

**PRELIMINARY STUDIES OF THE IMPLEMENTATION OF  
DISTANCE LEARNING FOR CHILD LABOR GRADUATED  
FROM JUNIOR AND SENIOR HIGH SCHOOLS WORKING  
IN THE AGRICULTURAL PROCESSING INDUSTRY IN  
INDONESIA, THAILAND, CAMBODIA, AND VIETNAM**

**<sup>1,2</sup>Endang Prabandari, <sup>1</sup>Sahirman & <sup>2</sup>Arif Rahmandita**

<sup>1</sup> PPPPTK Pertanian Cianjur

<sup>2</sup> PPPPTK Pertanian Cianjur

**Abstract.** Opportunities to obtain education and training for working-school-age children (child labor) in Thailand, Cambodia, Vietnam and Indonesia are indispensable. This is indicated by mean of years of schooling of citizens in these countries is only about 7 years or equivalent to junior high school. In addition, population data show that labor with primary and secondary education level is quite high. These conditions encourage the formation of a labor force composition dominated by child laborers who are only elementary school graduates and children who have not graduated from secondary education due to a reason. In relation to the working work, the Agricultural Products Processing Industry is one of the industrial sectors targeted by child laborers. This is because the nature of some work lines in the industry does not require workers with high ability / competence. On the basis of these problems, there needs to be a solution to improve the competence of child labor through education which is flexible in adapting to the conditions

of child labor. Distance learning can be served as an efficient or effective strategy or method to meet the educational needs of child laborers who have limited time due to work. This study aims to find out the readiness of Indonesia, Thailand, Cambodia, and Vietnam, to implement the distance learning programs. The results of the study of several indicators in each target country indicate that the distance learning program is feasible and ready to implement.

**Key words:** *Agricultural Products Processing Industry, Distance learning, Labor competencies improvement*

## **I. Introduction**

ASEAN generally consists of developing countries where the level of education is still far behind from developed countries. Singapore is the only country in ASEAN that can compete with developed countries. Data from the 2016 Human Development Report, the United Nations Development Program of 2016 shows the average Singaporean is 11.6 years of age, followed by Malaysia 10.1 years, Philippines 9.3 years, Brunei 9 years, Vietnam 8 years, Indonesia and Thailand 7.9 years, and the rest are Cambodia, Laos and Myanmar which are still below 6 years (UNDP, 2016).

In most ASEAN countries, socio-economic conditions are the main contributing factor to the high rate of incompleteness education. Based on UNDP data above, it appears that junior high school and senior high school graduates is still dominant. These conditions encourage the formation of a labor force. Except for Singapore, the majority of the labor force in ASEAN is still dominated by laborers with middle, lower secondary education, and even no education at all, few from the labor force who achieve higher education. Furthermore, due to the high rate of non-completion of education, child labor population is quite high among the total population of labor force.

Child labor should not be found in Indonesia, Thailand, Cambodia, and Vietnam as the countries have ratified the ILO conventions. For example, Indonesia implements the conventions through Law No. 13/2003 on Manpower (pursuant to Decision of Constitutional Court No. 012 / PUU-I / 2003), Article 68 mentioned "Employers are prohibited from employing children". While the child's age limit according to the Law is "Every person under the age of 18 years". In fact, although the rules are clear, there are still child labor. Economic and social factors triggered school dropouts and children were forced to work.

Agricultural processing industry is one of the industrial sectors targeted by child labor because the nature of several production lines in this industry does not requested for high ability / competence. In addition, the food and beverage industry is one of the fastest growing industrial sectors especially in developing countries. This growth is in response to increased agricultural production through extensification and intensification programs in order to meet global food needs. Noted that in the last two centuries, the global human population has quadrupled. It is estimated that the population will reach 9.7 billion by 2050. The projection shows that to feed the world population of 9.7 billion people by 2050 requires an increase in overall

food production by about 70% from the present (Alexandratos and Bruinsma, 2012)

To provide opportunities for child workers to receive formal education and training, distance learning is an educational program that the SEA-TVET Consortium can be strived. In the implementation, this program can adjust the condition of learners who have limited time to undergo face-to-face education because of their working time. Furthermore, through enhancement of academic and skill capability, it will have an impact on increasing income, avoiding the termination of employment and can fulfill the quality of human resources expected by the industry.

Distance education programs emphasize joint efforts in addressing child labor who should still be in school, but for some reason they cannot continue their education and must work. The initiation of the movement to work together to build human resources quality in Southeast Asia has become one of SEA-TVET's concerns. Four countries, Indonesia, Thailand, Cambodia and Vietnam will be included on this program. Therefore, a preliminary study is needed to find out whether the distance education program is feasible to be implemented or not and also to know the readiness of the four countries to implement the program.

## **II. Method**

This research is done by literature study method to solve the problem. Thus, this study was conducted using secondary data. The principle of literature study is that researchers conduct searches on various written sources, either in the form of statistical data, books, archives, magazines, articles, and journals, or documents relevant to the issues studied. The data obtained, then analyzed and concluded.

## **III. Results and Discussion**

This study focuses on finding relevant data to serve as an indicator of whether distance education programs are necessary, ready and workable in target countries. These data include:

1. Mean years of schooling
2. Labor force profile
3. Wages level according to education level
4. Profile of agricultural processing industry, labor absorption and contribution to country's GDP
5. The availability of educational institutions as distance learning program facilitators and how their cooperation with industry

The availability of most updated data vary greatly in each targeted country. Official data released by the

government is the main data in which the data also serves as the government's guideline for policy formulation. Data on "mean years of schooling"; "Labor force profile"; and "The profile of the agricultural processing industry, labor absorption and contribution to GDP" are the indicators in determining the potential market (amount of workers) of distance learning program. While other data shows the readiness of a country to organize the program.

