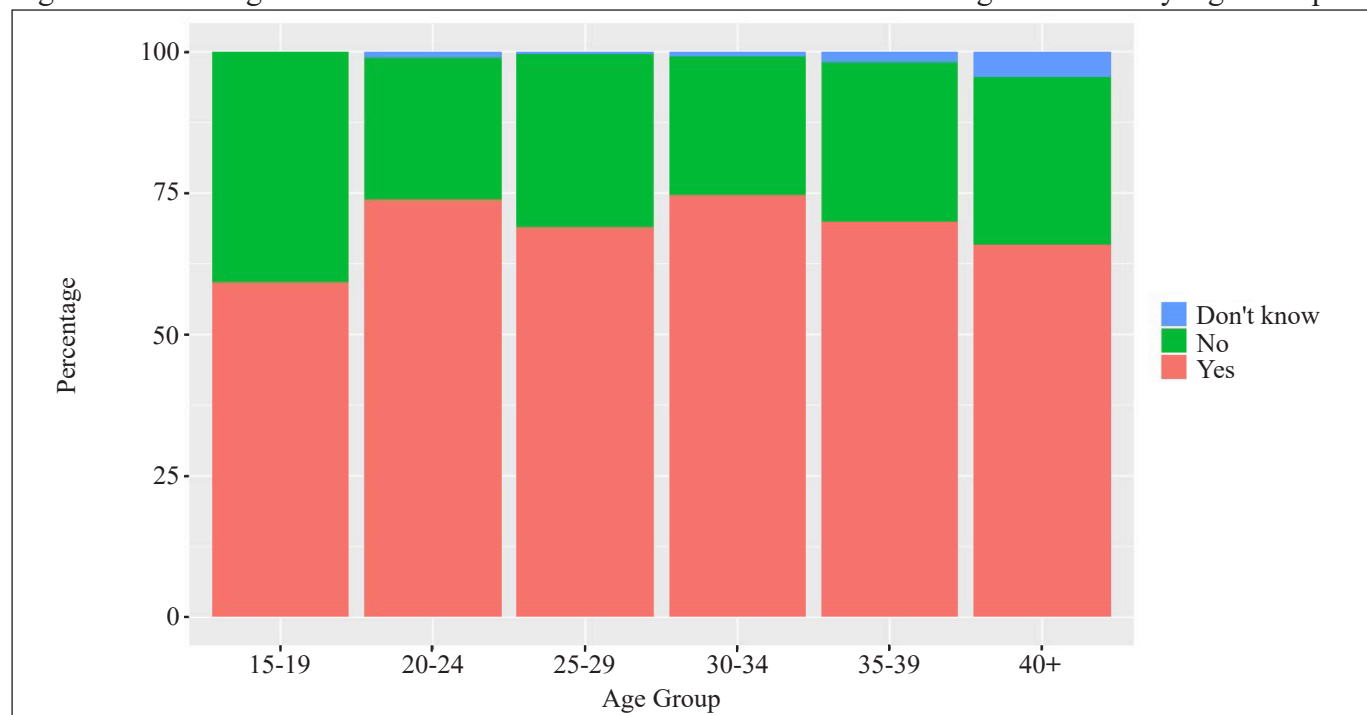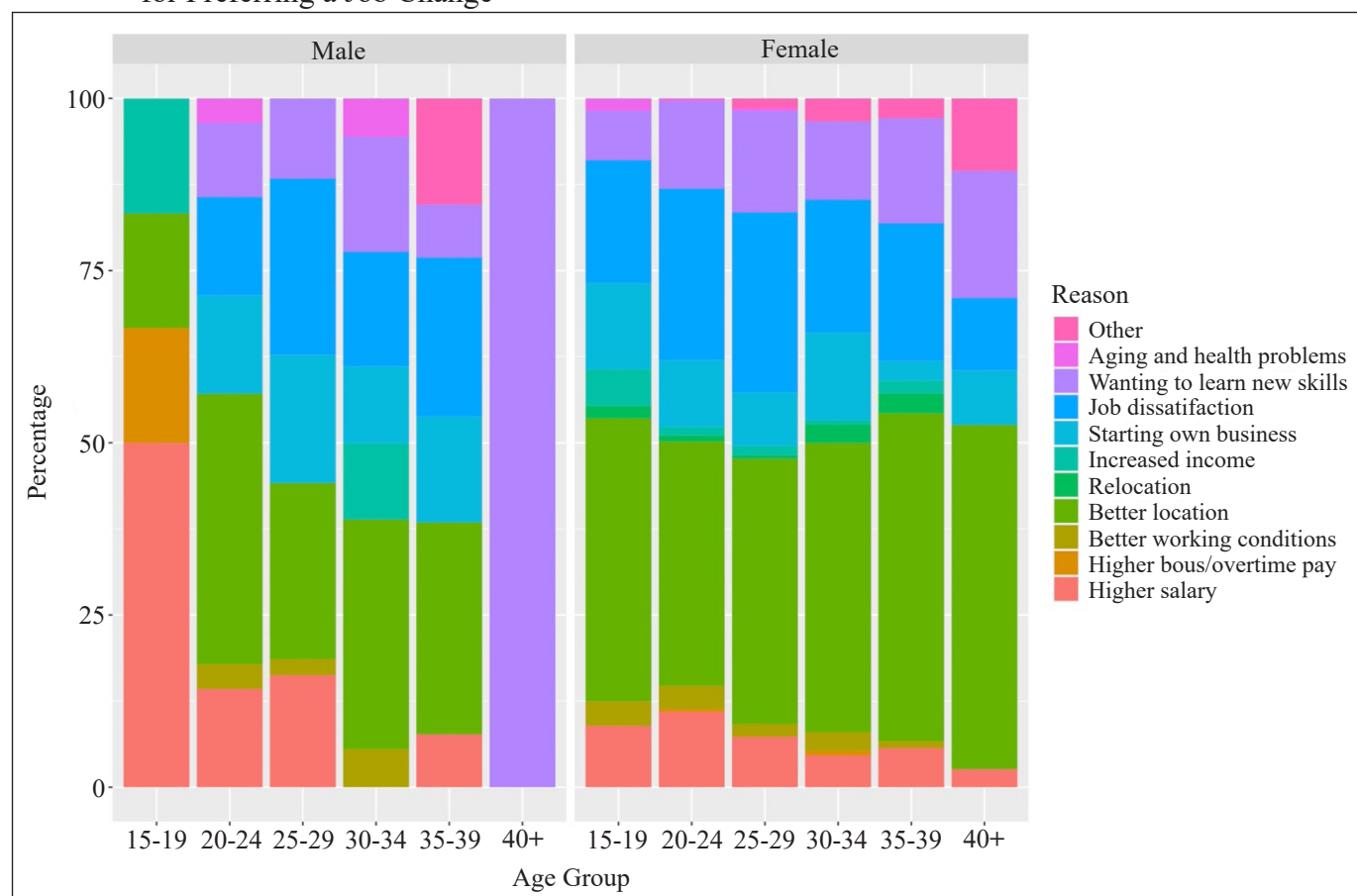
Figure 2: Percentage Distribution of Garment Workers by Sex, Age Group and Reason
for Preferring a Job Change

where conditions were better: they just wanted a job in the garment factory which was located near to their houses in the rural areas. That said, there was also a number of garment workers who wanted to change their job due to financial motivation or job dissatisfaction. Figure 2 below indicates their reasons for wanting to change job.

Skills Possession

Figure 3 gives the subjective evaluation of workers' skills level. The result is consistent with information on popular positions held by garment workers. Many of them, approximately 60 percent, rated their "sewing" skills as fairly high, followed by "quality control" and "packaging", while only a small fraction of workers gave a high rating to other skills. This suggests that there is a high concentration on just a few skills in their jobs. This can be the main reason why they stick with the same position, year after year, as they do not possess any other skills necessary to switch jobs. We did explore whether they were capable of using foreign languages, but none of them reported that they possessed any other working

skills, including foreign languages such as English, Chinese, Korean, Japanese, Thai or Vietnamese.

Figure 4 illustrates the percentage distribution of workers according to their daily life skills and the level of that skill: skills include literacy (reading and understanding simple sentences), numeracy (simple calculations used in daily life), and ICT (simple use of the internet and social network). As depicted in the graph, a large majority of workers possess, to some extent, basic literacy, numeracy and ICT skills. For example, they are able to read and write and can use social media, regardless of their purposes for so doing. But, surprisingly, they hardly ever use the internet for online shopping. It is suspected that their ability to surf the internet is probably limited to only certain popular platforms or websites such as Facebook or YouTube. It is also worth noting that their ability to take advantage of what is offered by each platform might also differ in comparison with those who are more capable of using computers and the internet. Through exploring their ICT skills, it is worth noting that we did aim to determine the level of ownership of smartphones

