

Chapeau Paper Indonesia Technical and Vocational Education and Training

Final Report

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Foreword

TVET plays a very important role in supporting economic growth through the availability of productive human resources. Various improvements in the implementation of TVET have been numerous and carried out continuously by various parties involved in managing the TVET ecosystem in Indonesia. Stakeholders consisting of several ministries and institutions as well as the private sector (Kadin / Apindo) develop policy/ planning/ roadmap which become the basis and guidelines for the implementation of their respective TVET programs. Individual policy-making, planning and roadmaps, creating policy directions that are not always aligned with one another, difficulties in coordinating the planning and roadmaps that are not in harmony with one another. This resulted in the performance of the national TVET system as a whole not yet fulfilling expectations and unable to answer the challenges on national development needs in general and private sector and industrial needs in particular.

The fragmented government institution and private sector initiatives, including TVET providers and industry resulting in the demand side and supply side synchronization measures has not met the expected result. Likewise, less coordinated policies and planning between the development of vocational education programs at secondary and higher education levels, with the development of industry competency standards, creating situation where a part of the vocational education program curriculum must be compiled based on competency standards that do not reflect the competencies that are actually needed by the industry. Which also happen in competency certification. In the end, we fully aware that if we want to improve the performance and effectiveness of our national TVET system, coordination and synchronization of policies, programs and planning is a must. All stakeholders need to unite steps and agree on a unified oversight system at the national level, which will coordinate policies, programs, and planning, and implementation of the national TVET implementation.

The study that produced *Chapeau Paper* was driven by the desire to answer the challenges of coordinating policies, programs and TVET nationally in order to achieve harmony which in turn will increase the productivity of the national TVET system. The Coordinating Ministry for Economic Affairs (CMEA), The Coordinating Ministry of Human Development and Culture (CMHDC), National Development Planning Agency (BAPPENAS), and Indonesian Chamber of Commerce (KADIN) agreed to explore policies, programs and planning/ roadmap prepared respective stakeholder to find and identify inconsistencies, to further develop common ground for policy, program and planning which will consolidate all stakeholders, and become a reference for each party in developing policies, programs and planning.

Chapeau Paper is developed based on review of several policy, planning, and roadmap documents prepared by various ministries and institutions as well as private sector, represented by the Indonesian Chamber of Commerce (KADIN). The study of various documents is complemented by confirmation and validation of the understanding of various documents carried out with relevant ministries and institutions. The writing framework, as well as various stages of writing in the form of draft reports have been discussed intensively at various levels and involve representatives from all key stakeholders, in the form of coordination meetings and focus group discussions (FGD) held at BAPPENAS, CMEA & CMHDC offices.

The results of the study in the form of *Chapeau Paper* is not only aim to provide a complete picture of the TVET situation in Indonesia but also expected to be the basis for developing a national TVET strategy for TVET development in Indonesia that is more coordinated and demand oriented. TVET's national strategy is then becoming a reference for technical ministries to develop policies, programs, and planning/ roadmap that are complementary, both from the supply side, namely vocational institutions and the demand side, namely the private sector. In the national TVET strategy that will be developed, private sector involvement in planning, implementation and vocational policies from upstream to

downstream will be systematically designed with mechanisms regulated in regulations concerning the roles and responsibilities of each stakeholder.

Hopefully this *Chapeau Paper* will become a joint commitment and continued to be national TVET strategy which will be the foundation for TVET stakeholders, both government and private sector in producing skilled workers to support national development as a whole, especially industrial development. We believe that with the synergy and commitment of all national TVET stakeholders who aim toward better nation, which is preparing to enter the bonus demographic stage and bringing Indonesian into a nation with competitiveness in Asia and in the world.

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Contents

1. Introduction.....	1
2. Issues Lingering the National TVET System	4
2.1. National TVET Portfolio	4
2.2. Secondary and Tertiary Vocational Education	6
2.3. BLK and Other Vocational Training.....	9
3. Analytical Review of Existing Sectoral TVET Policies and Plans.....	12
3.1. Scope and Focus of the Policy and Planning Documents	12
3.1.1. Mapping onto the National TVET Portfolio – Policy and Planning Gaps	12
3.1.2. Policy Instruments Overlaps.....	14
3.1.3. Coordination Among Stakeholders	15
3.2. Programs, Priorities, and Budget Implications	16
3.3. Conceptual and Technical Consistency.....	16
3.3.1. Competency Standard.....	16
3.3.2. TVET Delivery: Program and Curriculum.....	17
3.3.3. TVET Delivery: Teaching Factory as Learning Instrument.....	18
3.3.4. TVET Delivery: Internship, Dual System, 3-2-1 System, 3-in-1 System.....	19
3.3.5. Assessment and Certification.....	20
3.4. Demand Side Perspectives.....	21
3.5. Cooperation with Industry	22
4. Towards an Overarching National TVET Strategy.....	24
4.1. Common Agreement on Scope and Labor Division	26
4.2. Coherence Regulatory Environment and Unified Oversight System.....	28
4.3. Effective Fiscal Instruments and Funding Mechanism	29
4.4. Government’s Role in Encouraging Private Sector to Actively Participate in TVET Development.....	31

4.5. Effective Mechanism for Demand Side Monitoring.....	31
4.6. Strong Planning and Implementation Capacity at Province and Local Levels and Greater Autonomy for TVET Providers	32
4.7. Effective Management and Institutionalization of TVET Reform	33
5. Recommendations	35
References	40
Attachment: Summaries of TVET Policy and Planning Documents.....	42

1. Introduction

During the period of 2014-2017, Indonesian economy grew relatively stable with an average growth rate of 5% per year. As a result, unemployment rate declined significantly from 5.94% in 2014 to 5.34% in 2018 (BPS, August 2018). Despite the stable economic growth and decreasing unemployment rate, there remain a number of issues. First of all, inequality remains high. Although Gini Index has declined in the last five years from 0.414 in 2014 to 0.384 in 2018 (BPS, September 2018), the figures are still much higher compared to that of 25 years ago. Another issue is the low quality and competitiveness of Indonesia's human resources. Low skilled labors and youth unemployment is still high with as much as 58.8% of the workforce was junior high school graduates or below, and youth unemployment rate (age 15-24) was high at 19.68% (BPS, August 2018).

To improve the rate and the quality of economic growth, to ensure inclusiveness and to reduce inequality, the sources of growth need to shift toward sectors absorbing as many labors as possible, particularly manufacturing and services sectors including tourism. Acceleration of growth in the manufacturing sector, which has been growing much slower relative to the rest of the economy and therefore holding back the growth nationally, is key to improve growth potential and to make it more equitable. To prepare for this, human resource improvement, skill development, is imminent. An effective national TVET system is therefore crucially important if Indonesia wants to go beyond the natural growth potential in the range of 5-5.5% as reflected in the growth rate in the recent years.

The national TVET system consists of formal and nonformal vocational education and training. The formal side includes vocational high schools (*Sekolah Menengah Kejuruan*, SMK), at the secondary level, and polytechnic/academy, vocational school of higher learning, and community colleges at the tertiary level. Ministry of Education and Culture (MOEC)¹ data shows there were 13,710 SMKs in 2018, almost 75% private, with more than 4.9 million students. At the same time, there were 1,343 polytechnics/academies, vocational school of higher learning, more than 85% private, serving nearly 570,000 students.

The nonformal side consists of work training centers (*Balai Latihan Kerja*, BLK), private work training providers (*Lembaga Pelatihan Kerja Swasta*, LPKS), and private courses and training center (*Lembaga Kursus dan Pelatihan*, LKP). Ministry of Manpower (MOM) data shows that there were 305 public BLK, of these 17 were managed by MOM

¹ Statistics of SMK 2017/2018, MOEC.

and the remaining were operated by the regional governments. There were some 8,937 private operated work training institutions including 249 BLKs focusing in preparatory work for migrant workers and 8,688 LPKS. In addition to that, Nonformal Education Statistics² shows that there were around 19,000 private courses and training providers (LKP) serving more than 3 million trainees.