#### **A. Mean Years of Schooling**

Mean years of schooling is used by the Human Development Report Office (HDRO) program of the United Nations Development Program (UNDP) which has been used since 2010 as one of the two educational indicators to calculate the Human Development Index (IPM) (UNDP, 2010). Mean years of schooling replaces the adult literacy rate used in the HDI calculation until 2009 (UNDP, 2009). Mean years of schooling indicates the average number of completed school years of a country's population, excluding the year spent for repeating course or class. Human Development Index (HDI) is a comparative measurement of life expectancy, literacy, education and living standards for all countries around the world.

Mean years of schooling of Vietnamese in 2015 is 8 years, Indonesia and Thailand 7.9 years equal to secondary education level, for Cambodia 4.7 years or elementary school level. Furthermore, the Human Development Index (HDI) formed for Vietnam is 0.683; Indonesia 0.689; Thailand 0.740; and Cambodia 0.563; the difference in index value is very high when compared to Norway with index value of 0.949; the highest in the world. Mean years of schooling is one of the factors causing the low quality of human resources (UNDP, 2016). The Global Human Capital Report 2017, reports that Vietnam and Indonesia scored of 62.19; Thailand 66.15; and Cambodia 57.28 for the quality of human resources, the score is very far compared to Norway with the highest score of 77.12 (Schwab, 2017).

Indirectly, Mean years of schooling can be an indicator of how the composition of a country's labor force in corresponds with the level of education. Based on the data shown, the labor force will be largely composed by individuals graduating from elementary and high school. It can further confirm and corroborate the data displayed in the labor force population profile.



## **B. Labor force Profile**

### **1. Indonesia**

Mean years of schooling contributes to the composition of the labor force. BPS (2017), reported total labor force in 2016 amount 125,443,748 people which is about 6,219,598 people (4.95%) are 15-19 years old. From the 125,443,748 people of total labor force, 100,259,332 people have labor ed in various sectors. Furthermore, as shown on Table 1, from total labor force population, 32,849,916 people (26.2%) are elementary school graduates, 22,652,513 people (18.1%) are junior high school graduates, 22,364,039 people (17.8%) are high school graduates and 13,690,816 people (10.9%) are vocational graduates school.

Table 1. People aged 15 years and over who work according to the type of main employment and education attainment in 2016

Main Employment	Education Attainments						Total
	elementary	Junior High School	Senior High Schools		Academy	Univ.	
			General	Vocational			
Agriculture, Forestry, and Fisheries	14.8	6.25	3.52	1.31	148.296	339.846	26.44
	70.9	8.38	0.79	1.34			
	58	1	5	1			
Mining And Excavation	455.393	309.636	293.384	117.315	23.974	86.209	1.285
							.911
Processing industry	3.87	3.69	3.03	2.54	251.857	607.966	14.00
	9.46	3.23	1.53	4.11			
	3	4	6	4			
Electricity, Gas and Water	27.744	32.521	95.585	105.115	28.879	58.450	348.2
							94
Construction and building	2.92	1.95	1.05	720.	80.896	258.311	7.003
	9.41	8.67	5.79	367			
	3	1	3				
Trading, Retail, Restaurant, and Hotel	6.16	5.53	6.36	3.79	768.096	1.37	24.00
	6.50	7.96	4.38	3.87			
	3	9	7	5			
Transportation, Warehousing and Communication	1.30	1.30	1.32	737.	132.165	363.489	5.172
	8.89	8.39	2.68	355			
	4	4	1				

Main Employment	Education Attainments					Total	
	elem enta ry	Juni or High Scho ol	Senior High Schools		Aca dem y		Univ .
			Gen eral	Voca tion al			
<b>Finance, Insurance , Land &amp; Building Rental, and Company Services</b>	194. 549	288. 995	837. 933	575. 663	327. 765	1.24 0.74 5	3.465 .650
<b>Communi ty Services, Social, and Individual</b>	1.98 1.26 8	1.97 0.22 9	3.89 1.31 9	2.26 5.12 2	1.65 4.19 1	6.75 8.91 0	18.52 1.039
<b>Total</b>	31.8 14.1 85	21.3 58.0 30	20.4 13.4 13	12.1 70.2 67	3.41 6.11 9	11.0 87.3 18	100.2 59.33 2

No specific data were found on the number of employed labor out of the 15-19 age group labor force (6,219,598 people). By looking at the high number of national employed labor (85,755,895 people) aged of 15 years and above (elementary-high school graduates), it's highly probable that the population of 15-19 age group labor force (6,219,598 people) is part of total population for employed labor (85,755,895 people) on the country. For easier understanding see figure 1.

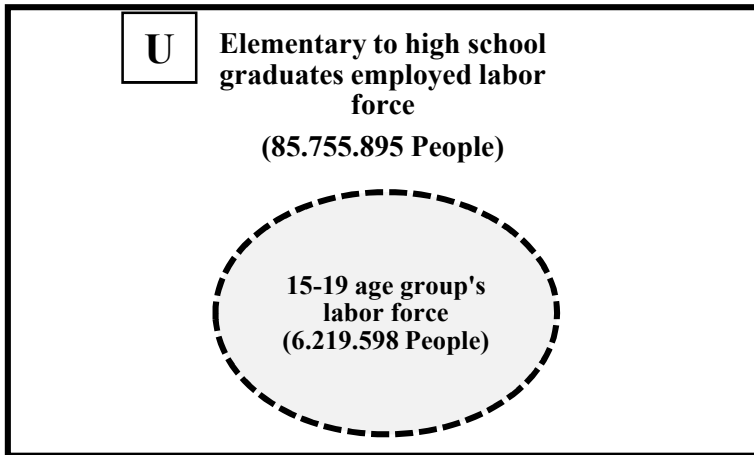


Figure 1. Union of sets illustration for the probability of population of 15-19 age group labor force (6,219,598 people) is part of total population for employed labor (85,755,895 people) on the country in 2016

## 2. Thailand

Referring to the 2016 Thailand's Statistical Yearbook data, by 2015, from the total labor force of 38,766,500 people, who have worked in various sectors are 38,330,400 people. As shown in Table 2, from of the total employed labor force, 8,479,100 people are elementary school graduates, 6,033,400 people are junior school graduates, 4,693,400 people are senior high

school graduates, and 1,396,900 people are vocational high school graduates (NSO, 2016).