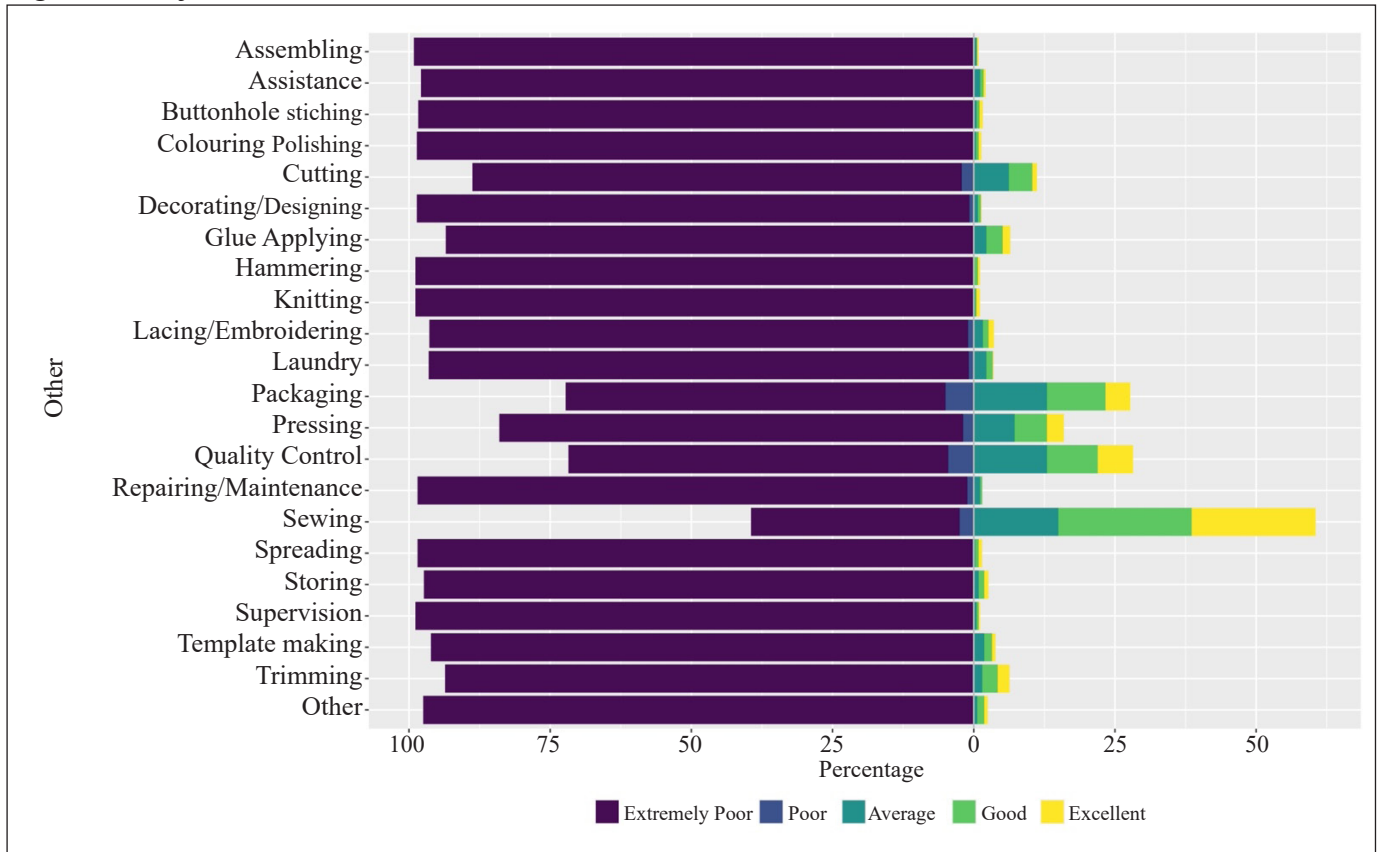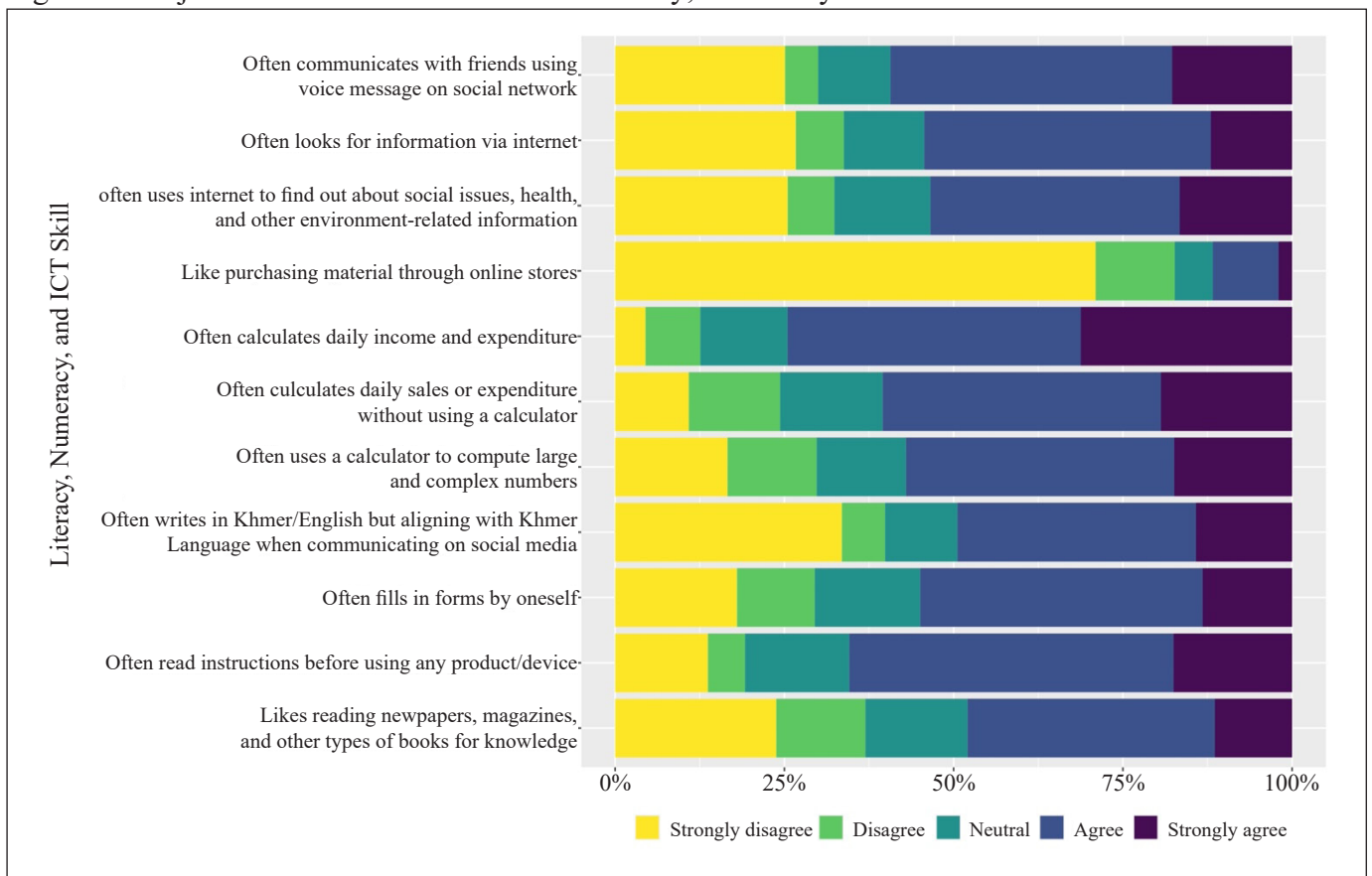Figure 3: Subjective Evaluation of Workers' Own Skill Level

Figure 4: Subjective Evaluation of Workers' Literacy, Numeracy and ICT Skills

and internet access and found that the vast majority of workers owned at least some kind of smartphone and did have internet access.

Training: Access and Demand

Our data showed that half of the workers, especially females, had never received any training. Figure 5 shows that such training as existed related mostly to garment/textile-related skills, followed by hygiene and safety practices inside the factory. Figure 5 also shows that female workers tended to attend training in beauty-related skills while males tended to be trained in mechanical skills. This offers an idea of how skills development is being provided in the garment and apparel manufacturing industry. We can assume that their lack of skills necessary for better productivity is partly driven by the limited and ineffective content of the training. In other words, the existing training provided by the factories is less likely to contribute to the enhancement of individuals' performance and work flow. This training simply aims to fulfil two common objectives: (1) to introduce workers to their specific roles; and (2) to raise their awareness in terms of safe and sanitary practices and regulations in the workplace.

In Figures 6 and 7, we present the workers' desire for skills training for their current employment (jobs in the factory) and future employment (other jobs not in the garment industry) by age group. The result shows that most workers are not interested in receiving training in relation to their current jobs. Instead, they wish for training in skills that would prepare them to take a different job in the future. The wish to receive skills training tends to decline with age. It is also observed that males have a higher desire than females to receive training for future jobs. Responses to enquiries about the reasons why some workers did not want to learn new skills indicated that many simply had no interest in pursuing more education/skill development. This was followed by a lack of commitment and no time for training. Very few people cited expensive tuition fees as a reason.

Figure 8 shows the percentage of sample respondents who wanted to learn new skills by sex, age group and reasons. Many people across all age groups wanted to learn a new skill merely because they intended to use it to find another job. The second reason was related to individual enthusiasm and passion to learn something new. Notably, some people wanted to learn a new skill in the hope that it would open up more opportunities, or would help them to start their own small business.

Figure 5: Percentage Distribution of Garment Workers Who Have Received Training by Age Group, Sex and Type of Training

Figure 6: Percentage Distribution of Garment Workers Who Want to Receive Training for Their Current Jobs by Sex and Age Group
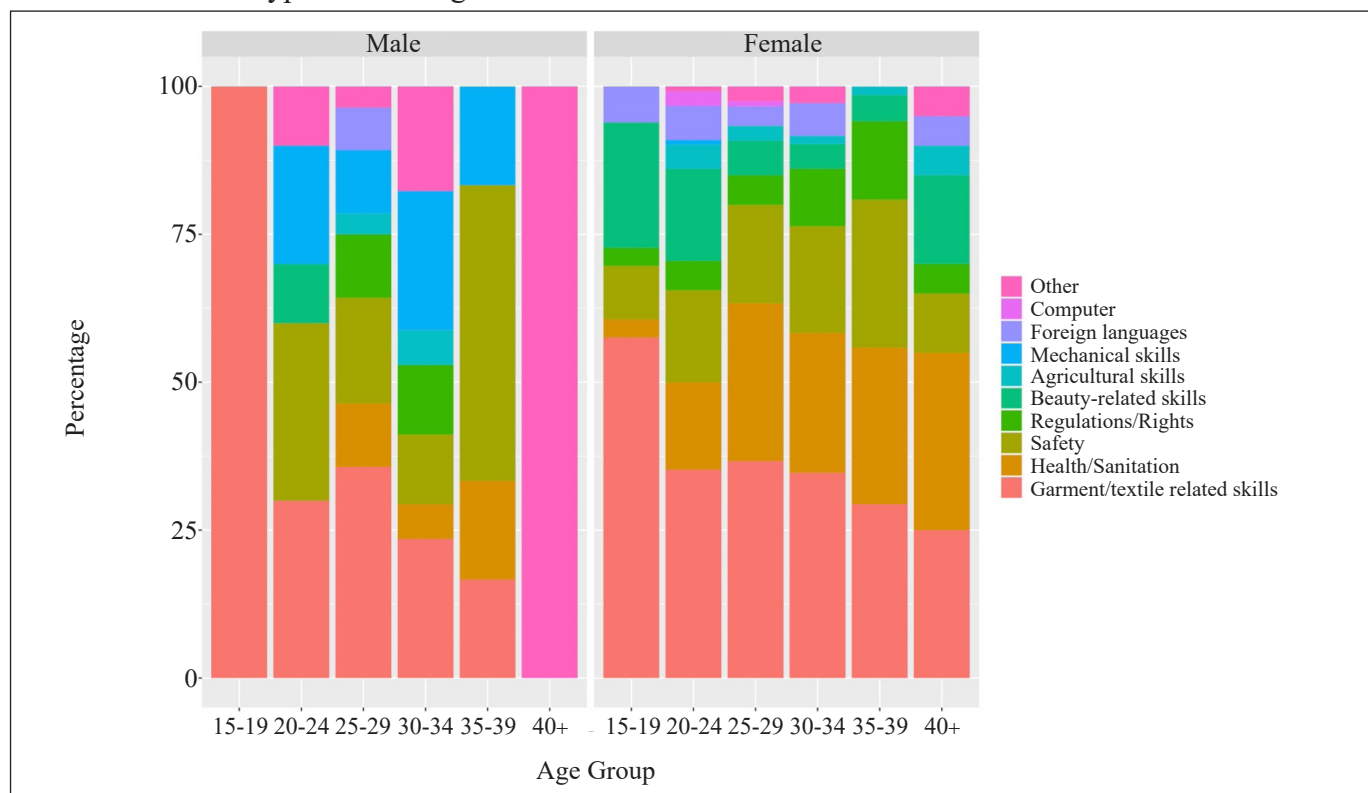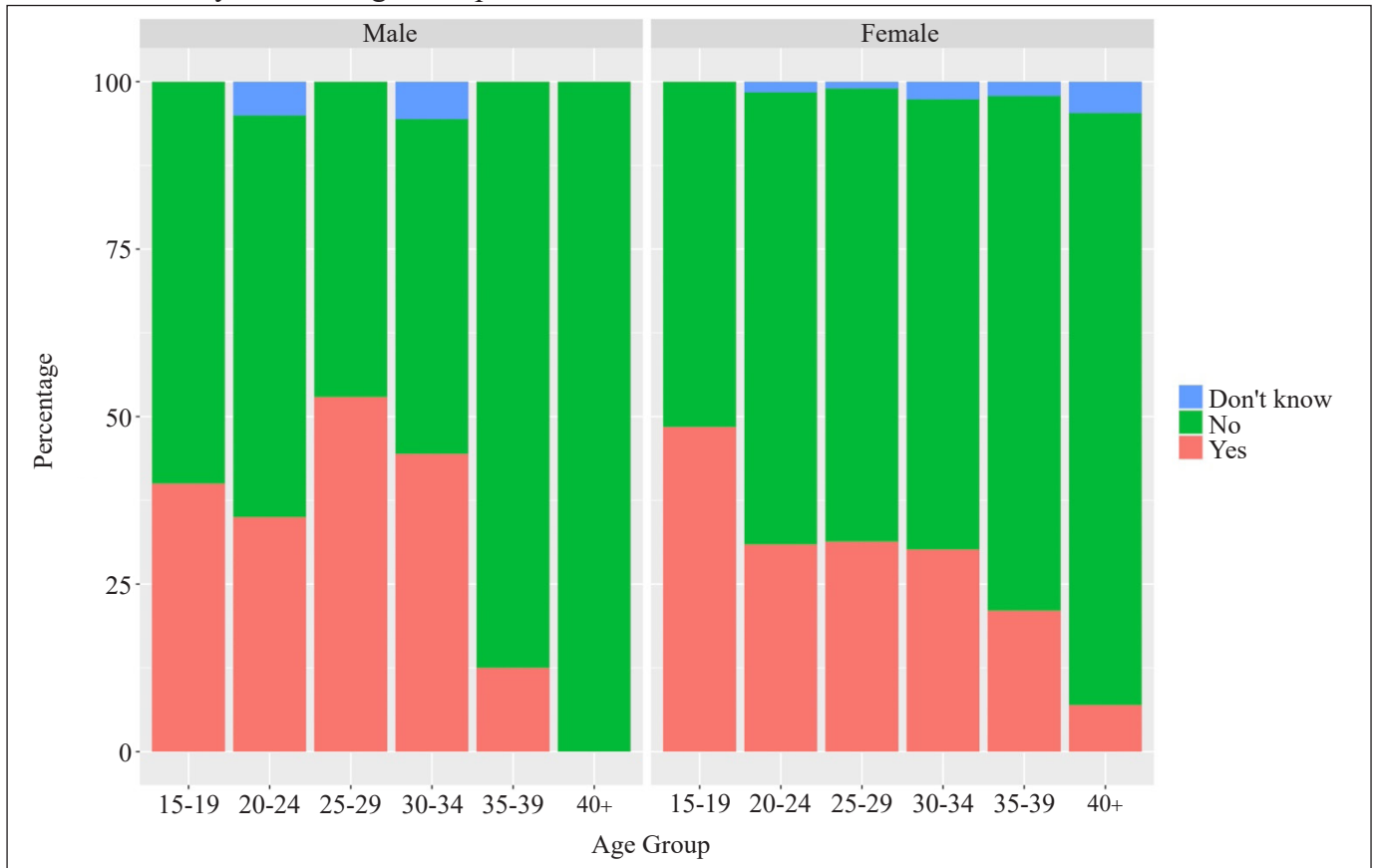