Despite the large scale and the variety of training modalities, the current technical and vocational education and training (TVET) system is perceived to be inefficient and ineffective instrument for skill development. Recent statistic shows unemployment rate of SMK graduates was 11.24%, highest among graduates of all streams and levels of education. At the tertiary level, unemployment rate of Diploma graduates was 6.02% higher than that of university graduate, 5.89% (BPS, August 2018). A number of issues are hindering the effectiveness of TVET in Indonesia, these includes the lacked of readiness of the graduates for work, skill and competency mismatch, and imbalance in the skill composition between demand and supply.

The national TVET system management and implementation involve a multitude of stakeholders including government ministries, agencies, business organizations, and the private sectors. There are strong indications of lacked of coherence among all the stakeholders at the policy, strategy, and implementation levels, leading to ineffectiveness of the system. Policy and planning documents issued by relevant ministries and other government agencies show that there has been no synchronization of policies and plans for TVET development nationally. This, in turns prevents the national TVET system from becoming an effective instrument to support acceleration of economic development, particularly industrialization. A fundamental reform of the system is therefore necessary.

With this in the background, the Government of Indonesia is preparing a comprehensive TVET reform agenda. This work to develop a Chapeau Paper represents the first step of a series of works to develop an overarching National TVET Strategy expected to serve as the common platform of the planned reform agenda. At this stage an analytical review of the various policy and planning documents issued by all the stakeholders is to be conducted to identify common ground, inconsistencies, and gaps among those policies and plan. Based on the findings of the analytical review, a number of elements of the overarching strategy reflecting is formulated.

Following the Terms of Reference (TORs), the work begins with desk review of all policy and planning documents issued by all TVET stakeholders including Coordinating Ministry for Economic Affairs, Coordinating Ministry for Human Development and Culture, Ministry of Education and Culture, Ministry of Research, Technology, and Higher Education, Ministry of Manpower, Ministry of Industry, National Standardization Agency

² *Statistik Pendidikan Nonformal 2015*, Ministry of Education and Culture, 2016

of Indonesia, and the Indonesian Chamber of Commerce. A series of interviews and discussions were then conducted with all the stakeholders publishing the documents plus National Development Planning Agency (Bappenas), National Board for Professional Certification (BNSP). There are indeed many more documents on TVET, however for the purpose of developing the Chapeau Paper and in accordance with the TORs, the analytical review is to be to those issued by TVET stakeholders.

Based on the analytical review, the desk work and the indepth interview and discussion, a Report is prepared and organized as follows. Following this introductory Chapter-1, Chapter-2 will present issues lingering the national TVET system. Chapter-3 will provide an analytical review of TVET policy and planning documents developed by the stakeholders; summary of the documents is presented as Attachment-1 to this report. The analytical review presented in Chapter 3 serves as the basis for development of framework for an effective national TVET system, as presented in Chapter-4. The concluding Chapter-5 presents recommendations on the follow-up steps needed to develop the pillars and additional elements of the envisioned national TVET ecosystem.

2. Issues Lingering the National TVET System

Skill development in Indonesia is supported by formal vocational education at secondary and tertiary levels and nonformal training stream. The formal sub-system consists of more than 13,700 senior secondary vocational schools (SMK) and around 1,423 polytechnics/academies and vocational school of higher learnings. The nonformal subsystem consists of 305 public *Balai Latihan Kerja* (BLK), plus more than 8,900 private skill training providers. Aside from these, there are more than 19,000 private course providers, many of them offers skill training.³ This is overall a large system and quantitatively speaking should be sufficient to support a credible national skill development system. However, despite rapid expansion of the system, particularly resulting from the rapidly growing number of senior secondary vocational schools (SMK), the system performance is in general below expectation. The following sections of the chapter provide brief outlines of the issues facing the national TVET system.

2.1. National TVET Portfolio

The national TVET system consists of formal vocational education at secondary and tertiary levels and non-formal training streams. Formal vocational education prepares young people for their first job consists of senior secondary vocational schools (*Sekolah Menengah Kejuruan*, SMK) and tertiary level polytechnic/academy/vocational school of higher learning. The formal vocational education caters for school-aged students of 16-24 years old. Non-formal training program was designed to provide skills for initial job seekers without formal vocational education background and workers whose jobs have become obsolete (re-skilling) or as part of workers' career development (up-skilling). Many non-formal TVET providers, particularly those providing industry-based training offer training programs leading to skill certification. These include the accredited *Balai Latihan Kerja* (BLK) managed by the Ministry of Manpower and local governments, and certified privately operated training centers.

Table 2-1 shows the number of vocational education and training institutions, public private, technical ministry affiliation, and the number of students and trainees. SMK system with a school count of more than 13,700, public and private, caters for more than 4,9 million students, roughly 50% of total enrollment at senior secondary level, producing nearly 1.5

³ According to Nonformal Education Statistic published by MOEC in 2016, only less than 3,500 out of more than 19,000 private course providers, meet minimum standar in 2015.

million graduates annually. At the tertiary level, polytechnics, schools of higher learning, academies, and community colleges, numbering at 1,423 higher education institutions, public and private, overall accommodates almost 600 thousand students constitutes around 10% of total enrollment of the higher education.

Table 2-1: School, Training Institutions, and Enrollment, 2018

Type	Level	Provider	Public		Private		Total	
			Freq.	Students	Freq.	Students	Freq.	Students
Education	Secondary (SMK)	MOEC/Province	3,519	2,110,751	10,191	2,793,280	13,710	4,904,031
		MOI	9	6,972			9	6,972
		Other Ministries	8	n.a.			8	n.a.
	Tertiary (Polytechnic/Academy/School of Higher Learning)	MORHTE	193	267,243	1,150	302,044	1,343	569,276
		MOI	12	11,245			12	11,245
		MOH	38	n.a.			38	n.a.
		MOTrasportation	11	12,284			11	12,284
	MOTourism	6	9,293			6	9,293	
	Other Ministries	13	n.a.			13	n.a.	
Training	BLK	UPTP and UPTD	305	275,000			305	275,000
	BLKLN	Private providers			249	n.a.	249	n.a.
	LPKS	Private providers			8,688	n.a.	8,688	n.a.
	LKP	Private providers			19,000	3,000,000	19,000	3,000,000

Source: Calculated from various data sources; BLK in terms of capacity per year; BLKLN is private BLK specializing in preparatory training for migrant workers; LPKS is private skill training providers under MOM; LKP is private course and skill training under MOEC. Calculated from various data sources; BLK in terms of capacity per year; BLKLN is private BLK specializing in preparatory training for migrant workers; LPKS is private skill training providers under MOM; LKP is private course and skill training under MOEC.

BLK as the main thrust of the public nonformal TVET has 305 public *Balai Latihan Kerja* (BLK), consist of UPTP the central government owned and managed by the Ministry of Manpower (MOM) and UPTD the local government owned ones and managed by the local government. Currently, BLK provides training to a wide variety school leaver including SMK graduates. Capacity of the overall public BLK is to train approximately 275,000 trainees annually. In addition to the public BLKs, there are more than 8,900 privately operated skill training providers, including 245 BLKLN, private BLK specializing in preparatory training for workers to go overseas (migrant workers). Unfortunately, no information is available as to how many trainees they cater for annually. Beside all these there are more than 19,000 privately operated training institutions of wide variable quality, serving more than 3 million trainees per year.⁴

As Table 2-1 shows MOEC/provincial government managed SMK and MORTHE managed polytechnic/academy/vocational school of higher learning dominates the formal side. This implies that overall performance of the formal TVET system will be determined by the effectiveness of SMK and tertiary vocational schools under MOEC and MORTHE. As for the nonformal TVET, besides the public BLK with relatively small capacity nationally, there are a great number of private providers catering for millions of trainees

⁴ See *Statistik Pendidikan Nonformal 2015*, Ministry of Education and Culture, 2016. This was the latest non-formal skill training statistics available, more recent non-formal education statistics issued by the Ministry did not include private skill training institutions and the participants.

annually. However, lots of works will be needed to improve its quality to make it a real credible contribution to the TVET system.