Table 2. Population aged 15 and above, grouped according to the status of employment and education level in 2015

In thousand

Education Level	Total labor force			Not labor force
	Employed	Unemployed	Seasonal workers	
Total	38,330.40	356	80.10	16,524.10
Uneducated	1,258.00	2.40	2.90	1,180.00
Elementary school's dropouts	8,330.50	17.40	33.30	5,328.50
Elementary school	8,479.10	47.10	18.90	2,313.70
Junior high school	6,033.40	73.70	13.30	3,625.10
<b>Senior high school</b>				
General	4.693,40	51,60	5,80	2,097.90
Vocational	1.396,90	17,70	3,00	526.20
Training	6,30	0,50	-	5.20

Education Level	Total labor force			Not labor force
	Employed	Unemployed	Seasonal workers	
<b>Higher education</b>				
Academy	5.02 2,20	92,90	2,50	816,20
Technical institute	2.06 9,70	42,40	0,40	341,60
Training	709, 10	9,20	-	227,50
Others	127, 70	1,00	-	10,30
Unknown	204, 20	0,10	-	51,90

There is no specific data found on the number of labor populations in the 15-19 year age range. General population data shows that the population of Thailand in the aged 15-19 years reached 4,527,342 people in 2015. By looking at the high number of employed labor force (20,602,800 people) aged of 15 years and above (elementary-high school graduates), it's highly probable that the population of 15-19 age group citizen population (6,219,598 people) is part of total the population of elementary-high school graduates employed labor (85,755,895 people) on the country. For easier understanding see figure 2.

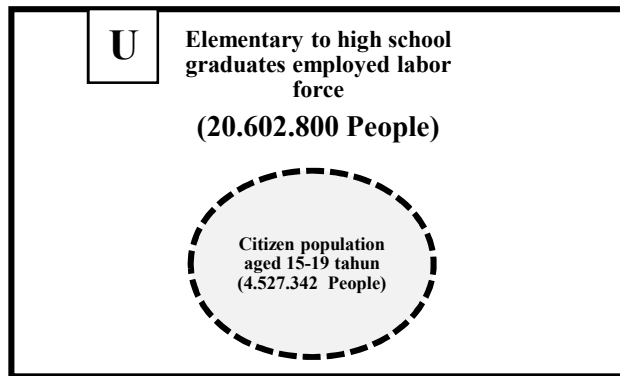


Figure 2. Union of sets illustration for the probability of citizen's population of 15-19 age group is part of total elementary-high school graduates employed labor (85,755,895 people) in 2015

### 3. Cambodia

The availability of official statistical data released by the government of Cambodia is very limited. The last population census was conducted in 2008 and there was no census thereafter. Information obtained from the National Population Statistics of Cambodia (NIS), the next national census will be conducted in 2019. related to labor data, it's refers to data released by the ILO in 2013, this is consider as the most up-to-date data on the labor situation in Cambodia.

Based on the Report on Cambodian labor and child labor in 2012, shows the number of Cambodians is 14,899,129 people in 2012, of whom 1,816,564 are 15-19 years old. Furthermore, based on population data on education and gender status as shown in Table 3, 11.8% of the population are attend school, while 15.9% never attend school, 40.4% only complete primary school, 28, 8% reach junior high school, 1% complete vocational training and 2.1% reach university (ILO, 2013).

Table 3. Population population aged 15 years and above by education and gender status, 2012

<b>Education level</b>	<b>Male</b>	<b>%</b>	<b>Fema le</b>	<b>%</b>	<b>Total</b>
15+ (total)	5,152 ,235	10 0	5,597 ,712	10 0	10,750 ,016
Currently attending school	698,4 50	13. 60	572,2 69	10. 20	1,270, 719
Never attended school	560,4 54	10. 90	1,147 ,197	20. 50	1,707, 719
Not completed any levels	113	-	1,354	-	1,467
Completed primary	1,907 ,307	37	2,433 ,048	43. 50	4,340, 355
Completed secondary	1,755 ,201	34. 10	1,336 ,097	23. 90	3,091, 298



<b>Education level</b>	<b>Male</b>	<b>%</b>	<b>Female</b>	<b>%</b>	<b>Total</b>
Completed vocational	77,450	1.50	34,528	0.60	111,978
Completed university	152,350	3	71,667	1.30	224,017
Don't know level completed	910	-	1,552		2,463

From the total country population aged 15 years and above, 7,399,720 people are the labor force, of which 975,509 are the labor force with the age group of 15-19 years (as seen in Table 4). Furthermore, from total 2,072,172 people of 15-24 years old employed labor force, 860,168 people are elementary school graduates, 965,397 people are junior high school graduates, and 52,714 people are senior high school graduates. more details can be seen in Table 5. (ILO, 2013).