Figure 7: Percentage Distribution of Garment Workers Who Want to Learn New Skills for Future Jobs by Sex and Age Group

Figure 8: Percentage Distribution of Garment Workers Who Want to Learn New Skills for Future Jobs by Age Group and Reason
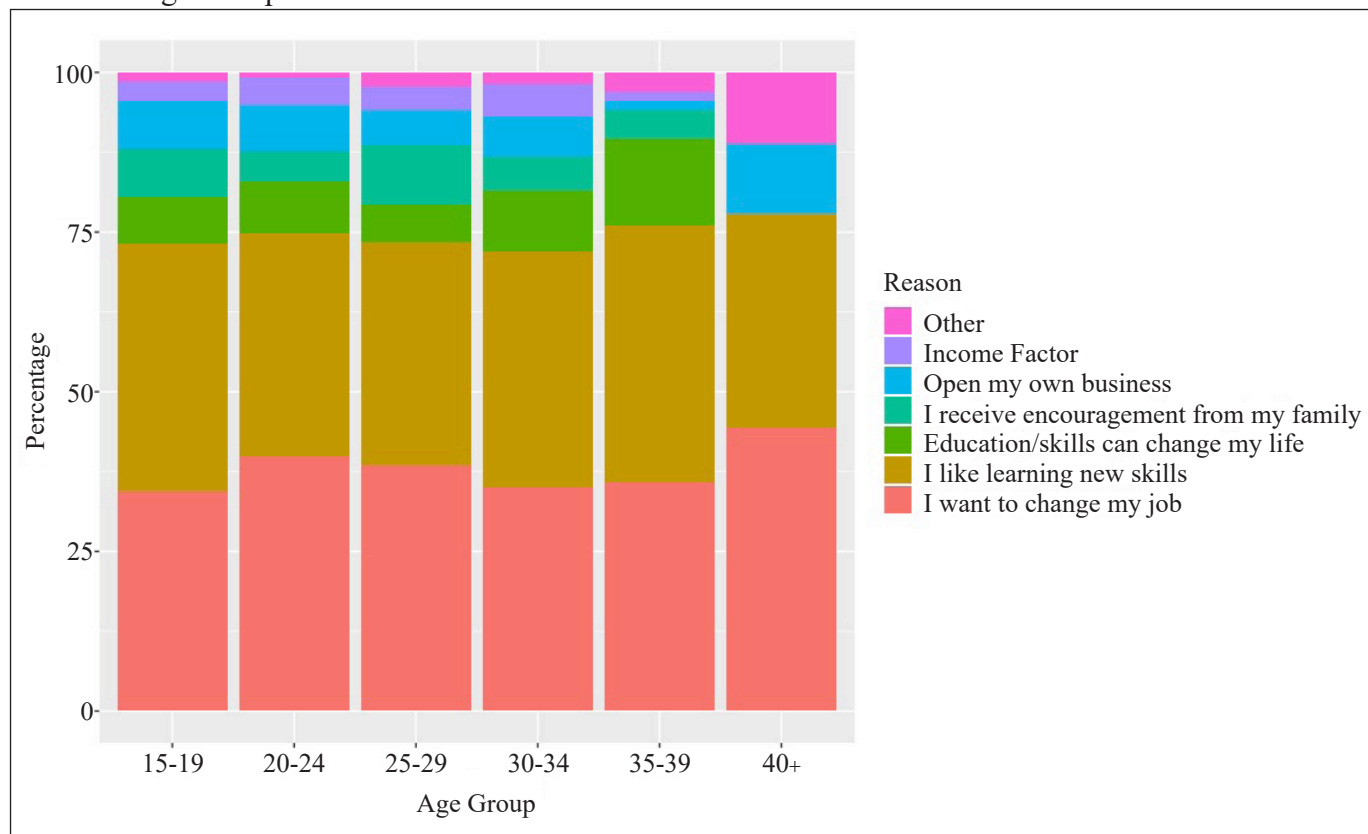

Figure 9: Percentage Distribution of Garment Workers Who Want to Learn New Skills for Future Jobs by Sex, Age Group and Type of Skill
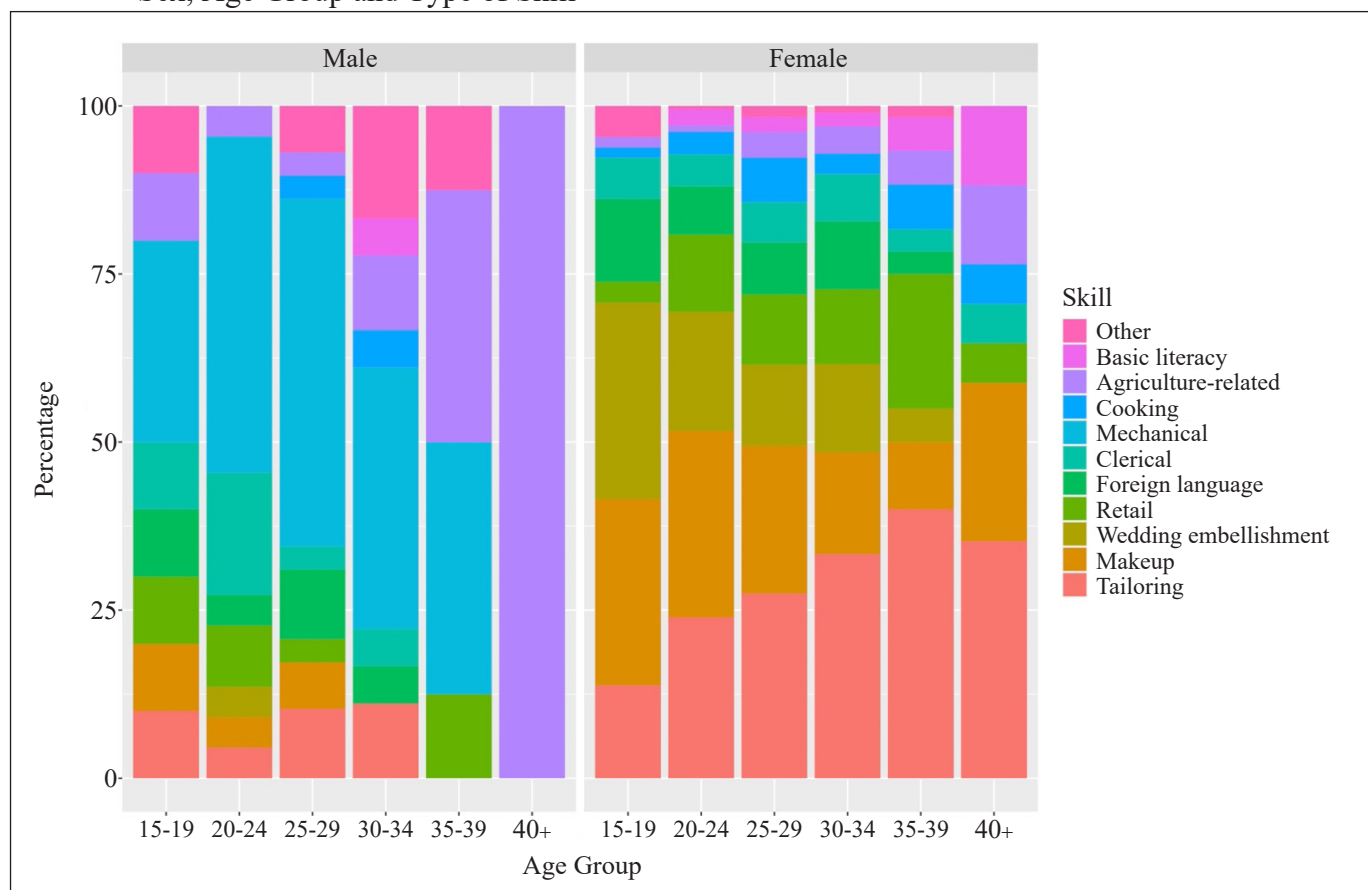
Figure 9 shows the skills garment workers would like to gain, according to sex and age group. There was a clear gender difference in skill preference. Females tended to prefer training for female-oriented occupations such as tailoring, make-up and wedding embellishment, as opposed to men who preferred mechanical skills. For young women, training in make-up and wedding embellishment is more popular while older women tended to prefer tailoring and retail.