2.2. Secondary and Tertiary Vocational Education

Recent unemployment statistics published by the Central Board of Statistics (*Badan Pusat Statistik-BPS*) shows an alarming labor market performance of SMK graduates. As shown in Table 2-2, total unemployment rate has decreased from 7.14% in 2010 to 5.34% in 2018. Unemployment rate by level of education also decreased for all education levels. However, the decrease of unemployment rate of SMK graduates was relatively minor, so as to make the unemployment rate remains the highest. In 2018, the unemployment rates of SMK and Diploma graduates were 11.24% and 6.02% respectively, higher than those of general senior secondary schools (SMA) graduates, at 7.95%, and university graduates, at 5.69%. The rates were also higher than those of junior-secondary school graduates, at 4.80% and primary school graduates at 2.79% (see Table 2-2).⁵ Of the total of 7 million unemployed in Indonesia, 24.7% were SMK educated (BPS, August 2018). This raises some questions against the expectation and belief that vocational school should impart students with practical skills and therefore should place them at the advantage position compared to their general secondary school graduates.

Table 2-2: Unemployment Rates by Level and Stream of Education

No	Educational attainment	2010		2015		2017		2018	
		Feb	Aug	Feb	Aug	Feb	Aug	Feb	Aug
1	No schooling	1.02	2.95	2.46	1.25	2.21	1.63	1.13	0.94
2	Not completed primary school	2.92	3.23	3.22	2.42	3.06	2.47	2.54	2.02
3	Primary School	4.63	4.29	4.02	3.09	3.98	2.82	2.91	2.79
4	Junior high school	7.55	7.45	7.14	6.22	5.36	5.54	5.18	4.80
5	General High School	11.90	11.90	8.17	10.32	7.03	8.29	7.19	7.95
6	Vocational School/SMK	13.81	11.87	9.05	12.65	9.27	11.41	8.92	11.24
7	Academy / Diploma	15.71	12.78	7.49	7.54	6.35	6.88	7.92	6.02
8	University	14.24	11.92	5.34	6.40	4.98	5.18	6.31	5.89
	Total	7.41	7.14	5.81	6.18	5.33	5.50	5.13	5.34

Source: Calculated based on BPS data

Currently, there are more than 13,700 SMK, consisting of public schools (25%) and private schools (75%) distributed in 34 provinces. The total number of enrolments is about 5 million students, supported by some 292,000 teachers giving a student to teacher ratio of 17 to 1. SMK is organized into nine study fields, consisting of 146 competency-based study

⁵ Unemployment statistics across education needs to be interpreted carefully. There are reporting biases rooted in socioeconomical and cultural factors. The more educated workforce tends to come from the better to do families and they could afford to stay unemployed until finding suitable jobs. The more educated also tend to aspire for formal sector employment and therefore they tend to respond “not working” to survey question although at the time of survey they already work in the informal sector and earn income.

programs.⁶ A recent study conducted by the Analytical and Capacity Development Partnership (ACDP)⁷ reveals the following three issues plaguing the SMK performance. First, there has been a persistent horizontal mismatch. Regarding quantity, the total number of SMK graduates (1.3 million a year) is expected to be sufficient in terms of new jobs generated by industry, but there is a shortage in specific occupations. The study revealed that although the number of qualified SMK graduates has increased significantly over the past decade, they are concentrated in areas, such as management, where there is currently an oversupply of new graduates seeking jobs.

Second, in term of quality, SMK graduates do not meet requirements of the industry. Graduate competence is regarded inadequate for the industry as competency requirements have risen. The study found that study programs are inadequate and do not cover relevant learning material sufficient to produce the type of SMK graduates sought by employers in the related sectors. In addition, the quality of teachers and the availability of learning equipment for practical activities are not adequate for the learning processes required. Skill training in vocational schools requires intensive practical training and internship with industry. Integration with industrial and business sectors is crucial in order to implement a proper internship program. However, involvement of industrial and business sectors in the implementation of TVET is still limited. There is no standard mechanism to incorporate input and feedback from the industry in the development of the curriculum.

Third, the certification system is not yet standardized, most SMK is not yet licensed to produce fully-qualified graduates aligned with the needs of industry. Very few SMKs are licensed as Professional Certification Institutions (*Lembaga Sertifikasi Profesi* or LSP), LSP P-1, by the Indonesian Professional Certification Authority (BNSP), and therefore unable to furnish their graduate with proper competency certificates. As per the Minister of Education and Culture's Decree No.73 of 2013, SMK graduates are expected to obtain a Level II qualification within the Indonesian Qualification Framework (KKNI), however, only a few SMKs can achieve this. Most of SMKs which are licensed LSP P-1 are using cluster certification schemes which are unable to produce the Level II qualification or competency certificate.

The expansion of TVET system, particularly at the secondary level has been marked by serious horizontal mismatch. The skill composition the SMK system has to offer in general does not conform the structure of the economy. For example, a study by ACDP suggests that in Aceh there was mismatch between field of studies and skills supplied by the school system and those required in the labor market. The study found that fields of study composition among vocational schools in Aceh were inconsistent to the regional economic structure. Most of the vocational program was engineering with almost 40% of the total

⁶ Peraturan Dirjen Pendidikan Dasar dan Menengah No. 06/D5/KK/2018 tentang Spektrum Keahlian SMK dan MAK

⁷ Improving Quality and Relevance of Vocational Education in Aceh (ACDP, 2016).

vocational student enrollment, despite the fact that manufacturing sector was very small. Moreover, following the decline of oil and petrochemical industry in Aceh, the economy has shifted to predominantly agriculture-based. The SMK system apparently very slow to adjust, that even until now automotive and engineering still predominates the study program within the SMK system in Aceh. At the national level the situation is not much different, matching between field of study the SMK system has to offer and the need for skills the structure of the economy suggests remains an issue.

The SMK system in general is facing classical issues of lacking proper infrastructure and equipment as well as quality teachers to support proper practical skill training in school. Many schools inherit equipment in short number with technology of more than 40 years back, and many do not have supporting equipment at all. Shortage of productive teachers, those responsible for teaching practical skills, is chronic; a recent calculation by the Directorate of Vocational Education of MOEC resulting in more than 200 thousand deficits of productive teachers given the number of SMKs and their study program offerings currently. This is still exacerbated further by quality issues; many existing productive teachers are not properly trained without decent exposure to the industry. Access to an internship in the industry is also minimal, and they are available mostly not sufficiently intensive to allow students are gaining sufficient real practical experience.

Issues facing the tertiary vocational education are practically no different. As Table 2-2 shows, unemployment rates among tertiary vocational education are higher compared to university graduates. Classical issues of lacking equipment and access to industry internship also apply. Instructors in polytechnics hardly exposed to industry experience and involvement of people with industry background in the teaching and learning process in polytechnic have been minimal. Only recently did MORTHE experimented with recruiting instructors with an industry background, but it seems facing at least three constraints. First, the lacked regulatory framework, particularly for the public polytechnics, to compensate properly non-civil servant instructors with private industry background. Second, regulatory constraints governing qualification requirements for someone to teach and/or become instructors in the formal tertiary education stream. Mechanism to accredit those candidate instructors, who mostly are bachelor degree holders, as Master's degree by means of recognition of prior learning is still underway. Third, availability of people with industry background to teach in polytechnics. The current experiments involving 12 polytechnics, two study program each, needs to be seen how effective it could be. Even at that small-scale implementation, involving a mere 24 study programs, some of the instructors are available only during the weekend. This is not to mention the fact that many polytechnics are located far away from an industrial area.

SMK and tertiary vocational schools under technical ministries generally have better performance because they are equipped with better facilities and enjoy closer relationship with the business and industry. Discussion with the Education and Training Center of the

Ministry of Industry (MOI), reveals a truly close link between SMK and polytechnics/academies under the MOI. The schools are also equipped with "state of the art" equipment. However, the number of schools is very limited and the investment and operational cost of these schools are relatively high. The average investment is IDR 200 billion per school with 500-600 students, and the average operational cost per student is IDR 25 million per year⁸. The amount of investment and operational cost to operate these types of schools is clearly beyond the fiscal capacity of the related ministries/institutions such as MOEC and MORTHE, and the local governments that operate thousands of TVET providers. Hence, it is difficult to nationally replicate this system to revitalize TVET.