Table 4. Total Cambodian labor force by age, year 2012

<b>Age group</b>	<b>Total</b>
15+ (Total)	7,399,720
15-19	975,509
20-24	1,177,643

Table 5. Labor aged 15-24 based on educational level

<b>Educational level</b>	<b>Employed</b>	<b>Percentage</b>	<b>Unemployed</b>	<b>Percentage</b>
<b>Total</b>	<b>2,072,172</b>	<b>100</b>	<b>80,980</b>	<b>100</b>
<b>Never attended school</b>	124,373	6	7,182	8.9
<b>Elementary school</b>	860,168	41.5	24,226	29.9
<b>High school</b>	965,397	46.6	29,654	36.6
<b>Vocational school</b>	52,714	2.5	1,329	1.6
<b>University</b>	69,521	3.4	18,589	23.0

#### **4. Vietnam**

According to official data published by Vietnam's General Statistics Office in 2017, By 2016 Vietnam has reached a population of 71,578,500 people aged 15 years and over, of which 54,557,900 are labor force and 53,405,400 have been employed. The 15-19 year old labor force reaches 2,489,700 (GSO, 2017). The classification based on educational qualifications is slightly different, shown in Table 6. Unqualified labor dominates in the labor force, with secondary and primary school education level.

Table 6. Labor force by qualification in Vietnam, year 2016

<b>Based on qualification</b>	<b>Total labor force</b>	<b>Employed</b>	<b>Unemployed</b>
<b>Not qualified</b>	42,886,100	42,192,200	693,800
<b>Training over 3 months or more</b>	2,902,600	2,836,500	66,100
<b>Professional School (High School)</b>	2,116,600	2,054,300	62,300
<b>Professional School (Diploma)</b>	1,570,400	1,459,100	111,300
<b>University</b>	5,082,000	4,863,200	218,800

### **C. Wages Level According to Education Level**

Based on International Monetary Fund World Economic Outlook (2017), GDP per capita of ASEAN countries are varies. Singapore is the country with the highest GDP per capita reaching USD 53,053 with minimum wage per month reaching USD 3527,71. Compared to Singapore's GDP per capita, Cambodia's GDP per capita is very low, consider as the lowest GDP per capita in ASEAN which is USD 1,228. In general, the GDP per capita of ASEAN countries can be seen in Table

Tabel 7. GDP per capita of ASEAN countries and minimum wages in 2016

Country	* GDP per capita (USD)	**Minimum wages (USD)
Singapore	53,053	3521.71***
Brunei	24,713	N/A
Malaysia	9,546	237.23
Thailand	5,662	279.74
Indonesia	3,636	250.63
Philippine	2,991	301.57
Vietnam	2,164	166.57
Laos	1,921	110.34
Myanmar	1,307	80.28
Cambodia	1,228	140

\* *International Monetary Fund World Economic Outlook;*

\*\**Philippines' National Wage and Productivity Commission and World Bank;*

\*\*\**<https://tradingeconomics.com/singapore/wages>, converted to USD*

Minimum wage data shows that countries with highly qualified education have higher minimum wages. As an example of Singapore, according to UNDP (2016), the mean years of schooling of Singaporeans reaches 11.6 years, it can be seen that Singapore's minimum wage is the highest among ASEAN countries. Furthermore, it can be seen in Table 8 wages disparity between low skilled workers with high skilled workers.

Table 8. Wage level for low skilled and hig skilled labor  
(in USD) 2016

<b>Country</b>	<b>Low skilled</b>	<b>High skilled</b>
Thailand	253.35	427.85
Indonesia	224.34	336.87
Vietnam	240.56	537.55
Cambodia	107.14	421.94

*<https://tradingeconomics.com>, converted to USD*

## **D. Profile of Agricultural Processing Industry, Labor Absorption and Contribution to Country's GDP**

### **1. Indonesia**

Indonesia's Central Bureau of Statistics reports that the food and beverage industry contributes about 741,733.7 billion rupiahs by 2016, or contributes about 6% of total GDP in 2016, more details can be seen in Table 9. Furthermore, by 2015, medium and big food industries reached 5,438 units with labor absorption reaching 719,116 people, while total medium and big beverage industry reached 310 units with labor absorption of 46,379 people (BPS, 2017).

Table 9. GDP at Current Prices of Food and Beverage Industry, 2012-2016

(Billion Rupiah)

	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Food and beverage industry</b>	457.773,4	491.142,4	562.016,6	647.071,9	741.733,7
<b>Total GDP</b>	8.615.705	9.546.134	10.569.705,3	11.531.716,9	12.406.809,8
<b>% Contribution</b>	5%	5%	5%	6%	6%

## 2. Thailand

The latest data released by the Thai government on the agricultural processing industry is data for 2012. According to the National Food Institute, Ministry of Industry Thailand, the number of food processing industries in 2012 reached 8,500 companies, 9% of which are included in the category of medium and big companies. Labor absorbed amount 870,000 people, with trained labor reached 60.27% (Ngammongkolrat, 2013).

USDA (2018) reported non-specific data that Thailand's food processing industry has grown rapidly and is one of the most developed in Southeast Asia with more than 10,000 food and beverage manufactures. Most food manufacture are small to medium sized and

mostly serve the domestic market. However, there are many medium to big food manufacture that produce higher-value products for domestic and export markets. The main products include frozen shrimp, sugar, poultry, canned tuna, snacks, canned pineapple, and tapioca. The food industry is Thailand's third largest industry, accounting for 23% of the country's GDP. Main food exports include rice, canned tuna, sugar, meat, cassava products, and canned pineapple. According to the National Food Institute, Thai exports will grow by 8.7% in 2018 to USD 36 billion by 2018.