Conclusion and Implications

This study found that most garment workers were not very well-equipped with workplace skills and competencies for advancement, either for personal development or career growth in the garment industry. This can be attributed to the narrow concentration of their jobs and the little exposure they received to valuable skills training prior to joining the industry. Also to blame are a lack of motivation to receive further training for current employment, limited industry-related skills, and inability to use foreign languages and online technologies. Those factors seem to affect not only their productivity but also their tenure in the long run. Yet, despite this, they do not wish to receive training to improve skills relevant to their current employment either. Rather, they prefer skills training that would help them to relocate closer to their home and that is focused on developing other competencies that would help them to start a small family business or to find other opportunities. Such a low intention to take skills training for their current job is not due to financial constraints, but rather to the desire for job change and the low motivation they feel to develop any garment-related skills. The results also show that the desire to prepare themselves for future jobs tends to decrease with age and is more intense among men than women. There is also a clear gender difference in skill preference, with women tending towards wedding embellishment and make-up and men towards mechanical skills.

Due to the low level of motivation to develop any garment-related skills, and a workplace structure that does little to incentivise people to attend skills training, the findings suggest that it can be hard to promote voluntary training for the current employment. Thus, to promote skills training for garment workers, we outline some policy implications that concentrate on two different areas:

Training for an increase in productivity: The first and the highest priority is to identify specific industrial training needs, which ought to be different from existing training content. It can be soft skills training for workers, for example leadership, relationship management, effective time allocation, and communication for workers at supervisory level, that have been proven to enhance overall working productivity (Adhvaryu, Nyshadham and Tamayo 2019). In this matter, training providers like TVET institutions should work closely with firms to design training courses. Some general guidelines from the International Labour Organization (2013) can be taken as a guiding document for effective and inclusive training design. Additionally, training should be conducted at the workplace during working hours at a temporary small loss to productivity. More importantly, firms should create an incentive system that can encompass financial and/or promotional strategies to motive workers to seek training and to apply the skills they gain to boost productivity. The government has an important role to play in ensuring the implantation of workplace training, which is already stipulated in the law. In the meantime, sharing information about the importance of skills training with firms by using examples of their successful counterparts, should be the key focus in order to encourage other firms to follow suit (Holzer et al. 1993). Last but not least, the government should diversify investment in training into developing other higher valued-added skills besides those that can be used only in the garment and textile industries.

Training for marketable skills: A major challenge to skills training in the garment worker context is apparently not credit constraints but rather the training content. TVET providers concentrate overwhelmingly on agriculture rather than on industrial employment. Also, there might be an issue of imperfect information that hinders details about the availability of TVET programs from being widely accessible: for this reason, workers tend to remain unaware of these. One possible approach to overcome this problem is to use social media, such as Facebook and Telegram, to spread information, as those are the most popular platforms among workers. Moreover, workers should be encouraged to pursue training through the provision of incentives for industrial employment rather than

for the informal economy. Such skills should be aligned with industrial development policy and recent economic direction, otherwise it will be hard to meet the market demand.

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Economy Watch—External Environment

This section presents economic indicators of the major world economies and those in Southeast Asia during the fourth quarter of 2020. At the time of writing, data on real GDP growth in Cambodia was unavailable.

Real GDP growth

At first glance, real GDP in most of the selected countries recovered from the preceding quarter, except in the cases of Malaysia, South Korea and the Euro-12. Despite recovery from the preceding quarter, the real GDP growth of these countries remained lower than it was in the fourth quarter of 2019, except in China and Taiwan which achieved a 0.5 percent and 1.6 percent higher year-on-year growth rate, respectively, during this pandemic.

Beginning with the selected ASEAN countries, Malaysia was the only one that continued to have a higher contraction rate of -3.4 percent, 0.7 percent higher than in the preceding quarter and 7.0 percent higher than in the same quarter of last year. Vietnam was the only country that has never experienced contraction despite the lower growth rates compared with its peak of 7.3 percent in the third quarter of 2019. The lowest growth rate achieved by Vietnam was 0.4 percent in the second quarter of 2020, and recovery started swiftly in the following quarters - to 2.3 percent in the third quarter and 4.5 percent in this (fourth) quarter of 2020. The contraction rate in Indonesia has been on downward trend, starting to approach a growth rate again. It was -5.3 percent in the second quarter, recovered to -3.5 percent in the third quarter and to -2.2 percent in this quarter. This was the lowest contraction rate compared with Thailand (which was the highest at -4.2 percent), Malaysia (-3.4 percent) and Singapore (-2.4 percent). It is also notable that despite the contraction, Singapore achieved a considerable jump of 3.4 percentage points from the preceding quarter and 10.8 percentage points compared with its worst contraction figure (-13.2 percent) during the second quarter of 2020. Thailand was also on a road to recovery, similar to that of Singapore.

Among the other selected Asian countries, China experienced the quickest recovery rate compared with other countries in this group - and all the selected countries in other groups - to hit its highest growth rate in this quarter compared with all previous quarters, counting from the first quarter of 2019. China's growth rate in this (fourth) quarter of 2020 was 6.5 percent, 1.6 percentage points higher than that of the preceding quarter and 0.5 percent higher than it was during same quarter of last year. Taiwan had the second highest growth rate (4.9 percent) after China compared with all the groups of selected countries in this quarter, showing a markedly quick recovery from the contraction of 0.6 percent in the second quarter of 2020. Hong Kong was in a contraction of 3.0 percent despite the recovery of 0.5 percentage points from the preceding quarter. South Korea had a reverse recovery trend wherein it experienced a 0.2 percentage points higher contraction rate compared with the preceding quarter - to -1.3 percent in this quarter, which was 4.7 percentage points lower than the growth in the same quarter last year.

The three selected industrial countries were still experiencing a contraction period in this quarter as a result of the global pandemic. Japan was recovering more quickly among the three countries, showing a positive trend in growth despite the 1.4 percent contraction rate remaining in this quarter. This was, however, a 4.3 percentage point jump from the previous quarter, and 0.7 percentage points to equal its lowest contraction in the fourth quarter of 2019. Compared to its worst contraction (-14.7 percent) in the second quarter of 2020, the Euro-12 have also recovered quickly - to -5.1 percent in this quarter – although this was an 8.5 percentage point higher contraction rate compared with the preceding quarter. Unlike the Euro-12, the US continued a gradual decrease in contraction from -9.5 percent in the second quarter of 2020, to -2.8 percent in the third quarter and to -2.5 percent in this quarter.

Inflation rates

In the fourth quarter of 2020, six out of the 13 selected countries experienced deflation: Malaysia (-1.5 percent), Singapore (-0.1 percent), Thailand (-0.4 percent), Hong Kong (-0.3 percent), the Euro-12 (-0.3 percent) and Japan (-0.9 percent). Cambodia had the highest inflation rate (3.4 percent), followed by Indonesia (1.6 percent), Vietnam (1.4 percent), the US (0.8 percent), South Korea (0.3 percent) and China (0.1 percent).

Compared with the previous quarter in the selected Asian countries, the inflation rate in Cambodia climbed by 0.6 percentage points and in Indonesia by 0.2 percentage points, while there was a decline in Vietnam by 1.8 percentage points. Among the three countries in this country group that experienced deflation, only Malaysia had a higher deflation rate (-1.5 percent), a 0.1 increase from the preceding quarter, while the deflation rate in Singapore dropped by 0.2 percent and in Thailand by 0.4 percent.

The only one among the other selected Asian territories to experience deflation in this quarter was Hong Kong: at a rate of 0.6 percent compared with the previous quarter. China had a decreasing inflation rate trend from a peak of 4.4 percent in the fourth quarter of 2019 to 0.1 percent in this quarter. The inflation rate in South Korea was 0.3 percent in this quarter, which was 0.4 percentage points lower than that of the preceding quarter, while Taiwan had a 0 percent inflation rate, a 0.5 percent climb from the -0.5 percent deflation rate of the preceding quarter.

Among the selected industrial countries, only the US did not experience deflation throughout the data period shown in this report. Inflation in the US was 0.8 percent in this quarter, a 0.4 percentage point drop compared with the preceding quarter and 1.3 lower than that of the fourth quarter of 2019. The deflation rate of 0.3 percent in the Euro-12 countries in this quarter showed a 0.3 percentage point decline from the 0 percent inflation rate in the preceding quarter. The deflation rate of 0.9 percent in Japan in this quarter represented a 1.1 percentage point drop from the 0.2 inflation rate in the preceding quarter.

Exchange rate

Except for the Hong Kong dollar, compared to the preceding quarter, all the currencies of the selected countries appreciated against the US dollar: Khmer riel (0.6 percent), Indonesian rupiah (2.2 percent), Malaysian ringgit (2.4 percent), Singaporean dollar (7.1 percent), Thai baht (2.2 percent), Vietnamese dong (0.1 percent), Chinese yuan (4.3 percent), South Korean won (5.9 percent), Taiwan dollar (2.7 percent), euro (11.1 percent) and Japanese yen (1.7 percent). The exchange rate of the Hong Kong dollar against the US dollar has remained stable at HKD7.8 to USD1 throughout the available data period in this report.

Commodity prices

Compared with the preceding quarter, the prices of rice and gasoline dropped, while the prices of maize, palm oil, rubber, soybeans, crude oil and diesel went up. The price of maize increased by 23.1 percent to USD192.0 per tonne, palm oil by 22.3 percent to USD917.8 per tonne, rubber by 21.9 percent to USD1605.0 per tonne, soybeans by 27.9 percent to USD485.5 per tonne, crude oil by 3.3 percent to USD43.8 per barrel and diesel by 7.5 percent to USD32.8 cents per litre. The price of rice dropped by 3.9 percent to USD493.3 per tonne and gasoline by 0.6 percent to USD31.4 cents per litre. Compared with the same quarter last year, the prices of crude oil, gasoline and diesel fell, whereas the prices of all selected agricultural commodities increased. The price of crude oil fell by 27.4 percent, gasoline by 27.5 percent and diesel by 33.6 percent. The year-on-year prices of maize rose by 15.1 percent, palm oil by 34.9 percent, rubber by 13.8 percent, rice by 11.4 percent and soybeans by 39.8 percent.