2.3. BLK and Other Vocational Training

The BLK system is plagued with some issues preventing it from effectively supporting the national TVET system. In 2018, in total there are nearly 8,700 public and private vocational training institutions (BLK and LPKS) with 1,348 institutions was accredited accounted for only 16% of total institutions (see Table 2-3); all these are under the oversight of MOM. Besides that, there are 19,000 private course providers (Lembaga Kursus dan Pelatihan, LKP) under the oversight of MOEC.

a. Issues Facing BLK

BLK system consists of central government managed UPTP and local government manage UPTD; all are public training institutions, fully funded by government budget. The first issue regarding BLK mostly voiced by those involved in the BLK management is lacked of equipment. The available equipment is facing a shortage in number and deterioration; many are in poor condition, not to mention the outdated technology for most of them. A survey by the World Bank in 2011 suggests that around 67% of BLK has never received equipment in the last two decades, and only 17% of them received equipment in the last five years.⁹

Table 2.3. Number of BLK by Accreditation Status

No.	Accreditation	Public			Private					Total
		BLK		Total	BLKLN			LPKS	LKP	
		UPTP	UPTD		AsPac	TimTeng	Total			
	Accreditation-A	4	4	8	20	14	34	112		146
	Accreditation-B	7	13	20	51	101	152	569		721
	Accreditation-C	2	3	5	28	35	63	418		481
	Accredited Institution	13	20	33	99	150	249	1,099	3500	4,848
	Total	17	288	305	99	150	249	8,688	19,000	27,937

Source: BLK, BLKLN, and LPKS based on Database Direktorat Bina Lemsar, Binalattas, Kemenaker, January 2019; LKP based on Statistik Pendidikan Nonformal 2015, Juni 2016

⁸ These values are rough estimates given by the Center for Education and Training of MOI, during an in-depth interview in October 2018

⁹ *Revitalisasi Balai Latihan Kerja di Indonesia: Tantangan dan Masa Depan*, the World Bank, 2011.

Besides equipment shortages, number and quality of instructors are also poor, and lacking industry experience; only 36% of the instructors have industry experience. Employment status of BLK instructors creates problems in itself, there are occasions where instructors move around and land in an occupation within the bureaucracy and not the training centers.

Though most of BLK is under the authority of local governments, the operational of the local BLK still depends on the funding from the central government. Central government still funds some 54% of the total cost of training. Besides that, funding is also inefficient, a unit cost of training in BLK under the central government is significantly higher compared to the similar training conducted in the local BLKs. On the program side, many of the BLK have not implemented competency-based training. As presented in the World Bank survey in 2011, around 95% of the BLKs still conduct their own evaluation without monitoring and/or verification by independence assessors. This all need attention, and very crucial to the achievement of a more effective skill training nationally, particularly the non-formal stream.

b. Private Courses and Skill Training Providers

Table 2.1 shows there are 8,688 private skill training providers (*Lembaga Pelatihan Kerja Swasta*, LPKS) nationally however it is very difficult to trace how many trainees they serve every year. Besides that, there are some 19,000 private course providers (*Lembaga Kursus dan Pelatihan*, LKP), part of them provide skill training courses, as well, catering for some 3 million trainees annually.¹⁰ These private skill training and course providers are fluid, changing course/training programs relatively rapidly, market driven, and even at the institution entities level come and go relatively easily. Discussion with the Directorate General of Informal and Nonformal Education, MOEC, reveals that almost all private skill training providers operates fully on tuition basis. Nominal grants provided by MOEC in many cases results in multiple additional number of trainees the amount of grants would suggest.

The major issue surrounding private courses and skill training providers, LPKS and LKP, is quality assurance. Less than 1,100 LPKS or less than 13% of 8,688 LPKS is accredited. Out of some 19,000 LKP less than 3,500 of them or less than 18% is accredited institutions meeting the minimum standard or better.¹¹ Despite the important role it has been playing, the private courses and skill training providers system has not received meaningful attention from the government. In the future, with increasingly rapid technological changes making workers' need for reskilling and upskilling to increase a more practical and nimble training system would be the answer. This puts private courses and skill training providers

¹⁰ *Statistik Pendidikan Nonformal 2015*, Ministry of Education and Culture, 2016

¹¹ *Statistik Pendidikan Nonformal*, *ibid.*

at the advantage position. To ensure these providers assume responsibility effectively the government will need to empower them with appropriate policy and programs, including capacity development and fiscal scheme to allow them improve the facility and instructors.

3. Analytical Review of Existing Sectoral TVET Policies and Plans

This section presents an analytical review of TVET policy and planning documents issued by the stakeholders. The followings are the eleven documents to review analytically:

1. MOI Center for Education and Training Strategic Plan 2015-2019
2. MOM DG of Training and Productivity Development Strategic Plan 2015-2019
3. National Standardization Agency Strategic Plan 2015-2019
4. Presidential Instruction 9/2016 on Revitalization of Vocational Secondary School
5. MOI Regulation on Guidelines for Nurturing and Development of Competency-Based SMK and Linked and Matched with Industry
6. MOEC Roadmap for Senior Secondary Vocational School (SMK) 2017-2019
7. MORTHE Vocational Higher Education Revitalization Program and Curriculum Development to Improve “Link and Match” with Industry 2017-2019
8. CMEA Indonesia Vocational Development Policy Roadmap 2017-2025
9. CMHDC Draft Roadmap for Indonesia Human Resource Development 2018-2020
10. MOM Grand Design of National Vocational Training 2018
11. Chamber of Commerce Grand Design of Vocational Training Development 2018

The analytical review is conducted based on desk evaluation of all these documents and indepth interview and discussion with related officials from the stakeholders, including government officials and private representatives from the non-government stakeholders. In reviewing the documents, attention will be placed on a number of aspects of the policy and planning documents, including: (i) scope and focus of the policy and plan; (ii) program, priorities, and budget implication; (iii) conceptual and technical consistency; (iv) demand side perspective; and (v) cooperation with industry. Summary of all the documents is presented in Attachment-1 to the report.

3.1. Scope and Focus of the Policy and Planning Documents

Policy and planning seem to be mostly conducted based on the individual institution's main roles and responsibility (*tugas pokok dan fungsi*). It was difficult to trace evidence for coordination among TVET stakeholders in their policy, program formulation, and planning.

3.1.1. Mapping onto the National TVET Portfolio – Policy and Planning Gaps

The national TVET portfolio, as outlined in Section 2.1 consists of formal education and informal training. In the formal sector MOEC is responsible for the secondary vocational education policy and oversight, while MORTHE is responsible for that of tertiary vocational

education. Province government comes into picture to manage vocational education service provision following the enactment of the new Regional Government Law (23/2014), is by definition of the law responsible for policy and planning strictly at operational level. In the nonformal sector, MOM is responsible for policy and oversight of the nonformal TVET by Manpower Law (13/2003), however MOEC is also tasked with similar responsibility for the nonformal education covering courses and training based on the National Education System Law (20/2003).

There are gaps and overlaps appear when the policy and planning documents are mapped out onto the national portfolio. Private TVET providers, while fully recognized as part, and even largest part of the overall portfolio, are often neglected in the policy and planning. Although normatively policy and program developed are applicable to both public and private TVET providers, there has been no clear strategy as to how all the policy and program are to be implemented for the private TVET providers. These gaps will have to be addressed to maximize the utilization of private sector capacity, to ensure fully functioning national TVET system.

MOEC road map for SMK revitalization, for example, describes the number of SMK to be revitalized, but all of them are public SMKs and none of them are private ones. The number of SMK to revitalized are 219 SMK, 350 SMK, dan 1.650 SMK, in 2017, 2018, and 2019 respectively, and so by the end of 2019, a total of 2,219 SMK will be revitalized. However, all of them are public SMKs and it is not clear in the Roadmap how the private SMK numbering at more than 10 thousand and contributing almost 60% of total enrollment are to be revitalized. Assuming the private sector will take care of itself is unrealistic given that the private schools generally cater for students from the less to do family.