### **3. Cambodia**

Information and data related to the agricultural processing industry is very minimal for Cambodia. USDA (2015) reported that the food manufacturing industry in Cambodia is still in its infancy and relatively small. There are a number of multinational players, such as Pepsi, Coca Cola, Liwayway, and some local food manufacture which is at an early stage. The food manufacturing industry faces several constraints, including capital flaws, processing facilities, food processing technology and skills, market analysis and marketing information; and sanitation and hygiene. Additional challenges include poor infrastructure, unreliable supplies of raw materials, low levels of competitiveness of local products due to

high operational costs, and relatively small domestic markets.

The lack of related data, can not provide comprehensive information on contribution of agriculture processing industry on GDP and the amount of labor absorbed. Approach data can be done through agriculture and agricultural value-added products's data. Agriculture value added in general as the process of processing the product into secondary, tertiary product and so on, for example secondary product is flour milling, while primary product is wheat seeds. World bank data (2018) shows more agricultural sector contributes 26.66% on 2016 country's GDP with labor absorption above 40% of total labor force.

#### **4. Vietnam**

Vietnam's food and beverage processing sector grew rapidly in the last 5 years. According to Vietnam's General Bureau of Statistics (GSO), Vietnam's food manufacturing sector grew 9% in 2016 and 7.8% in 2015, up from 4.8% in 2014 (see Table 10). In the beverage sector, the growth rate reached 10.5% in 2016, 7.4% in 2015, and 10% in 2014. Growth also continued in the first 9 months of 2017 compared to 2016, at 6.6% at the food manufacturing sector and 5% in the beverage



manufacturing sector. The food and beverage processing sector is expected to growth rapidly in the coming years (USDA, 2017).

Table 10. The growth rate of Vietnamese food and beverage industry

Unit: percent (%)

<b>Variant</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
General food manufactures	107.9	106.0	104.8	107.8	109.0
Seafood manufactures	107.9	111.9	112.5	103.0	106.5
Dairy manufactures	110.1	104.7	108.7	116.2	111.8
Sugar manufactures	117.7	113.0	100.9	99.2	91.8
Noodle manufactures	102.4	106.5	89.9	96.1	102.9
Others	102.8	93.8	107.3	102.5	102.9
General beverage manufacture	11.3	109.2	110.0	107.4	110.5
Beer manufacture	109.7	109.2	110.0	107.4	110.5

According to the latest statistics from the General Statistics Bureau (GSO), the number of food processing industries in Vietnam by 2015 is 8,820 units, of which 6,630 units are food processing companies while 2,190 units are beverage manufacturing companies as shown in Table 11. By 2015, the number of food and beverage processors in Vietnam grew 5.1% while there is no official

data for 2016. Furthermor, there is no official data on the contribution of the agricultural processing industry to GDP, while for the export value in this sector reach 20,331 million USD in 2015 and 21.005 million USD in 2016 (USDA, 2017).

Table 11. Number of Food and Beverage Companies

Year	2013	2014	2015	2016
<b>Food manufacture</b>	5,820	6,275	6,630	n/a
<b>Beverage manufacture</b>	2,073	2,116	2,190	n/a
<b>Total</b>	7,893	8,391	8,820	n/a

## **E. The Availability of Educational Institutions as Distance Learning Programe Facilitators and How Their Cooperation With Industry**

### **1. Indonesia**

Vocational High School (SMK) is the most appropriate educational institution to facilitate distance learning program. SMK provides secondary level of vocational education (grade 10 to 12) its under guidance and carried out by the *Direktorat Pembinaan Sekolah Menengah Kejuruan (Dit. PSMK)*, Ministry of education and culture. Vocational education is a formal education aims to prepare the students to be ready to work, either independently or work in the industry in accordance with

their fields. Vocational education has several types and designed by the needs of the working works. Further education for Vocational School graduates is conducted in polytechnics and higher education institutions that organize diploma programs. Indonesia also has a non-formal education in the form of vocational training programs organized by the Ministry of Manpower in Training Centers.

The number of SMK in Indonesia by 2016/2017 education year reached 3,434 state schools and 9802 private schools. The number of teachers and principals reached 134,332 people for public schools and 141,767 for private schools (PDSPK KEMDIKBUD, 2017). The relation of SMK with industries is quite good, there are 3,574 cooperation has been done between SMK and Industries (PSMK KEMDIKBUD, 2017). Some vocational schools in Indonesia that have cooperated with industries can be seen in Table 12. Furthermore, for example SMK Negeri 1 Pacet is one of the vocational schools that have cooperated in various types of agricultural processing industry, can be seen in Table 13. In addition, there are 96 educational institutions that have joined the SEA-TVET consortium

Table 11. SMK with industrial cooperation

No	Name	Expertise	Location
----	------	-----------	----------

1	SMK Negeri 1 Pacet	Agricultural Processing Technology	Jawa Barat
2	SMK N 1 Temanggung	Agricultural Processing Technology	Jawa Tengah
3	SMK N 2 Tangerang	Agricultural Processing Technology	Banten
4	SMKN 5 Jember	Agricultural Processing Technology	Jawa Tengah
5	SMK N 1 Kuripan Lombok Barat	Agricultural Processing Technology	Nusa Tenggara Barat
6	SMK N 1 Badung	Agricultural Processing Technology	Bali
7	SMK N 1 Gelumbang	Agricultural Processing Technology	Sumatera Selatan

Table 12. List of industries cooperates with SMK Negeri Pacet

NO.	Company Name	Location	Product
1	Pusat Penelitian Teh & Kina	Bandung and Cianjur	Tea Product
2	PT. Sriboga Bakeries Integra	Bogor	Bakery Product