Table 1: Real GDP growth of selected trading partners, 2015–20 (percentage increase over previous year)

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Selected ASEAN countries												
Cambodia	7.0	7.0	7.0	7.5	-	-	-	-	-	-	-	-
Indonesia	4.8	5.0	5.1	5.2	5.1	5.0	5.0	5.0	3.0	-5.3	-3.5	-2.2
Malaysia	4.9	4.3	5.9	4.8	4.5	4.9	4.4	3.6	0.7	-17.1	-2.7	-3.4
Singapore	2.0	2.0	3.8	3.2	1.3	0.1	0.5	0.8	-2.2	-13.2	-5.8	-2.4
Thailand	2.8	3.2	3.8	4.1	2.8	2.3	2.4	1.6	-1.8	-12.2	-6.4	-4.2
Vietnam	6.6	6.1	6.6	7.2	6.8	6.7	7.3	7.0	3.8	0.4	2.3	4.5
Selected other Asian countries												
China	7.0	6.7	6.9	6.6	6.4	6.2	6.0	6.0	-6.8	3.2	4.9	6.5
Hong Kong	2.3	1.7	2.8	3.1	0.6	0.5	2.9	-2.9	-8.9	-9.0	-3.5	-3.0
South Korea	2.6	2.6	3.0	3.0	1.8	2.1	2.0	3.4	1.3	-3.0	-1.1	-1.3
Taiwan	0.6	1.2	2.8	2.6	1.7	2.4	3.0	3.3	1.5	-0.6	3.9	4.9
Selected industrial countries												
Euro-12	1.3	1.6	2.3	1.9	1.2	1.1	1.2	1.0	-3.3	-14.7	-4.3	-5.1
Japan	0.3	0.9	1.8	0.6	0.9	1.2	1.7	-0.7	-2.0	-9.9	-5.7	-1.4
United States	2.3	1.6	2.3	3.0	3.2	2.3	2.1	2.3	0.3	-9.5	-2.8	-2.5

Sources: International Monetary Fund; Economist; countries' statistics offices

Table 2: Inflation rates of selected trading partners, 2015–20 (percentage price increase over previous year – period averages)

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Selected ASEAN countries												
Cambodia	1.2	3.0	2.9	2.5	1.9	1.8	2.0	2.1	3.0	2.5	2.8	3.4
Indonesia	6.4	3.5	3.8	3.2	2.6	3.1	3.4	2.9	2.9	2.3	1.4	1.6
Malaysia	2.1	2.1	3.9	1.0	-0.3	0.6	1.3	1.0	0.9	-2.6	-1.4	-1.5
Singapore	-0.5	-0.8	0.6	0.4	0.5	0.8	0.5	0.6	0.4	-0.7	-0.3	-0.1
Thailand	-0.9	0.2	0.7	1.1	0.7	1.1	0.6	0.4	0.4	-2.7	-0.8	-0.4
Vietnam	0.6	2.7	3.4	3.6	2.6	2.7	2.2	3.7	5.6	2.8	3.2	1.4
Selected other Asian countries												
China	1.4	2.0	1.6	2.1	1.8	2.6	2.9	4.3	4.4	2.7	2.3	0.1
Hong Kong	3.1	2.5	1.7	2.4	2.2	2.7	3.4	3.0	2.0	1.3	-0.9	-0.3
South Korea	0.7	0.8	2.0	1.4	0.6	0.7	0.1	0.3	1.2	-0.1	0.7	0.3
Taiwan	0.6	1.4	0.6	1.4	0.3	0.8	0.4	0.7	0.6	-1.0	-0.5	0.0
Selected industrial countries												
Euro-12	0.0	0.3	1.5	1.8	1.4	1.4	1.0	1.0	1.1	0.3	0.0	-0.3
Japan	0.9	-0.1	0.6	1.0	0.3	0.7	0.3	0.5	0.5	0.1	0.2	-0.9
United States	0.0	1.2	2.1	2.5	1.7	1.8	1.7	2.1	2.1	0.3	1.2	0.8

Sources: International Monetary Fund; Economist; National Institute of Statistics

Table 3: Exchange rates against the US dollar of selected trading partners, 2015–20 (period averages)

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Selected ASEAN countries												
Cambodia (riel)	4060.4	4053.6	4047.0	4045.0	4006.6	4052.1	4086.8	4063.7	4064.1	4101.4	4105.7	4079.5
Indonesia (rupiah)	13394.8	13338.3	13379.8	14227.6	14127.8	14246.8	14117.6	14060.5	14220.3	14944.2	14690.0	14366.0
Malaysia (ringgit)	3.9	4.1	4.3	4.0	4.1	4.1	4.2	4.2	4.2	4.3	4.2	4.1
Singapore (Singapore dollar)	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3
Thailand (baht)	34.2	35.3	33.9	32.3	31.6	31.6	30.7	30.3	31.2	32.0	31.3	30.6
Vietnam (dong)	21917.7	22507.5	22645.9	22663.3	22902.9	23255.5	23258.3	23217.3	23351.0	23244.6	23195.8	23174.2
Selected other Asian countries												
China (yuan)	6.3	6.6	6.8	6.6	6.7	6.8	7.0	7.0	7.0	7.1	6.9	6.6
Hong Kong (Hong Kong dollar)	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
South Korea (won)	1131.9	1161.0	1130.5	1099.9	1125.0	1165.4	1193.4	1174.7	1191.5	1219.8	1188.5	1118.8
Taiwan (New Taiwan dollar)	31.8	32.3	30.4	30.1	30.8	31.1	31.2	30.5	30.1	29.9	29.3	28.5
Selected industrial countries												
Euro-12 (euro)	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8
Japan (yen)	121.0	108.8	112.1	110.4	110.1	109.9	107.3	108.7	109.0	107.6	106.2	104.4

Sources: International Monetary Fund; Economist; National Bank of Cambodia

Table 4: Selected commodity prices on world market, 2015–20 (period averages)

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Maize (US No. 2) – USA (USD/tonne)	169.8	159.2	154.5	164.4	167.5	175.9	170.1	166.8	167.6	146.3	156.0	192.0
Palm oil – NW Europe (USD/t)	622.7	643.6	714.7	638.7	586.9	568.1	570.1	680.2	724.7	614.0	750.2	917.8
Rubber SMR 5 (USD/tonne)	1392.7	1416.1	1688.3	1401.4	1436.6	1549.5	1389.7	1410.1	1374.4	1144.4	1316.5	1605.0
Rice (Thai 100% B) – Bangkok (USD/tonne)	395.5	406.7	452.3	444.2	426.7	430.0	439.7	442.7	481.3	547.5	513.3	493.3
Soybeans (US No.1) – USA (USD/tonne)	390.4	405.7	400.6	405.4	353.3	347.8	339.7	347.3	360.7	349.4	379.5	485.5
Crude oil – OPEC spot (USD/barrel)	49.6	40.7	52.6	69.5	60.5	65.1	59.7	60.3	49.1	30.3	42.4	43.8
Gasoline US – Gulf Coast (cents/litre)	41.0	35.2	42.4	49.6	40.9	49.4	46.0	43.3	34.2	21.8	31.6	31.4
Diesel (low sulphur No.2) – US Gulf Coast (cents/litre)	41.7	34.8	42.9	53.8	49.5	51.1	48.9	49.4	39.2	24.0	30.5	32.8

Sources: Food and Agriculture Organisation; US Energy Information Administration

Economy Watch—Domestic Performance

Main economic activities

In the fourth quarter of 2020, total fixed asset investment approvals decreased by 30.3 percent year-on-year to USD1663.8 m, representing a 55.0 percent decrease compared with the preceding quarter. Zero approval was noted for two sectors in the fourth quarter of 2020: agriculture, and hotels and tourism. The approvals for agriculture in the previous quarter amounted to USD31.7 m, and for hotels and tourism they reached USD3,515.1 m. Year-on-year, approvals for industry showed the only increase (by 79.8 percent), but this represents a 14.8 percent drop compared with the third quarter of 2020. Approvals for garments decreased by 23.9 percent year-on-year, but were 89.9 percent higher than they were in the preceding quarter. Approvals for services dropped by 99.3 percent compared with the same quarter of last year and they were 99.4 percent lower than in the previous quarter.

International visitor arrivals slumped by 96.7 percent compared with the fourth quarter of 2019 - to a total of 58,500 foreign visitors - a 9.9 percent decrease from the preceding quarter. In the fourth quarter of 2020, visitor arrivals from China accounted for the largest percentage (45.8 percent) compared with total international visitor arrivals, followed by those from Thailand (36.6 percent), South Korea (2.6 percent), Vietnam (2.4 percent), the US (2.2 percent), Japan (1.0 percent), France (1.0 percent), Malaysia (0.7 percent) and the UK (0.3 percent). Year-on-year, arrivals from these countries plummeted, and arrivals from only two countries - Malaysia and Vietnam - increased compared with the preceding quarter, 33.3 percent and 27.3 percent respectively. Noticeably, international arrivals from the nine reported countries accounted for 92.6 percent of the total, which means that 7.4 percent came to Cambodia from the rest of the world which is unspecified in this report.

During the global pandemic, Cambodia's total exports increased by 12.7 percent year-on-year to USD3970.9 m, but this figure represents a 28.6 percent drop compared with the third quarter of 2020. The year-on-year increase in exports was driven mainly by a growth in garment exports (by 1.9 percent), electronics (by 94.8 percent), automotive (by 77.2 percent), agriculture (by 52.8 percent) and unspecified commodities (by 21.3 percent). Among five major importers of Cambodia's garments, year-on-year exports increased to two destinations: the US (by 15.1 percent) and ASEAN (by 0.8 percent), while there were drops in others: the UK (by 15.8 percent), Japan (by 7.2 percent) and the EU (by 1.8 percent). Garment exports to the rest of the world also dropped (by 3.8 percent). Compared with the preceding quarter, garment exports increased to ASEAN (by 9.6 percent) and to the EU (by 6.3 percent), whereas they dropped in respect of the US (by 6.0 percent), Japan (by 4.8 percent), the UK (by 24.5 percent) and the rest of the world (by 8.9 percent).

Despite the pandemic, exports in the categories of electronics, automotive and agriculture expanded in a comparison between the fourth quarter of 2020 and both the same quarter of a year earlier and the preceding quarter. Exports of electronics were 94.8 percent higher than they were in the same quarter of the previous year, and 23.7 percent than in the preceding quarter. Exports in the automotive category rose by 77.2 percent year-on-year, which was 20.6 percent higher than in the preceding quarter. Agricultural exports increased by 52.8 percent year-on-year and by 58.7 percent compared with the third quarter of 2020. Year-on-year, the increase in agricultural exports was due to the expansion in exports of rubber (by 62.9 percent), wood (by 175.4 percent), rice (by 1.7 percent) and other agriculture products (by 75.8 percent). Compared with the preceding quarter, exports of rubber increased by 43.7 percent, wood by 52.1 percent, rice by 127.8 percent and other agriculture products by 3.7 percent. Notably, exports of fish have remained stable at USD0.1 m since the first quarter of 2019.

Imports increased in comparison with both the fourth quarter of 2019 (by 7.3 percent) and the third quarter of 2020 (by 24.9 percent). Year-on-year, imports of gasoline went up by 4.8 percent, construction materials by 27.9 percent and unspecified commodities by 7.0 percent. Compared with the previous quarter, imports of gasoline increased by 2.4 percent, construction materials by

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10.1 percent and unspecified commodities by 29.4 percent. In contrast, imports of diesel dropped by 5.0 percent compared with the same quarter of last year and by 13.8 percent compared to the preceding quarter.

A comparison between exports and imports reveals that Cambodia's trade balance in this (fourth) quarter was in deficit again after its first positive trade balance in the preceding quarter. The trade balance in this quarter was USD-1,736.7 m.

Total revenue in the fourth quarter of 2020 was USD5,891.3 m, a 15.0 percent drop compared with the same quarter of 2019, but a 40.6 percent increase from the third quarter of 2020. The decrease of year-on-year total revenue was mainly driven by drops in current revenue (by 15.3 percent), tax revenue (by 10.2 percent) and non-tax revenue (by 51.0 percent) despite a 22.6 percent increase in capital revenue. The decline in tax revenue was due to drops in domestic tax (by 9.0 percent) and taxes on international trade (by 18.2 percent). Even though there were increases in property income (by 63.8 percent) and other non-tax revenue (by 1.6 percent), the decline in the sale of goods and services by 60.6 percent resulted in a 51.0 percent drop in year-on-year non-tax revenue. Compared with the preceding quarter, all types of revenue recovered: current revenue by 40.2 percent, tax revenue by 38.8 percent, non-tax revenue by 60.2 percent and capital revenue by 86.9 percent. The increase in tax revenue was the result of a rise in domestic tax by 39.8 percent and taxes on international trade by 31.7 percent. The 60.2 percent recovery of non-tax revenue from the previous quarter was driven by increases in property income of 20.6 percent, sale of goods and services of 55.1 percent and other non-tax revenue of 113.3 percent.