On the nonformal side, similar pattern occurs. While recognizing the large number of incoming labor force into the labor market every year, and setting the target of providing more than 2.1 million improved quality skill training, the MOM Binalattas Strategic Plan does not spell out clearly how the target is to be achieved and what the strategy. Given the capacity of public BLK system around 275,000 trainees annually, presumably the remaining has to be conducted by the private sector and the remaining public system under other line ministries and public institutions. In the Grand Design for National Vocational Training, MOM Binalattas, referring to Bappenas, mentions the public training capacity of almost 730 thousand trainees. Given the public BLK capacity of a little more than 275,000, the Grand Design leaves almost 500,000 to be trained by other ministries and government institutions, however there is no information on how this overall capacity is broken down into training capacity to serve internal needs within each ministry and how much is available for external trainees. It is also interesting, within the context of the overall TVET portfolio consisting of 8,688 LPKS and around 19,000 LKP, indicating a large potential of the private training providers, assistance to them was funding for training of around 10,000 participants.

It is indeed not feasible and also difficult to justify to provide more comprehensive funding for the private training provision under the current state finance, however policy instruments addressing private sector providers more comprehensively to incentivize affordable quality training provision are needed. Tax incentives and tax deductibles to incentivize private training providers and industry to support private training entities needs to be developed.

3.1.2. Policy Instruments Overlaps

There are overlaps in policy and plan as is obviously implied in the documents. However, they are somewhat subtle and therefore must be addressed very carefully. Before indicating the issue, it is important to understand the environment in which the policy overlaps take place to appreciate the background.

At the implementation level there have been invaluable contributions made by line ministries other than MOEC, MORTHE, and MOM, towards TVET provision both formal and nonformal. There are many secondary vocational schools, polytechnics, academies, and vocational school of higher learnings, and training centers under other line ministries of excellent quality. They are equipped with state of the arts equipment, supported by well-trained competent teachers and instructors, and sufficient exposure to the industry. These schools and training centers, are well positioned to serve as model and to help schools under MOEC and MORTHE to achieve industry standards.

On the nonformal side, MOI Education and Training Center's implementation of the 3-in-1 skill training, for instance, could contribute towards development of alternative modality of training worth further exploring to scale up to constitute a more effective and efficient way of skill development. This program is well in line with MOM Binalattas approach to assist a newly operating mining company in Morowali, in which MOM successfully conducted skill training to prepare for heavy equipment operators effectively and efficiently in a very practical way. The model of implementation of 3-in-1 training by MOI Education and Training Center and heavy equipment operator training by MOM in Morowali are indeed compelling and could be mainstreamed in the future TVET reform.

Perhaps against this backdrop, and mandate under Inpres 9/2016, MOI issued Regulation 03/M-IND/PER/1/2017. Interestingly, this MOI Regulation does not include Inpres 9/2016 as a considerant among the legal bases for its issuance. Much of the policy content of this MOI Regulation falls within the jurisdictions of MOM (Law 13/2003) and of MOEC and MORTHE (Law 20/2003). A joint ministerial regulation involving MOI, MOM, MOEC, and MORTHE would have avoided the overlaps while keeping MOI's advantage in its contribution to facilitate and bridge relationship with the industry.

3.1.3. Coordination Among Stakeholders

The documents show weak linkages, if there are at all, between policy and planning among TVET stakeholders indicating lacked of coordination among them. Knowledge does not seem to be shared and policy formulation and planning seems to be conducted in silos. For example, MOEC SMK revitalization roadmap requires support the higher education system to provide skillful productive teachers. In the MOEC SMK Revitalization Roadmap, needs for additional teachers are spelled out into detailed of how many adaptive, normative, and productive teachers needed to support the revitalization. However, MORTHE's planning documents do not recognize it. Vocational Higher Education Revitalization Program issued by MORTHE focus limitedly on improvement of the tertiary TVET sector. MORTHE's Strategic Plan 2015-2019¹² does not mentioned specifically at all the need to produce TVET teachers; the Plan only mentioned target on number of teachers in general to undertake professional teacher education.

Roadmap for TVET development issued by CMEA provides a very comprehensive description of the macro setting for TVET revitalization program. CMEA Roadmap presents labor force and employment issues in great detailed, including trends of sectoral demand for labor. Changes in occupational trends are also presented in the CMEA Roadmap, however all these do not seem to be absorbed and given proper attention in the development of MOEC SMK Revitalization Roadmap. Reflecting on the policy and planning documents to review, and indepth interview with government officials from CMEA and MOI Center for Education and Training, they seem to be on the same page on a number of issues, implying relatively good coordination among them in the development of CMEA Roadmap.

Another indication of lacked of coordination could be seen in the development of SMK education program and curriculum. MOEC has been developing SMK curricula based on industry competency standard (SKKNI) issued by MOM and competency standards developed internally based of graduate competency standards in the National Education Standard. This has raised criticism from, among others, the National Board for Accreditation of Profession (BNSP). However, MOEC argues that not all industry competency standards are available from MOM and uptodate. Some of the needed 146 SKKNI are not exist yet, and even some of the available SKKNI are already out of date. In an ideal world, program development in MOEC needs to be hand in hand with development of SKKNI in MOM.

TVET policy, planning, and management needs coordination both horizontally and vertically. Vertical coordination with province government is a must. Besides that, private sector coordination is also indispensable for a functioning TVET system. In-depth interview with MOEC Directorate of Vocational Secondary Education reveals a number of issues with respect to planning coordination between MOEC and province government. The use of

¹²MORTHE Regulation 50/2017 on Strategic Plan of Ministry of Research, Technology, and Higher Education 2015-2019.

special allocation funds to incentivize TVET development and management has been quite challenging. Discussion with Directorate of Religion and Education, on the other hand suggests that there is now strong enough policy and regulatory framework to enable MOEC influencing the behavior of province government. This all reveals lacked of coordination and at the same time shows potentials for improvement by means of improvement in the way all stakeholders work.

3.2. Programs, Priorities, and Budget Implications

Generally, the policy and planning documents well lay out programs and priorities but they all fall short of outlining let alone presenting in detail the budget implication of the policy and plans. MOM Binalattas, for instance, describes well the programs and priorities, but does not mention explicitly the required budget to support them. This is understandable given that it is five yearly strategic plan, and the going system discusses allocation yearly, however indicative figures should be useful. MOEC SMK Revitalization Roadmap, despite its detailed description of program and priorities, including the number of SMK to revitalize every year, also fails to indicate the amount of resource required to illustrate the magnitude of the undertaking more accurately.

The absence of information on budget implications makes it difficult to figure out how huge the issues facing the national TVET system really are and how realistic the plan, program, and the approach to execute them. There seems almost no clear incentive for the stakeholders to plan realistically their portfolio, to adopt affordable approaches and TVET modalities reflecting the resource envelope. As a result, they commonly came up with very ambitious plan with great potentials for dismal realization particularly in terms of quality.

3.3. Conceptual and Technical Consistency

3.3.1. Competency Standard

Table 3.1 maps out all the policy and planning documents addressing competency standard. They all include competency standard in their policy and planning documents one way or the other. Inpres 9/2016 instructs MOEC and MORTHE to improve availability and quality or competency off productive teachers in SMK. At the same time, it also pushes acceleration of completion of the industry competency standard (SKKNI) to strengthen the basis for more relevant SMK curriculum. The way competency standard Inpres 9/2016 addresses is parallel to that in the MOI Regulation, and in addition to acceleration of SKKNI completion and improvement of teachers, the two policy documents also promote capacity development with respect to certification of competency for vocational school graduates.

CMEA Roadmap emphasizes, first of all the importance of acceleration of SKKNI completion so that all TVET curricula are developed based on uptodate industry competency standards. The Roadmap also provides projection of promising SMK competencies includes 30 occupations with competencies needed most in the year to come. Besides that, it also

highlights issues surrounding BLK, in which may of them, particularly those regional BLKs have not designed their training program and curriculum based on SKKNI. The Roadmap goes further to recommend reengineering of these BLK, to give autonomy to the regional government to redesign training programs to respond to their changing environment based of the relevant and uptodate SKKNI.