<b>NO.</b>	<b>Company Name</b>	<b>Location</b>	<b>Product</b>
<b>3</b>	PT. Cisarua Mountain Dairy (CIMORY)	Bogor	Yoghurt product
<b>4</b>	PT. Akasha Wira International, Tbk. (Nestle Corp)	Sukabumi	Soy milk product
<b>5</b>	PT. Alam Aneka Aroma	Sukabumi	Soy sauce
<b>6</b>	PT. Puncak Berry	Cianjur	Strawberry product
<b>7</b>	PT. Kampong Brasco	Cianjur	Bakery product
<b>8</b>	PT. Nicole Pangan Indonesia	Cianjur	Chocolate product
<b>9</b>	PT. Sarana Harsa Utama	Purwakarta	Sausage and meatball
<b>10</b>	PT Zehat International	Bogor	Soy milk product
<b>11</b>	PT. Indo Soya	Bogor	Soy milk product
<b>12</b>	CV. Bambang Family Dairy	Cianjur	Yoghurt, Kefir & Cheese product
<b>13</b>	KP4S (CIPAMILK)	Cianjur	Yoghurt product

<b>NO.</b>	<b>Company Name</b>	<b>Location</b>	<b>Product</b>
<b>14</b>	Cahaya Bukit Cimacan	Cianjur	Bakery
<b>15</b>	Home Industri Tahu	Cianjur	Tofu

## **2. Thailand**

Formal Technical and Vocational Education is under the Ministry of Education, namely the Office of the Vocational Education Commission (OVEC). Vocational Education conducted at three levels, upper, secondary, and lower certified vocational education with after which it is directed to a diploma or vocational degree; and also at university to some degree. More recently, reforms have been undertaken to reform the system to fit the Thai Vocational Qualification (TVQ) that operates a competency-based training framework to meets industrial needs.

Distance learning can be done through vocational education institutions. According to the National Statistical Office (2016), the total number of state vocational institutions is 421 institutions with 19,768 teachers. In addition, there are 18 educational institutions that have joined the SEA-TVET consortium. The 10th National Economic and Social Development Plan launched by the Thai government emphasized the

importance of the TVET program and encouraged to increase participation in the TVET program. Through the policy, it will certainly facilitate and support the implementation of distance learning programs in Thailand.

### **3. Cambodia**

There are two TVET-related policy paths in Cambodia, first, for poverty alleviation by providing basic skills for the rural poor by increasing family income and secondly to Support Industrial Development by providing industry-demanded skills of workers. Both policies are well suited to the purpose of distance education. Implementation of distance learning in Cambodia can be done through TVET institutions. The total number of TVET institutions reached 55 for public institutions, including 38 institutes or training centers. In addition, there are 49 non-governmental organizations that provide TVET programs and there are 227 private institutions that generally organize short courses.

### **4. Vietnam**

Vietnam aims to become an industrialized country by 2020. Technical and vocational education and training (TVET) is central to this aspiration, where demand for skilled workers is increasing sharply as the

country's economy continues to grow and is more competitive both regionally and globally. There is a shortage of skilled workers and technicians with practical training, but around 1.4 million people enter the labor market every year. There's only 27% of workers currently have training relevant to the work they do, while only 15% have completed formal vocational training.

Implementation of distance learning will certainly support the vision of the Vietnamese government to become an industrialized country by 2020. The program can be implemented through 5 TVET institutions incorporated in SEA-TVET. In addition, there are 19 TVET institutions under the Vietnamese-German Development Cooperation in TVET.

## **F. General Discussion**

Distance learning is described as "a process for creating and providing access to learning when information resources and learners are separated by time and distance, or both" by using available resources and can this method evolve through new technologies (Honeyman & Miller, 1993) .The distance learning has



been used to provide education at all levels. This system consider as a legal institution to develop skills when the programs implemented correctly. There are many reasons to support this include: 1) Most distance education systems have wider access and cost efficiency, (2) Rapid expansion in the last three decades indicates that there is a ready-made infrastructure that can be used to extend skills development, (3) Most distance education institutions in the world using the latest information and communications technology (ICT) .The wider scope, the distance education system can overcome the gap between those who have access to education and those who do not have it (Fozdar, 2009).

Many studies of distance learning show that there is little difference between distance learning and traditional model learning related to the relative ability of both methods to improve knowledge (Spooner et al., 1999; Webster & Hackley, 1997). In a highly integrated course offered by two professors at two different universities, it was concluded that no difference was found between face-to-face learning and distance learning (Alavi et al., 1997). Russell (1997) collected the results on the effectiveness of distance learning for 30 years based on more than 250 studies and reported that there was no significant difference in student

achievement in traditional versus distance learning in standardized learning measures.

Initial assessments of the feasibility and readiness of distance learning program can be assessed through a number of indicators above. Education is used as the first indicator, according to Ionescu and Cuza (2012) education may affect some labor market outcomes, such as: wages and incomes; opportunity to achieve stable first job; worker productivity; working hours; nature of work; worker health; and allowances. The mechanism by which education affects the labor market outcomes varies greatly such as years of schooling; education attainment; education system; school quality, individual education pathways, parental education path, and curriculum type. The data shows that the mean of years schooling on distance learning target countries is only educated up to junior high school, with the exception of Cambodia where the average citizen is only educated at the primary school level. The average length of education received by the citizens affected the profile of the labor force that was formed.

The second indicator is the labor force profile. As shown on the data of the labor force profiles of each target country, the labor force with education levels between primary and secondary schools still dominates.

In addition, the labor population in the 15-24 year age range is quite large. It shows that in most labor populations it is still necessary to develop both academic and skill skills.