Total expenditure in this (fourth quarter) was USD7,501.9 m, which was 2.3 percent lower than that of the same quarter of last year (2019), but this represents a 35.3 percent climb from the third quarter of 2020. Year-on-year, capital expenditure declined by 8.9 percent, although there was a 2.4 percent rise in current expenditure driven by an increase in wages of 15.1 percent, despite an 8.6 percent drop in subsidies and social assistance, and a 6.8 percent drop in other current expenditure.

Although there was a 40.6 percent recovery in total revenue from the preceding quarter, the overall balance of the national budget remained in a deficit of USD-1,610.5 m. Dealing with this deficit balance, the government used USD1,238.3 m of foreign financing, while there was negative domestic financing (USD-17.5 m). Noticeably, the level of foreign financing in this quarter was 10.5 percent lower than it was in the same quarter of last year and 12.5 percent lower than it was in the third quarter of 2020.

The average consumer price index in this quarter was 3.4 percent, 0.6 percent percentage point higher than that in the same quarter of last year and 1.4 higher than in the preceding quarter. The price index of food and non-alcoholic beverages was 5.5 percent, an increase of 1.0 percentage point compared with the same quarter of last year and 3.1 percentage points compared to the preceding quarter. The price index of transport was -4.9 percent, decreased by 0.3 percentage points compared with the same quarter of last year and 3.5 percentage points compared to the preceding quarter.

Compared with the preceding quarter, the riel appreciated 0.8 percent against the US dollar from KHR4,094.6 to KHR4063.8 per dollar and 1.1 percent against Vietnamese dong to KHR17.5 per 100 dongs, but it depreciated 1.5 percent against the Thai baht.

The price of gold increased by 0.8 percent to USD226.1 per chi and that of gasoline by 0.04 percent to KHR3,004.9 per litre, while the price of diesel dropped by 2.8 percent to KHR2,654.9 per litre.

Real average daily earnings of vulnerable workers

This section provides a brief overview of the results from a survey conducted with 480 workers in February 2021. Due to the Covid-19 pandemic, the survey with rice-field workers could not be conducted for this quarterly report. From a quick glance, the daily earnings of cyclo drivers, porters, scavengers, motor taxi drivers and skilled construction workers decreased, whereas those of small vegetable sellers, waitresses, garment workers and unskilled construction workers increased. Unskilled construction workers earned the highest daily income, and it is the first quarter since the data availability period began in 2016 that this worker category earned a higher daily income than skilled construction workers, whose income decreased by 12.7 percent compared with the preceding quarter.

With a 44.5 percent increase in daily income, small vegetable sellers had the third highest at 21,979 riels after skilled construction workers (23,717 riels) and unskilled construction workers (23,974 riels). Scavengers became the lowest earning workers due to the 38.0 percent daily-income drop to 9,147 riels.

Regarding expenses, waiters/waitresses had the largest percentage of expense compared with their monthly income, consuming 70.7 percent of their monthly income, followed by scavengers, cyclo-drivers, skilled construction workers, unskilled construction workers, small vegetable sellers, garment workers, porters and motor taxi drivers. On average, the 320 workers, excluding the garment workers, mainly spent their income on food (66.3 percent), accommodation (18.7 percent), transport (4.4 percent), health (1.5 percent) and other items (9.1 percent). The average expenditure of garment workers (n=120) was also mainly allocated to food (66.6 percent), accommodation (21.1 percent), transport (0.4 percent), health (1.1 percent) and others (10.8 percent). Comparing their expenses with their earnings, skilled construction workers had the highest amount left over for their families although the percentage of income leftover is 27.4 percent of their income. Unskilled construction workers had the second largest amount of income leftover for their families (28.5 percent of their income), vegetable sellers (35.8 percent), garment workers (46.1 percent), porters (50.4 percent), waiters/waitresses (29.3 percent), motor taxi drivers (56.7 percent), cyclo drivers (53.7 percent) and scavengers (the least, at 52.0 percent of their income).

Table 1: Private investment projects approved, 2015–2020

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	fixed assets (USD m)											
Agriculture	169.8	117.1	62.9	214.9	17.2	48.2	1.9	27.5	0.0	35.8	31.7	0.0
Industry	1014.7	1436.4	982.2	1186.2	292.9	113.7	302.0	919.9	234.0	737.0	1941.8	1654.2
. *Garments*	225.2	380.7	211.1	187.3	73.9	34.4	47.3	74.1	106.0	55.5	29.7	56.4
Services	2734.4	1664.3	3858.6	4351.8	1625.6	2518.2	849.7	1440.4	682.1	481.2	1722.4	9.6
. *Hotels and tourism*	98.6	1366.9	2759.6	1584.0	1618.8	2518.2	808.7	1703.8	133.0	202.4	3515.1	0.0
Total	3918.9	3217.7	4903.7	5752.9	1935.6	2680.1	1153.5	2387.8	916.1	1254.1	3696.0	1663.8
	percentage change from previous quarter											
Total	-	-	-	-	4.9	38.5	-57.0	107.0	-61.6	36.9	-85.3	-55.0
	percentage change from previous year											
Total	147.4	-17.9	52.4	17.3	312.5	12.6	8.9	29.4	-52.7	-53.2	-84.0	-30.3

Note: Including expansion project approvals. Source: Cambodian Investment Board

Table 2: Value of construction project approvals in Phnom Penh, 2009–15

	2009	2010	2011	2012	2013	2014				2015		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
	USD m											
Villas, houses and flats	213.9	220.1	405.1	547.3	658.9	133.6	84.0	33.1	20.4	122.3	-	637.6
Other	227.3	217.8	199.9	463.6	859.6	190.0	141.7	105.6	11.7	49.8	-	252.6
Total	441.2	489.8	605.0	1,010.9	1518.5	323.6	225.7	138.7	32.1	172.0	-	897.4
	percentage change from previous quarter											
Total	-	-	-	-	-	34.3	-30.2	-38.5	-77.8	437.3	-	-
	percentage change from previous year											
Total	-60.5	11.0	23.5	67.1	28.1	8.0	-9.2	-64.2	-86.7	-46.8	-	-

Source: Department of Cadastre and Geography of Phnom Penh municipality

Table 3: Foreign visitor arrivals, 2015–2020

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	thousands											
China	694.7	830.0	1210.8	2024.4	683.4	609.1	572.5	496.9	259.7	15.9	27.2	26.8
Vietnam	987.8	959.7	835.4	800.1	186.9	214.8	235.7	271.5	179.5	0.2	1.1	1.4
Korea	395.3	357.2	345.0	301.8	95.7	43.6	47.4	68.1	41.7	1.0	1.8	1.5
Thailand	349.9	398.1	394.9	382.3	97.9	76.3	113.9	178.4	152.7	8.4	28.4	21.4
US	217.5	238.7	256.5	250.8	79.0	53.2	45.5	71.2	42.7	0.3	1.4	1.3

Japan	193.3	191.6	203.4	210.5	60.2	40.4	48.9	58.2	39.8	0.2	0.7	0.6
France	145.7	150.3	166.4	170.8	59.4	27.3	32.9	44.5	41.8	0.1	0.7	0.6
UK	154.3	159.5	171.2	162.4	59.4	29.7	28.5	45.6	44.2	0.1	0.3	0.2
Malaysia	149.4	152.8	179.3	201.1	48.7	43.2	46.5	64.6	24.9	0.1	0.3	0.4
By air	2476.0	2778.0	3312.7	6405.6	1299.1	1054.8	1039.9	1010.2	663.6	26.3	36.3	37.9
By land or water	2299.2	2331.4	2289.4	3242.2	578.7	405.8	436.0	786.1	491.6	8.4	28.5	21.4
Total	4775.2	4980.4	5602.2	9647.7	1877.9	1460.6	1475.8	1796.3	1155.2	34.7	64.9	58.5
percentage change from previous quarter												
Total	-	-	-	-	2.9	-22.2	1.0	21.7	-35.7	-97.0	87.0	-9.9
percentage change from previous year												
Total	6.1	4.3	12.5	72.2	9.7	13.2	7.4	-1.6	-38.5	-97.6	-95.6	-96.7

Source: Ministry of Tourism

Table 4: Exports and imports, 2015–2020

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
USD m												
Total exports	9256.4	10043.3	10772.9	12783.8	3222.7	3379.0	4263.9	3524.9	3550.1	4251.5	5562.2	3970.9
Garments	6827.0	7308.0	8020.3	9506.0	2463.4	2526.3	3143.8	2530.9	2647.2	1983.8	2705.4	2579.1
. To US	2009.4	1831.5	1923.8	2483.2	739.8	802.9	1006.5	848.0	945.9	694.3	1038.6	975.9
. To EU	2903.9	2928.7	2782.2	3155.3	719.2	801.1	965.4	716.2	706.3	579.9	661.2	703.0
. To ASEAN	103.4	98.4	106.9	135.3	38.1	41.3	48.2	53.1	54.6	54.6	48.8	53.5
. To Japan	524.2	655.5	701.2	890.8	262.9	175.8	291.2	236.8	262.9	156.7	230.8	219.8
. To UK	-	439.8	904.0	1007.0	211.5	197.7	272.9	200.3	190.2	136.6	223.4	168.7
. To rest of the world	1286.3	1354.2	1602.2	1834.3	491.7	507.5	559.7	476.4	487.3	361.7	502.8	458.3
Electronics	-	-	380.0	328.7	71.9	123.8	142.3	116.3	113.0	111.0	183.2	226.6
Automotives	-	-	11.6	94.4	20.4	18.2	22.7	24.1	26.0	43.0	35.4	42.7
Agriculture	548.8	534.1	706.4	850.9	210.4	177.7	211.0	288.1	262.9	304.5	277.4	440.2
. Rubber	165.4	165.3	273.5	217.6	43.8	42.2	60.0	73.3	30.8	40.0	83.1	119.4
. Wood	46.3	47.2	100.5	142.3	22.2	35.2	42.4	47.5	44.0	93.8	86.0	130.8
. Fish	0.5	0.6	0.6	1.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
. Rice	315.3	300.8	255.1	413.6	122.4	72.2	84.5	140.2	145.9	105.5	62.6	142.6
. Other agriculture	21.3	20.2	76.7	76.2	21.9	28.1	24.1	26.9	42.2	65.1	45.6	47.3
Others	1880.2	2201.2	1654.7	2003.8	456.6	532.9	744.0	565.6	501.0	1809.2	2360.7	686.2
Total imports	11494.5	15013.4	16815.4	16904.7	4437.7	5328.6	5091.4	5324.3	5250.9	4361.5	4571.6	5711.6
Gasoline	377.3	384.8	256.7	320.5	121.1	117.1	118.6	121.9	131.4	122.6	124.8	127.8
Diesel	607.8	709.1	472.9	594.1	228.2	250.2	166.4	248.9	248.1	265.1	274.2	236.4
Construction materials	164.4	253.2	304.3	564.5	170.8	231.4	271.2	224.4	177.0	213.5	260.8	287.1
Other	10345.1	13666.3	15781.6	15425.7	3917.7	4729.9	4535.2	4729.1	4694.4	3760.4	3911.9	5060.2
Trade balance	-2238.1	-4970.0	-5974.1	-4120.9	-1215.0	-1990.6	-827.5	-1799.4	-1700.9	-110.1	990.5	-1736.7
Percentage change from previous quarter												
Total garment exports	-	-	-	-	7.0	2.6	24.4	-19.5	4.6	-25.1	36.4	-4.7
Total exports	-	-	-	-	2.8	7.8	26.2	-17.3	0.7	19.8	30.8	-28.6
Total imports	-	-	-	-	6.0	27.2	-4.5	4.6	-1.4	-16.9	4.8	24.9
Percentage change from previous year												
Total garment exports	14.5	7.0	9.7	18.5	17.7	12.8	9.5	9.9	7.5	-21.5	-13.9	1.9
Total exports	14.2	8.5	7.9	17.9	13.7	12.6	11.8	12.4	10.2	25.8	30.4	12.7
Total imports	11.7	30.6	12.0	0.5	4.6	18.5	28.0	27.1	18.3	-18.1	-10.2	7.3