Table 3.1. Competency Standard

Documents	Formal		Non-formal
	Secondary	Tertiary	
MOI Pusdiklat - Strategic Plan 2015-2019			
MOM Binalattas - Strategic Plan 2015-2019			
BSN - Strategic Plan 2015-2019			
Presidential Instruction (Inpres) No 9 of 2016			
MOI Ministerial Regulation - SMK Linked and Matched			
MOEC - SMK Revitalization Roadmap 2017-2019			
MORTHE – Vocational HE Revitalizatiin Program			
CMEA - Vocational Devt Policy Roadmap 2017-2025			
CMHDC - Draft Roadmap HRD 2018-2020			
MOM - Grand Design of National Vocat Training 2018			
Chmbr of Com – G. Design of Vocat Training Devt 2018			

MOI Center for Education and Training addresses the issues of competency standard in a similar way, emphasizing the need to ensure that all the 9 (nine) fields of study in SMK being developed in full alignment with the industry competency standards (SKKNI). In its strategic plan, MOI also set program and target to complete and update SKKNI for the industry sector, which will serve both program and curriculum development and basis for competency certification. The National Standardization Agency (BSN) in its strategic plan emphasizes the need to harmonize standardization and certification of competency by means of cross sectoral and cross regional cooperation, and across countries of business partners. It also emphasizes that competency standard development by users/industry is dynamic in nature in line with science and technology development. Besides, BSN also stressed that competency certification by professional certification centers (LSP) is given with a certain period of validity.

3.3.2. TVET Delivery: Program and Curriculum

Table 3.2 shows policy and planning documents addressing the issues of TVET program and curriculum. Most stakeholders’ policy and planning documents address program and curriculum in one integrated entity with competency standard. All of the are in agreement that TVET programs and curriculum are to be developed based on the industry competency standards. However, when they come to the implementation of it, there are still variables. This variable practice is mostly revealed during indepth consultation and discussion with government officials in the ministries and other government institutions. Our discussion with MOEC, for instance reveals that not all of the 146 SMK study (competency) programs’ curricula are developed based on the industry’s SKKNI. This happens because up-to-date SKKNI is not yet available for all of 146 competency programs. Besides, they argue that even some of the available SKKNI are already out of date. To fill this gap, MOEC developed competency standards based on graduate competency standards in the National Standard of Education (NSE).

Table 3.2. TVET Delivery: Program and Curriculum

Documents	Formal		Non-formal
	Secondary	Tertiary	
MOI Pusdiklat - Strategic Plan 2015-2019			
MOM Binalattas - Strategic Plan 2015-2019			
BSN - Strategic Plan 2015-2019			
Presidential Instruction (Inpres) No 9 of 2016			
MOI Ministerial Regulation - SMK Linked and Matched			
MOEC - SMK Revitalization Roadmap 2017-2019			
MORTHE – Vocational HE Revitalization Program			
CMEA - Vocational Devt Policy Roadmap 2017-2025			
CMHDC - Draft Roadmap HRD 2018-2020			
MOM - Grand Design of National Vocat Training 2018			
Chmbr of Com – G. Design of Vocat Training Devt 2018			

Issues with TVET program design and curriculum is not monopolized by SMK, it also happens in tertiary vocational education and BLK. Indepth consultation with BNSP reveals that some of competency standards used by MORTHE for program and curriculum development are developed in together with association of profession, instead of industry association. This raises the risk of lacked of recognition by the industry, and considered to be not relevance. On the nonformal side, many BLK particularly those managed by regional government have not developed their program and curriculum based on SKKNI.

3.3.3. TVET Delivery: Teaching Factory as Learning Instrument

The importance of teaching factory as learning instrument is mostly associated with formal vocational education both at the secondary and tertiary levels. Table 3.3 shows that the use and issues of teaching factory is addressed in policy and planning documents related to SMK and tertiary vocational education. Inpres 9/2016 promote industry and state-owned company support for teaching factory development. MOEC aims at revitalizing industry cooperation hoping to garner support from industry in developing teaching factory in schools. MORTHE addresses similar issue, hoping to develop teaching factory in polytechnic, academy, and vocational school of higher learnings, besides hoping for better access to industry to get practical experience.

Table 3.3. TVET Delivery: Teaching Factory as Learning Instrument

Documents	Formal		Non-formal
	Secondary	Tertiary	
MOI Pusdiklat - Strategic Plan 2015-2019			
MOM Binalattas - Strategic Plan 2015-2019			
BSN - Strategic Plan 2015-2019			
Presidential Instruction (Inpres) No 9 of 2016			
MOI Ministerial Regulation - SMK Linked and Matched			
MOEC - SMK Revitalization Roadmap 2017-2019			
MORTHE – Vocational HE Revitalization Program			
CMEA - Vocational Devt Policy Roadmap 2017-2025			
CMHDC - Draft Roadmap HRD 2018-2020			
MOM - Grand Design of National Vocat Training 2018			
Chmbr of Com – G. Design of Vocat Training Devt 2018			

CMEA Roadmap recommends polytechnics to upgrade the capacity of their teaching factories. It suggests three model of roles for teaching factory in polytechnic: (a) polytechnic owns and manages its teaching factory; (b) implement teaching factory in collaboration with the industry on campus or off campus; and (c) teaching factory conducted in two places, in the laboratory on campus and in the industry/company. MOI Pusdiklat addresses Teaching factory and emphasizes its importance in a competency-based TVET. In a similar vein the grand strategy developed by KADIN also emphasized the roles of teaching factory in the vocational education and training.

Indepth interviews with MOEC and MORTHE reveal that financial management of teaching factory is faced with regulatory constraints, particularly with regard to public financial management. This is inline with Inpres 9/2016 requesting the Ministry Finance to develop the necessary norms, standards, and procedures for teaching factory financial management to allow flexibility while maintaining accountability. With respect to financial governance, CMEA Roadmap suggests that teaching factories in SMK and polytechnics adopt the BLU financial management model. Currently only one polytechnic that is awarded BLU status, while no SMK has it. It is strongly recommended that ultimately all the public TVET providers be given autonomy to develop and adjust their program plus BLU financial management system. This will allow them to quickly respond to issues facing them day-to-day and more importantly will allow them to better adjust their program offering to respond to the changing skill demands in the surrounding industry.

3.3.4. TVET Delivery: Internship, Dual System, 3-2-1 System, 3-in-1 System

Students internship, dual system, and 3-2-1 system relates to the formal TVET system, and therefore as shown by Table 3.4 the theme comes out in the policy and planning documents dealing with vocational education at secondary and tertiary levels. Inpres 9/2016 promotes cooperation with the industry and instructs state-owned company to open up greater possibilities for SMAK students to get industry experience through internship programs. The Inpres also requires BLK to open up its facility to SMK students to receive practical instruction. Similarly, CMEA Roadmap also addresses the need for internship experience as part of the overall skill training in SMK. MOEC Revitalization Roadmap obviously put this as one of the important elements of SMK revitalization.

Table 3.4. TVET Delivery: Internship, Dual System, 3-2-1 system; 3-in-1 System

Issues/Documents	SMK	Polytechnics, etc	Nonformal
MOI Pusdiklat - Strategic Plan 2015-2019			
MOM Binalattas - Strategic Plan 2015-2019			
BSN - Strategic Plan 2015-2019			
Presidential Instruction (Inpres) No 9 of 2016			
MOI Ministerial Regulation - SMK Linked and Matched			
MOEC - SMK Revitalization Roadmap 2017-2019			
MORTHE – Vocational HE Revitalization Program			
CMEA - Vocational Devt Policy Roadmap 2017-2025			
CMHDC - Draft Roadmap HRD 2018-2020			
MOM - Grand Design of National Vocat Training 2018			
Chmbr of Com – G. Design of Vocat Training Devt 2018			

In depth interview with MOI Center for Education and Training reveals their 3-in-1 approach to nonformal TVET involving training, certification, and job placement. Training is prepared in collaboration with the industry, beginning with needs identification by the industry labor quantity and competency required. Next stage, based on this MOI and the industry develop training programs dan their competency test as the basis for competency certification. Once they implement the training and conduct competency test, successful trainees will be awarded certificate of competency and followed by job placement in the industry.