The third indicator, is the relationship of income per capita with the level of education and skills of the labor force. Looking at the per capita income data of each target country, it is known that a country with a primary school and junior graduate worker population has a lower average per capita income, to be easily contrasted with per capita income of Singaporean citizens. This is in accordance with what was proposed by Vos (1996) that education can affect a person's income in the future and is believed to be the key to an economic development. distance education is expected to be a means of how the labor force can improve both academic and skill abilities, thereby impacting revenue growth.

The fourth indicator, Indonesia, Thailand, Cambodia and Vietnam consider as agrarian country, where agriculture is an important and major sector in the economy of each country. The size of the agricultural sector is certainly correlated with the amount of labor absorbed. In this study, the agricultural sector is more focused on agricultural processing industry. The agricultural processing industry refers to the food

processing industry, which includes the food and beverage processing industry, food can be in the form of agricultural products as well as fishery and livestock products. For example, Coon and Leistritz (2003), in his research on "The Role of Agricultural Processing and Farm Input Manufacturing in the North Dakota Economy" uses Standard Industrial Classification (SIC) Codes to define industry groups included in the Agricultural Processing Firm: meat products industry, dairy products industry, fruit and vegetable products industry, wheat processing industry, bakery processing industry, sugar processing industry, oils and fats processing industry, beverage processing industries and other foods industry.

The data show that the agricultural processing industry is growing quite well in Indonesia, Thailand and Vietnam and contributes to GDP. Labor absorption is also quite high in this industry sector. Agricultural processing industry developed quite rapidly due to easy supply of raw materials and easy to get labor. Exceptions to Cambodia, although the agricultural sector is growing quite rapidly, but the industrial sector has not developed well enough. USDA (2015) reported that food manufacturing industries in Cambodia face several constraints and weaknesses, including lack of: capital; processing facilities; technology and food processing

skills; market analysis and marketing information; and sanitary and hygiene knowledge. Additional challenges include poor infrastructure, unreliable supplies of raw materials, low levels of locally produced product competitiveness due to high operational costs, and relatively small domestic markets. Thus, distance education for Cambodia would be more appropriately targeted to certain agricultural processing industries such as flour, sugar and rice industries

The fifth indicator, distance education program requires a facilitators to implement the program. Each country has specific needs and may differ from other countries. Educational institutions such as vocational schools, generally have good cooperation with the Industry. Curriculum and scientific fields developed according to the needs of the local industry. All countries that are targeted by distance learning have educational institutions and TVET institution thant enough to facilitate the program

#### **IV. Conclusions**

Based on the study on the feasibility and readiness of long distance education programs in target countries (Indonesia, Thailand, Cambodia and Vietnam), we can conclude this study as below:

1. Based on the mean years of schooling by the citizens in the target country, it can be concluded that distance education is feasible to be implemented because of prospective learners numbers is quite high
2. Based on the indicators of labor force profiles in the target countries, it can be concluded that Distance learning is feasible to be implemented because of the large population size for the labor force with primary and secondary education
3. Based on indicators of wage disparity between highly educated and skilled labor force with low educated and skilled labor force in target countries, it can be concluded that distance learning is feasible to be implemented due to academic and skills improvement can improves income levels.
4. Based on the indicators of the contribution of the agricultural sector, especially the agricultural processing industry to GDP and labor absorption on this sector in target countries, distance learning is feasible to be implemented due to the potential of participants is quite high and can contribute directly to industrial development
5. Based on indicators of availability of educational institutions and TVET institutions in target

countries, it can be concluded that distance learning can be facilitate and implemented

## **V. Acknowledgements**

This study was supported by SEAMOLEC. We thank to our colleagues:

1. Dr. Abi Sujak, M.Sc., Director of SEAMOLEC
2. Praikan Schneitz, Deputy Director for Program of SEAMOLEC
3. Drs. Yoni Utomo, M.Ed., Deputy Director for administration of SEAMOLEC
4. Cahya K Ratih, S.ST., M.Ed. R & D Manager of SEAMOLEC
5. Mulyono, S.Sos., M.MPd., Head of Facilitation for Competencies Improvements division of PPPPTK Pertanian Cianjur
6. Dr. Ahmad Rizali, Education consultant of SEAMOLEC
7. Bagiono Djokosumbogo, Education consultant of SEAMOLEC
8. Karyana, Education consultant of SEAMOLEC

for provided us insight and expertatise that greatly assissted the research, although they may not agree with all of the conclusions of this paper.

## VI. References

- Alavi, M., Yoo, Y., & Vogel, D. R. (1997). *Using Information Technology to Add Value to Management Education*. Academy of Management. Journal, 40, 1310–1333.
- Alexandratos, N. and J. Bruinsma. 2012. *World Agriculture Towards 2030/2050: the 2012 revision*. ESA Working paper No. 12-03. Rome: FAO.
- Badan Pusat Statistik. 2017. *Statistik Indonesia 2017*. Jakarta: Badan Pusat Statistik
- Choomnoon, Siripan. 2011. Thailand, *In Emerging Challenges and Trends in TVET in the AsiaPacific Region*, S. Majumdar (Ed.). 219-235. Rotterdam: Sense Publishers.
- Coon, R.C & Leistritz, F.L. 2003. *The Role of Agricultural Processing and Farm Input Manufacturing in the North Dakota Economy*. Agribusiness and Applied Economics Report No. 511-S. North Dakota, North Dakota State University
- Marc J. Epstein, Kristi Yuthas. 2012. *Scaling Effective Education for the Poor in Developing Countries: A Report from the Field*. Journal of Public Policy & Marketing: Spring 2012, Vol. 31, No. 1, pp. 102-114.
- Fasih, T. *Linking Education Policy to Labor Market Outcomes*. Washington DC: The World Bank