Note: Import data include tax-exempt imports. Sources: Department of Trade Preference Systems; MOC and Customs and Excise Department; MEF (website)

Table 5: National budget operations on cash basis, 2015–2020 (billion riels)

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Total revenue	11879.9	14201.5	16582.0	19743.1	5097.5	6357.1	6364.5	6930.3	5544.2	5554.9	4189.8	5891.3
Current revenue	11759.0	14088.7	16481.4	19549.0	5066.8	6322.2	6309.2	6869.7	5524.0	5504.1	4150.0	5817.0
Tax revenue	10502.4	12196.5	14314.3	17019.2	4524.3	5663.5	5415.1	6009.8	4697.1	5236.7	3886.8	5395.3
Domestic tax	8591.7	10185.8	12338.7	14648.3	3904.9	4944.9	4634.1	5215.9	4076.5	4787.8	3393.8	4745.9
Taxes on international trade	1910.7	2010.7	1875.6	2370.9	619.4	718.6	781.0	793.9	620.6	448.9	493.0	649.4
Non-tax revenue	1256.6	1892.2	2167.2	2520.9	542.5	658.7	894.1	859.9	826.9	267.4	263.2	421.7
Property income	77.3	116.0	127.2	197.3	177.4	34.0	30.2	22.9	289.6	36.8	31.1	37.5
Sale of goods and services	1047.1	1248.3	1517.0	2075.6	330.7	531.2	798.5	750.0	500.9	211.6	190.7	295.7
Other non-tax revenue	132.2	528.0	523.1	253.9	34.5	93.5	65.5	87.1	36.4	47.5	41.5	88.5
Capital revenue	121.0	113.4	100.5	194.1	30.7	35.0	55.4	60.7	20.2	50.8	39.8	74.4

Total expenditure	13849.5	13775.4	17251.0	19027.1	4150.4	4997.6	5386.5	7676.8	5301.7	6342.8	5546.4	7501.9
Capital expenditure	5290.3	3785.3	5207.2	5730.2	1025.0	1392.7	1358.6	3195.4	1259.3	2289.2	1757.1	2912.1
Current expenditure	8544.6	9990.1	12043.7	13297.0	3125.4	3604.9	4027.9	4481.3	4042.5	4053.5	3846.7	4589.8
Wages	4271.9	5381.7	6647.4	7558.4	1820.2	1911.1	2102.0	1883.3	2058.0	1934.4	2132.8	2167.6
Subsidies and social assistance	1742.9	1774.9	2314.8	2505.4	729.2	1061.9	855.5	1620.3	1288.2	1435.6	701.5	1481.5
Other current expenditure	2529.8	2833.5	5394.3	5738.6	1305.2	1693.8	1925.8	2598.1	1984.4	2119.2	1713.9	2422.2
Overall balance	-1969.6	426.1	-669.1	-205.4	947.1	1,359.6	978.0	-746.4	242.4	-787.9	-1356.5	-1610.5
Foreign financing	3729.4	1878.9	3358.1	716.1	652.8	895.5	608.8	1383.3	369.5	1180.5	1415.7	1238.3
Domestic financing	-2034.9	-1858.7	-2454.1	2513.5	-44.4	-7.6	11.9	-18.0	3.2	18.7	113.1	-17.5

Source: MEF website

Table 6: Consumer price index, exchange rates and gold prices (period averages), 2015–2020

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Consumer price index (percentage change from previous year)											
Phnom Penh - All Items	1.2	3.1	2.9	2.5	1.9	1.8	2.0	2.0	3.0	2.5	2.8	3.4
- Food and non-alcoholic beverages	4.0	5.6	3.4	2.5	2.1	1.6	2.2	2.4	3.7	4.9	4.5	5.5
- Transportation	-9.2	-6.9	4.1	2.9	-3.8	-1.5	-2.5	-1.4	2.6	-10.8	-4.6	-4.9
	Exchange rates, gold and oil prices (Phnom Penh market rates)											
Riels per US dollar	4060.4	4053.7	4047.5	4045.0	4006.6	4052.1	4086.8	4063.7	4064.1	4087.0	4094.6	4063.8
Riels per Thai baht	119.4	115.5	120.0	125.9	127.4	128.9	133.7	134.9	130.7	127.5	131.0	133.0
Riels per 100 Vietnamese dong	18.7	18.2	17.9	17.7	17.4	17.5	17.7	17.6	17.6	17.7	17.7	17.5
Gold (US dollars per chi)	140.6	151.2	151.5	152.8	156.6	157.1	175.7	178.1	188.3	185.5	224.2	226.1
Diesel (riels/litre)	3771.3	3004.0	3385.8	3808.7	3413.9	3595.4	3499.7	3499.5	3343.5	2393.0	2730.6	2654.9
Gasoline (riels/litre)	3951.7	3336.8	3716.0	3982.5	3405.7	3770.2	3629.3	3685.9	3538.8	2483.8	3003.7	3004.9

Sources: NIS; NBC; CDRI

Table 7: Monetary survey, 2013–2020 (end of period)

	2015	2016	2017	2018	2019				2020			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Billion riels											
Net foreign assets	26665.5	31814.5	42575.3	55214.3	58148.8	55238.0	58667.0	60182.9	57001.8	63515.6	68060.7	67602.5
Net domestic assets	22157.6	25802.3	28743.5	33228.9	33997.2	55274.0	34814.3	34856.1	62221.0	60598.8	64552.9	68040.1
Net claims on government	-6428.8	-8148.5	-11066.5	-14803.7	-17381.0	-19828.0	-21574.8	-23884.4	-24650.6	-24152.1	-24395.1	-24994.7
Credit to private sector	46071.0	56458.8	66922.6	82419.3	86575.2	111686.0	119358.9	125629.4	131815.3	132849.9	139899.7	147822.1
Total liquidity	48823.1	57616.6	71318.9	88443.2	92146.0	110512.0	116766.5	118436.4	119222.8	124114.4	132613.6	135642.6
Money	6741.4	7273.0	9428.4	10226.8	10782.0	9883.0	11933.4	11906.3	12880.5	12650.4	-	-
Quasi-money	42081.7	50343.8	61890.4	78216.4	81364.0	95196.0	98378.3	99650.6	99700.8	103956.6	-	-
	Percentage change from previous year											
Total liquidity	14.7	18.0	23.8	24.0	24.0	22.6	21.3	20.4	29.4	12.3	13.6	-
Money	6.9	7.9	29.6	8.5	8.5	12.6	18.0	32.7	19.5	28.0	-	-
Quasi-money	16.1	19.6	22.9	26.4	26.4	24.1	21.7	18.8	22.5	9.2	-	-

Source: National Bank of Cambodia

Table 8: Real average daily earnings of vulnerable workers (base November 2000)

	Daily earnings (riels)									Percentage change from previous year		
	2016	2017	2018	2019	2020				2021	2020		2021
					Feb	May	Aug	Nov	Feb	Aug	Nov	Feb
Cyclo drivers	11516	10793	10774	11373	10997	9081	10779	10775	10469	-3.0	-10.6	-4.8
Porters	14318	14942	15345	17142	18246	17856	15346	19493	16126	-7.3	3.7	-11.6
Small vegetable sellers	17177	17015	20125	19558	15207	20181	19479	23206	21979	1.5	24.4	44.5
Scavengers	10299	11591	12613	12962	14759	8322	10742	11198	9147	-18.1	-14.5	-38.0
Waitresses*	7989	8093	8149	8484	8706	8420	8997	8912	11155	5.1	2.2	28.1
Ricefield workers	8088	8055	8668	8669	9154	8812	8712	8924	-	-5.1	-4.8	-
Garment workers	13688	14093	15242	15973	16483	13271	14211	14391	16552	-11.6	-13.2	0.4
Motorcycle taxi drivers	11516	10793	10774	11373	17748	9081	15210	14427	17424	7.0	-3.2	-1.8
Unskilled construction workers	14509	14231	14815	14733	22916	19741	17870	14947	23974	-2.5	-20.6	4.6
Skilled construction workers	17365	17341	17573	18736	27164	26778	31298	22069	23717	24.0	-18.9	-12.7

Notes: * Waitresses' earnings do not include meals and accommodation provided by shop owners. Surveys on the revenue of waitresses, ricefield workers, garment workers, motorcycle taxi drivers and construction workers began in February 2000. November 2015 data are not available. **Not available.

CDRI UPDATE

Development Programme, and Russia. The survey collected information from 202 owners/managers of micro, small and medium enterprises (MSMEs) and large firms, and 1,022 students and graduates from higher education as well as from technical and vocational education and training institutions.

Several activities were carried out under the project on *The Impact of COVID-19 on Inclusive Development and Governance,* a regional research project funded by the International Development Research Centre, Canada. A training course on qualitative research was conducted with participation from researchers of the partner institutes (Cambodia, Laos, Myanmar, and Vietnam). Dr Erik Kuhonta, Associate Professor at the Department of Political Science, McGill University, was the trainer. All research teams also started implementing planned research activities, particularly on questionnaire design and data collection.

Under Phase II of *The Contribution of Vocational Skills Development to Inclusive Industrial Growth and Transformation: An Analysis of Critical Factors in Six Countries,* the team participated in monthly workshops to discuss findings and data analysis of the agreed tasks under this Phase. We also started recruitment of a PhD student as part of the capacity building initiative of Phase II.

Under the research fund from the Swedish International Development Cooperation Agency (Sida), the team sent a draft working paper assessing the wellbeing of street vendors in Phnom Penh for peer review.

Country and synthesis chapters on the agriculture value chains between the Mekong countries and China were English edited. These chapters are expected to be published in an edited book with ISEAS, Singapore.

Centre for Educational Research and Innovation (CERI)
By the end of March 2021, survey instruments and interview protocols were developed and fieldwork preparation was completed for two research studies on Cambodian higher education. These were: *Faculty Engagement in the Internationalisation of Higher Education Institutions in Cambodia, and Determinants of Entrepreneurship Career Intention of Cambodian Undergraduates*. These studies are funded by Australia's Department of Foreign Affairs and Trade (DFAT) through The Asia Foundation

(TAF) and, for the latter study, with a contribution from the Swedish International Development Cooperation Agency (Sida).