3.3.5. Assessment and Certification

Table 3.5 shows all policy and planning documents address assessment and certification as important part of the overall TVET in both formal and nonformal streams. Inpres 9/2016 emphasizes the need for access to competency certification for SMK graduates, particularly in the fields of transportation, marine and fishery, energy, and mineral resource. The Inpres specifically want to accelerate licensing for qualified SMK as certification center; this is intended to expand access to certification for the graduates. MOEC Revitalization Roadmap plans to develop system of assessment, competency test, and graduate certification by the relevant center for profession certification (LSP). As part of the agenda, the Revitalization Roadmap would collaborate with BNSP to accelerate competency certification of SMK graduates, and to accelerate competency certification for SMK teachers, instructor, and support staff. This is in line with policy stated in the MOI Regulation to develop SMK capacity to undertake competency certification by means of competency tests conducted to their graduates.

Table 3.5. Assessment and Certification

Documents	Formal		Non-formal
	Secondary	Tertiary	
MOI Pusdiklat - Strategic Plan 2015-2019			
MOM Binalattas - Strategic Plan 2015-2019			
BSN - Strategic Plan 2015-2019			
Presidential Instruction (Inpres) No 9 of 2016			
MOI Ministerial Regulation - SMK Linked and Matched			
MOEC - SMK Revitalization Roadmap 2017-2019			
MORTHE – Vocational HE Revitalization Program			
CMEA - Vocational Devt Policy Roadmap 2017-2025			
CMHDC - Draft Roadmap HRD 2018-2020			
MOM - Grand Design of National Vocat Training 2018			
Chmbr of Com – G. Design of Vocat Training Devt 2018			

CMEA Roadmap highlights the need for certification of competency to allow them easily identified in terms of quality and suitability for the available job openings. One of the policy recommendations in this regard is curriculum improvement to allow graduates to be certified for at least one competency. Draft CMHDC presents similar policy line, putting assessment and certification as one of the priority activities. In this Grand Design, SMK will be empowered to undertake competency tests for their graduates leading to certification.

On the nonformal side, MOM Binalattas Strategic Plan articulate a strategy to accelerate competency certification for all trainees following completion of their training program. To accomplish this BNSP is expected to establish certification infrastructure in the regions. Certification is to be conducted by BNSP licensed competency certification center (LSP), and the certificate will have validity period.

3.4. Demand Side Perspectives

Almost all of the policy and planning documents focus on the supply side, except CMEA's Indonesia Vocational Development Policy Roadmap 2017-2025. Most of the documents at the beginning give recognition of the importance of the demand side and that education and training should be planned, designed, and implemented to the demand side. However, they generally stop at normative level only without real demand analysis and/or assessment to connect to the TVET program they plan to develop and implement. MOEC SMK Roadmap, for instance, starts with a brief narrative discussing economic competition and labor market issues, and the need to build nation competitiveness. No quantitative analysis on the sectoral growth and its implication in terms of labor demand, suddenly discussion switch to analysis of the current SMK situation, followed by fully supply-side agenda. No reference is made to the demand side in selecting schools to revitalize, which schools, where they are located and how these schools are connected to the demand side analysis.

MOM Grand Design of TVET Training starts with recognition of demand, presents demand broken down into three levels: expert, technical/analyst, and operator/implementor, and attach values to each of them. The demand identification is then compared to the supply side to identify shortage and surpluses. Identified shortage is then treated as demand for skill training. The analysis stops here as no further breakdown into sectoral and/or occupational skill is provided. In the next step demand is simply compared to the BLK's training capacity, and the excess is then assumed to be trained by other line ministries/institutions. From this point on it has become purely supply side, as training programs will simply follow whatever skill training is available in the existing facilities. Interestingly also, when the available skill training is compared to the regional economic potentials and the implied skills needed, they are hardly match.

Other planning documents are mostly similar, start with recognizing the importance of demand but soon fall apart. MORTHE's Vocational Higher Education Revitalization Plan is even very sketchy in treating demand. The Indonesian Chamber of Commerce provides identification of 12 priority sectors and 8 professions mutually recognized within the framework of Asean Economic Community, and the Government's priority sectors. It also provides the analytical framework to identify the need for skill training but limited to disaggregation into three levels of skills, identical to the methodology used by MOM to develop Grand Design of TVET Training.

CMEA’s Roadmap is by far the only one providing analytical works to identify demand for skills based on growth and employment trend by sector. Besides that, the Policy Roadmap also identify 30 occupations with good prospect to absorb SMK graduates as well as profiles of skill competency with good prospect in the years to come. It goes further to identify and to recommend development of engine of economic growth that will maximize the utilization SMK, vocational higher education, nonformal TVET graduates. They are five engines of growth: agribusiness, tourism, healthcare, e-commerce, and export of migrant workers. In addition to that, the Roadmap also identifies TVET program that SMK, higher education, and BLK should focus. All these give an opportunity for the other stakeholders to test and reconcile their TVET program and design with the Roadmap.

3.5. Cooperation with Industry

Table 3.6 shows all policy and planning documents address the need for cooperation with industry, although may differ one another in terms of issues to address and approach they take. With regard to the secondary vocational education, while Inpres 9/2016 emphasizes need to gain access to industry experience for SMK students, MOEC in its Roadmap emphasized the need to promote investment by the industry to help furnishing SMK with equipment and infrastructure. MOEC is even contemplating to have a regulatory instrument, in the form of government regulation, or even a law to obligate the industry and the business world in general to contribute to vocational education.

Table 3.6. Cooperation with Industry

Documents	Formal		Non-formal
	Secondary	Tertiary	
MOI Pusdiklat - Strategic Plan 2015-2019			
MOM Binalattas - Strategic Plan 2015-2019			
BSN - Strategic Plan 2015-2019			
Presidential Instruction (Inpres) No 9 of 2016			
MOI Ministerial Regulation - SMK Linked and Matched			
MOEC - SMK Revitalization Roadmap 2017-2019			
MORTHE – Vocational HE Revitalization Program			
CMEA - Vocational Devt Policy Roadmap 2017-2025			
CMHDC - Draft Roadmap HRD 2018-2020			
MOM - Grand Design of National Vocat Training 2018			
Chmbr of Com – G. Design of Vocat Training Devt 2018			

MORTHE Revitalization plan emphasizes cooperation with industry to allow their polytechnic, academy, and vocational school of higher learnings greater access to industry for their students to get industry experience, internship, as well as to support their new 3-2-1 approach to vocational higher education.¹³ Besides that, MORTHE is also experimenting

¹³ The 3-2-1 approach constitutes 3 semester on campus education, followed by 2 semester industrial internship and 1 last semester either back in campus or continue further in the industry, depending on which opportunity opens up.

with the expectation to scale up recruitment of personnel with industry experience to teach in tertiary vocational schools. MOI Center for Education and Training cooperation with industry is emphasized to promote link and match between the school and the industry, development of new study programs to match with the industry needs, and cooperation with industry to develop curriculum, internship, and placement of the graduates.

CMEA Roadmap emphasizes cooperation with industry to promote better access to labor market information, to develop mutualistic relationship particularly at the tertiary level in which polytechnics need instructors from the industry at the same time the industry needs workers with skills and competency that polytechnics produce. As for the nonformal side, including BLK, CMEA Roadmap emphasizes industry cooperation to improve placement. Indonesian Chamber of Commerce (KADIN) emphasizes industry cooperation to promote synchronization of vocational education and training with industry needs and to broaden opportunity for students and trainees to get industry experience.