- Fozdar, B.I. 2009. *Use of Open And Distance Learning in The Skill Development of Laboratory Technicians-M2009*. New Delhi, IGNOU
- GSO. 2017. *Report on Labour Force Survey. Ha Noi, General Statistics Office-Ministry of Planning and Investment*
- Honeyman, M. & Miller, G.1993. *Agriculture Distance Education: a Valid Alternative for Higher Education?* Proceedings of the 20th Annual National Agricultural Education Research Meeting (67 – 73).
- <https://tradingeconomics.com/country-list/wages>
- ILO. 2013. *Cambodia Labour Force and Child Labour Survey 2012: Labour Force Report*. Phonm Penh, ILO.
- Ionescu, A.M & Cuza, A.I. 2012. *How does Education Affect Labour Market Outcomes?*. Review of Applied Socio- Economic Research (Volume 4, Issue 2/ 2012)
- Kuswana, W.S.2013. *Filsafat Pendidikan Teknologi, Vokasi dan Kejuruan*. Bandung: Alfabeta
- Ministry of Education and Culture. (2012). *Indonesia Vocational Education Policy. DPSMK (Directorate of Secondary Vocational Schools Management)*. (2012). Overview of Indonesia TVET system. Presented during EAS TVET. Provider Network

- Workshop in Melbourne Australia. SEAMEO  
VOCTECH Regional Centre Brunei Darussalam.
- Ministry of Education and Training. (2006). *Technical and Vocational Education and Training (TVET) in Vietnam*. Retrieved November 24 2012, from <http://en.moet.gov.vn/?page=6.7&view=4403>
- Ministry of Education and Training. (2012 October). *Innovation of TVET in Vietnam*. Paper presented during the SEAMEO VOCKETH 23rd Governing Board Meeting on 2-5 October 2012.
- MoE, Thailand, (2010), *Thailand Education System Choomnoom, S. (2011). Thailand, in Emerging Challenges and Trends in TVET in the Asia-Pacific Region*. Majumdar, Ed. (pp.219-235). Sense Publishers
- Murnane, R.J., John B. Willett, Frank Levy. 1995. *The Growing Importance of Cognitive Skills in Wage Determination*. NBER Working Paper No. 5076. Cambridge: National bureau of economic research.
- Navy, Tep. 2017. *TVET and the STED Experience in Cambodia*. *Inter-regional Technical Forum on Skills for Trade, Employability and Inclusive Growth*. Siem Reap, ILO Cambodia
- Ngammongkolrat, Amorn. 2013. *Food Industry in Thailand "Kitchen of the world"*. Bangkok, National Food Institute Thailand

- NSO. 2016. *Statistical Year Book of Thailand 2016*. Bangkok, National Statistical Office-Ministry of Information and Communication Technology
- PDSPK KEMDIKBUD, 2017. *Statistik Sekolah Menengah Kejuruan (SMK) 2016/2017*. Jakarta, Kementerian Pendidikan Dan Kebudayaan Sekretariat Jenderal Pusat Data Dan Statistik Pendidikan Dan Kebudayaan
- Ratchusanti, Sirirak. 2009. *Innovative Practice In Tvet Towards Education For Sustainable Development In Thailand. International Experts Meeting on Reorienting TVET Policy Towards Education for Sustainable Development*. Berlin, Germany
- Russell, T. (1997). *The No Significance Difference Phenomenon*. NB TeleEducation (on-mce) (<http://tenb.mta.ca/phenom/>). or Raleigh, NC: North Carolina State University. Office of Instructional Telecommunications.
- Schwab, Klaus. 2017. *The Global Human Capital Report 2017*. World Economic Forum. Geneva
- Siekly, KEO. 2017. *Current Situation of TVET in Cambodia and Future Direction*. 3<sup>rd</sup> High Officials Meeting on SEA-TVET Advancing towards Harmonisation and Internationalisation. Cambodia
- Spooner, F., Jordan, L., Algozzine, B., & Spooner, M.1999. *Student Ratings of Instruction in Distance Learning*

*and on-Campus Classes*. The Journal of Educational Research, 92, 132–140.

UNDP. 2009. *Human Development Report 2009 – Overcoming Barriers: Human Mobility and Development*. New York, United Nations Development

UNDP. 2010. *Human Development Report 2010-20th Anniversary Edition*. The Real Wealth of Nations: Pathways to Human Development. New York, United Nations Development Programme.

UNDP. 2016. *Human Development Report 2016 Human Development for Everyone*. New York, United Nations Development Programme.

UNESCO-UNEVOC.2017. "What is TVET?". [www.unevoc.unesco.org](http://www.unevoc.unesco.org). diakses 1 Agustus 2017.

USDA. 2015. *GAIN Report, Cambodia Exporter Guide*. Ho Chi Minh City, Office of U.S. Agricultural Affairs, United States Consulate General

USDA. 2017. *GAIN Report, Vietnam Food Processing Ingredients 2018*. Hanoi, U.S. Department of Agriculture Office of Agricultural Affairs, U.S. Embassy

USDA. 2018. *GAIN Report, Thailand Food Processing Ingredients 2018*. Bangkok, U.S. Department of

Agriculture Office of Agricultural Affairs, U.S.  
Embassy

Vos, R. 1996. *Educational Indicators: What's to be measured?* Indes Working Papers, Series I-1, Washington, DC

Webster, J., & Hackley, P.1997. *Teaching Effectiveness in Technology-Mediated Distance Learning*. *Academy of Management Journal*, 40, 1282–1309.

World Bank. 2017. *World Development Indicators*. Washington, D.C., The World Bank.