From 2 to 4 February 2021, in collaboration with The Asia Foundation's Ponlok Chomnes Initiative, and under financial support from the Australian Department of Foreign Affairs and Trade, CDRI organised a three-day intensive training workshop that took place in Siem Reap province under the topic *Introduction to R for Quantitative Data Analysis.* The training aimed to equip the participants with the ability to effectively use computer software program called "R" to perform quantitative analysis by transforming or visualising data, with the focus on the econometric evaluation of cross-section and panel data. There were approximately 30 participants from different universities, research thinktanks, TVET institutes and government ministries.

Various in-house capacity-building training sessions were conducted to assist junior researchers as well as interns to strengthen their research ability. The topics of the training mainly focus on the process of the research, including research question formulation, literature review construction, and ethical considerations while conducting research. These topics have provided the foundation for junior researchers and interns to prepare for their upcoming tasks.

Aside from capacity building and research, from 4 to 5 January 2021, the director of the Education Centre participated in the 2nd National Conference on Research and Innovation in Cambodia under the theme of Roles of *Universities in Cambodia in Knowledge and Technology Transfer*. This was held by the Department of Scientific Research with the support of the Ministry of Education, Youth and Sport (MoEYS). The objective of this conference was to provide a platform for researchers to share their practices, results and innovation relevant to STEM and agriculture. The director of the Education Centre was also invited to join a consultation workshop with the Ministry of Industry, Science, Technology and Innovation to craft Cambodia's Science, Technology, and Innovation Roadmap 2020-2030. The consultation workshop took place in two rounds between 18 and 21 January 2021.

Furthermore, from 2 to 4 March, CERI co-hosted Cambodia's Education Policy Forum with the Department of Policy of the Ministry of Education, Youth and Sport (MoEYS). The objective of the policy forum was to identify issues and solutions

related to teacher development, school-based management, the improvement of teaching and learning, and post COVID-19 adaptation of teaching and learning methods. It also aimed to connect policy to practice and to improve the dissemination of policies to schools so that their implementation would have a greater impact on learning outcomes. The main roles of CERI were to provide insights relating to its research findings, as those could serve as substantial evidence linked to the topics being discussed. The discussions held during this forum were later synthesised and will be used as key policy recommendations for further discussion in the National Education Congress 2021.

Centre for Natural Resources and Environment (CNRE)
The project *Water Diplomacy of the Mekong Basin: Toward a Shared Basin for Prosperity* is funded by the Mekong-Lancang Cooperation Special Fund through the Ministry of Foreign Affairs and International Cooperation. CDRI is a lead implementing institution of the project under partnership with, and reporting to, the National Secretariat of Cambodia for Mekong-Lancang Cooperation (NSC-MLC), Ministry of Foreign Affairs and International Cooperation (MFAIC). The research partners include: 1) the National Institute of Diplomacy and International Cooperation (NIDIR); 2) the Cambodia National Mekong Committee (CNMC); 3) the Pannasastra University of Cambodia (PUC); 4) the Southern University of Science and Technology, School of Environmental Science and Engineering (SUSTech) (in Shenzhen, China); 5) the Political Science Faculty, Chulalongkorn University (Thailand) (CU), and 6) the Vietnam National Mekong Committee (VNMC). The country partners are drafting the preliminary research findings and seeking comments/feedback from CDRI's research director/centre director and research advisors.

For the project entitled *The Impact of Climate Change Programs in Cambodia: Vulnerability, Poverty, and Gender,* CDRI prepared a draft of the policy recommendations and organised an online consultation with the MRD and the UNDP. The steering committee advised the research team to conduct the third final data collection in the two project sites – in Kampong Cham and Kampong Thom provinces – to determine if there were additional research findings of importance for the MRD to incorporate into the policy recommendations for their future climate change intervention programs.

Under Sida-funded program 'Improving Climate Change Adaptation and Natural Resource Governance in Cambodia', the Working Paper 125 of Sida theme one *'The Impacts of Climate Change on Agriculture and Water Resources in Cambodia: From Local Communities' Perspectives* was finalised and published in CDRI's working paper series. A team researcher completed the fieldwork for data collection in Preah Vihear and Kampot provinces for Sida theme two - *'Gender-based Climate Change Adaptation and Disaster Risk Reduction in Cambodia's Local communities* - and is now engaged in data cleaning and entry. The Sida-theme three *Challenges and Potentials of Community-Based Ecotourism in Livelihood Improvement: A Case Study of Preah Nimith CBET, Cambodia, is progressing* to a finalised working paper and feedback is being sought from external reviewers and the research director as well as the centre director.

The research team completed a draft report on the assessment study of the *State of Gender Equality and Climate Change in Cambodia*. The consultation and validation meetings were conducted with key governmental representatives from the Ministry of Rural Development (MRD), the Ministry of Mines and Energy (MME), the Ministry of Agriculture, Forestry and Fisheries (MAFF), the Forestry Administration (part of MAFF), the Ministry of Environment (MOE), and the Ministry of Women's Affairs (MoWA). The main purpose of the meeting was to present the preliminary findings of the study and to collect all relevant feedback and comments as inputs for finalising the report.

Under the *State of Climate Change in the ASEAN Region: Cambodia Country Report* initiative, research members attended the second virtual regional consultation meeting organised by the Institute for Global Environmental Strategies (IGES) and the ASEAN Secretariat (ASEC) on 2 February 2021. Researchers provided feedback and practical comments on the initial findings of the first draft regional report.

For the project *Assessment on the Benefits of Rice Contract Farming*, CDRI prepared a final report, a policy brief, and co-organised an online validation and dissemination workshop with the NGO Forum (the project funder). The project will conclude in July 2021.

Centre for Governance and Inclusive Society (CGIS)
CGIS completed the data collection for a repeated ethnographic study in 2007 in three communes

in Cambodia. The study aims to establish how leadership in rural Cambodia has changed in the intervening 12 years. Through this project, an experienced photographer was hired to capture the stories and key messages of the research that can be used to create training materials and policy outputs. Another project, conducted in collaboration with McGill University, named *Understanding Barriers and Working Pathways to Women's Political Participation,* was successfully completed. It involved interviews with women leaders from all social spheres ranging from the national assembly, government ministries, business and NGOs.

The centre has continued to implement two projects in collaboration with the Royal Holloway University of London, including one entitled *Focusing a Gendered Lens on Climate Resilience, Credit, and Nutrition in Translocal Cambodia and South India,* and the second called: *ReFashion: Social Protection and the Gendered Impact of COVID-19 in Cambodia.* For the latter project, the semi-structured interviews were conducted with 60 garment workers to deepen the information about the impacts of COVID-19, coping strategies, and other related issues that have been hampering the lives of garment workers during the pandemic. It was successfully completed in early March. Besides semi-structured interviews, the life history of each worker was also videoed by an experienced photographer to document the different aspects of life of the workers who were selected to take part. As another knowledge-sharing activity, a radio talk show was conducted to collect more information.

The centre also started a newly commissioned project working on a baseline survey for the UNDP project entitled *Building Capacities for Civic Engagement, Peacebuilding and Inclusive Dialogue: Towards Inclusive and Participatory Governance.* The baseline survey will target more than 500 participants who are from the government and civil society sectors, and the findings will be used by UNDP Cambodia as the basis for tracking the progress of results. This will assess progress towards achieving the agreed outputs as designated in the project's Result Resource Framework. This data will measure changes in three outputs, including the capacity level of national and subnational governments and CSOs, inclusiveness and diversity in the civic engagement mechanisms, and the level of partnership.

Besides research related activities, CGIS is also responsible for arranging and facilitating the CDRI monthly research seminar for the whole of 2021. The workshop is one of CDRI's interdisciplinary platforms for researchers and practitioners to present and discuss the most recent research studies, methodology innovations, and emerging policy insights relevant to our work. In this quarter, a series of monthly research seminars was held in which researchers and practitioners presented their study findings relating to emerging issues such as fighting automation through education and clean energy.

Centre for Policy Research in Agriculture and Rural Development (CPARD)

Five projects are currently being implemented by CPARD:

Data collection was started for *Integrating Smallholders into Commercialisation through Public-Private Partnerships*, the first study under the regional project entitled *Network for Agriculture and Rural Development Think Tanks for Countries in the Mekong Sub-region*, which is funded by the International Fund for Agricultural Development.

The team has started data analysis and writing for *Cambodia's Agri-Food Trade: Structure, New Emerging Potentials, Challenges and Impacts of Covid-19*, supported by International Food Policy Research Institute (IFPRI). The study will analyse Cambodia's opportunities and challenges in agri-food trade amid the rapid shifts of trading partners and the impacts of Covid-19 pandemic on the agricultural trade.

The draft Working Paper for the Sida-funded project *On-farm Food Safety in Horticulture in Cambodia: The Case of Vegetable Farming*, is still under peer review.

Two newly started projects include the *Comparative study for sustainable and better market access of the regional rice sector*, funded by the International Fund for Agricultural Development, and the *Community-Based Childcare (CBCC) For Garment Factory Workers: Impact Evaluation*, funded by the World Bank. The former is part of the *Network for Agriculture and Rural Development Think Tanks for Countries in the Mekong Sub-region* regional joint study. This regional study aims to provide an overall picture of the Cambodian rice sector, propose solutions for sustainable and better market access for the sector through evidence-based policy recommendations, and to facilitate the sharing of experiences and the strengthening of cooperation among network countries.

CDRI Update

MAJOR EVENTS

2 to 4 February 2021, Siem Reap

Introduction to R for Quantitative Data Analysis. The training aimed to equip participants with the ability to use computer software called R, effectively, to perform quantitative analysis by transforming or visualising data, with a focus on the econometric evaluation of cross-section and panel data. It has been a component of The Asia Foundation's Ponlok Chomnes Initiative, under financial support from Australia's Department of Foreign Affairs and Trade (DFAT).

5 February 2021, Phnom Penh

Commune Dissemination Workshop on the Impact of Climate Change Programs in Cambodia: Vulnerability, Poverty and Gender. The main objectives of the workshop were: (1) to present the key findings of the research report to local authorities; and (2) to verify the results and to gather more feedback and recommendations. This Commune Dissemination Workshop was organised in partnership with the Ministry of Rural Development, the Cambodia Climate Change Alliance and the UNDP.

2 to 4 March 2021, Phnom Penh

Cambodia's Education Policy Forum: The objectives of the policy forum were: (1) to identify issues and solutions related to teacher development, school-based management, teaching and learning improvement, and the post Covid-19 adaptation of teaching and learning methods; and (2) to connect the policy to practice and better disseminate policies to schools to improve their implementation for a more positive impact on the learning outcome. This forum was hosted in partnership with the Department of Policy (DoPo) of the Ministry of Education, Youth and Sport (MoEYS).

RESEARCH HIGHLIGHTS

Centre for Development Economics and Trade (CDET)

We collaborated with researchers from the Ludwig Maximilian University (LMU) in Munich, Germany, to collect data on 1,500 households in five provinces around the Tonle Sap region. Within each province, we randomly selected up to 13 communes including a total of 150 villages. The objective of this survey was to measure preferences and beliefs in Cambodian society, and their relation to memories. The survey also aimed to understand where Cambodian people access their news, how often they interact with families and friends, as well as female empowerment in the context of Cambodian families. The data is being analysed by the University's research team, and results are expected to be published soon.

We also concluded data collection under the *Digital Skills Assessment survey*, a collaboration between the Cambodia Development Resource Institute and the Cambodia Academy of Digital Technology, with financial support from the Capacity Building Research and Development Fund of the Ministry of Posts and Telecommunications, the United Nations

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