4. Towards an Overarching National TVET Strategy

An effective vocational and technical education and training (TVET) system has great potential to reduce skills gaps and unemployment which in turns improves the economy. Successful TVET system improvement requires a comprehensive approach supported by collaborative efforts among all stakeholders: government, industry, TVET providers, and students, working together in a coordinated ecosystem with a clear policy and regulatory framework. Empirical evidence¹⁴ suggests that among key factors for successful TVET systems are; (a) existence of a well-coordinated ecosystem in which all stakeholders, including a strong central government body with clear oversight of the TVET system; and (b) continuous collaborative efforts from industry. All these indispensably need coherence regulatory environment and effective funding mechanism to incentivize all players and stakeholders to work and stick to the design and plan.

In a coordinated ecosystem, all stakeholders must synchronize their interests and work together to make sure that TVET ecosystem represents the interests of all parties. This includes a commonly accepted oversight body to coordinate and works together with all the stakeholders to decide on the long-term strategic direction and to develop a quality assurance system for the TVET programs to maintain credibility and attractiveness from the viewpoints of both students and the business world. The industry plays instrumental roles in the development of the TVET ecosystem, and therefore their continuous collaborative effort is indispensable for its success. Industry representatives provide input on requirements for the TVET system output, covering specific skills and short and medium terms labor demand. Curriculum development has to be conducted collaboratively involving the industry representatives and TVET providers. In an environment like this, apprenticeships would also give real-world experience to students and trainees, which in turns improves employment probability upon graduation.

Reflecting on these and the analytical review of the policy and planning documents presented in Chapter-3, a framework is proposed to develop an Overarching National TVET Strategy to ensure synchronize and harmonize policy, planning, and implementation among all TVET stakeholders involving line ministries, Indonesian Chamber of Commerce, BNSP, province and local governments, the industry and other private vocational training providers. The proposed framework has seven elements: (i) common agreement on the

¹⁴ See, for instance, Puckett, et.al. *Vocational Education: The Missing Link in Economic Development*, Boston Consulting Group, 2012.

national TVET scope and labor division; (ii) coherence regulatory environment and unified oversight system; (iii) effective fiscal instruments and funding mechanism; (iv) government's role in encouraging private sector to actively participate in TVET development; (v) effective mechanism for demand side monitoring; (vi) planning and implementation capacity at province and local government levels; and (vii) effective management and institutionalization of TVET reform.



Figure 4-1. The Proposed Framework for the National TVET Strategy

A common or mutual agreement on the national TVET portfolio, its components and the variety of education and training modalities, and labor division among stakeholders, together with coherent regulatory environment, will serve as the basis of the proposed framework (see Figure 4-1). Without clarity of the scope and labor division it will be difficult to have harmonized collaborative efforts among all the stakeholders. To make it work the framework needs to be supported by a coherent regulatory environment and unified oversight system to ensure management and governance at the level of regional governments and TVET entities could run smoothly. Regulatory reforms will be needed to synchronize and to simplify the existing regulatory frameworks governing both formal and non-formal streams of TVET, to weed out all conflicts and redundancies.

An effective fiscal instrument and funding mechanism is required to support the frame work. Appropriate financial management and governance is needed to allow public vocational schools at both secondary and tertiary levels as well as public BLKs manage their financial resource smoothly and flexibly to enable quick respond to needs arising in supporting education and training while maintaining high level of accountability.

Matching supply to demand is an absolute need for an effective national TVET system, therefore capability to credibly assess the demand side is absolutely important. There are three dimensions needing attention with respect to matching, manpower is available at the right number, with the correct mix of skill variety, and at the required levels skills. TVET system needs this information from the business and industry world to develop education and training programs. However, assessing the need for manpower in the future and even in the near future is becoming increasingly challenging with increasingly rapid technological change. Finally, all changes, reforms, revitalizations of the national TVET system need to be managed properly; we cannot take change for granted, it must be planned and managed and institutionalized properly. Any system has its own capacity to change, and good management of the process is crucial for changes and progress to be institutionalized to ensure sustainability.

The proposed framework will lead to a unified National TVET Strategic Plan, for all stakeholders to develop together and adopted as the common platform. This plan will be strictly at the strategic level with a clear labor division among stakeholders to serve as the basis for them to plan further at the technical and operational levels. Line ministries plan for their individual roles and responsibilities constituting part of the overall undertaking as outlined in the National TVET Strategic Plan. A lead agency needs to be assigned, or at least alternatively, an Interministerial TVET Committee needs to be established, to manage the close coordination processes among stakeholders, to ensure technical and operational plans produced by the stakeholders are fully in line with the National TVET Strategic Plan.

4.1. Common Agreement on Scope and Labor Division

The first pillar of the National TVET Strategic Plan is a *mutually agreed scope of the overall work of the National TVET System*, the size/magnitude and the variety of TVET modalities, and how the overall work is divided among the players and stakeholders. This will serve as one of the most important assumptions for the Plan. It is crucially important that every single stakeholder fully realize and appreciate the overall TVET scope, although in the end they will plan and implement parts of it according to their responsibility portfolios. This is in stark contrast to the current situation in which relevant ministries and other players plan and define the scope of works independently depending on their function and responsibility (*tugas pokok dan fungsi*), almost disregarding the rest of the TVET system.

Agreement on the scope and modalities should also include a common understanding of the main constituents of each education and training modality. It is in the interest of resource allocation efficiency to agree on, for example, whose SMK system serves, and who BLK system should serve. Further, in an overarching strategic plan, it is best for all the stakeholders and players to agree on how elements of the national TVET system are located within a single map, and how they interact one another. Discussion with MOM's Directorate General of *Binalattas* revealed that more than 60% of BLK training participants are SMK graduates. At a glance, this is not quite what BLK was initially

conceptualized at the beginning, for it was basically designed to serve job seekers without skills to gain the required skills for their employment and those workers need to upscale and/or change occupation. That SMK graduates still need skill training in BLK is a reality at present, and this should become an issue to discuss and resolve in the course of national TVET Strategic planning.¹⁵

As shown by Table 2-1 the current scope of the national TVET system includes the SMKs, polytechnics, academies, vocational school of higher learnings, BLKs, UPTP, and training centers. In term of size, the largest part is the SMK system, serving more than 4.9 million students with almost 60% of them study in private schools. BLK system with an overall capacity to serve 275,000 trainees annually represents the second largest, followed by the tertiary vocational education enrolling almost 570,000 students with intake capacity of almost 175,000 students annually. The remaining part of the system, the training centers, mostly privates surely accommodate a large part of the TVET system, but unfortunately, accurate data on its constituency and enrollment is not available. Totaling almost 28,000, LPKS and LKP combined, private training centers could certainly play very significant roles in the TVET provision. However, private training centers have received less attention.

Following mutual agreement on the overall portfolio, it is important to agree on how the overall scope of work is divided among all central government ministries, and province and local governments. Further, it is equally important to agree on special assignment to line ministries which operate and manage vocational education to develop standards and teaching methodology in the field. At the same time, it must also be clearly stated in the plan and mutually agreed that MOEC and MORTHE must continuously consult sectoral ministries to ensure that teaching and learning processes in schools is relevant and will produce graduates with skills to meet the industry requirements.

It is a common practice in planning conducted by the government office to leave the remaining ground beyond the budget at hand to the private sector. We cannot plan activity and identify what the government/public sector can do given the budget and simply assume away that the remaining grounds will automatically be absorbed or catered for by the private sector. To make it happens, the national TVET Strategy would have to address the issue and develop a strategy to incentivize the private sector to do so. The plan must include what we expect to happen in the private sector and design the necessary policy instrument to incentivize the private training providers undertake what is left by the public sector given the limited capacity in the public system.

¹⁵ In the Inpres 9/2016 MOM is instructed to open access to BLK for SMK students to gain "work practice", a recognition of the fact that the SMK system is chronically lacking equipment. Training of many SMK graduates in the BLK, could, therefore, be perceived as patchy works to equip graduates of vocational education lacking practical experience.

A national TVET system scope and modality must not be cast in stone; they will have to adjust to the environment. Discussion with the Education and Training Center of MOI and *Ditjen Binalattas* of MOM suggests that innovations came out and needed to respond to new developments in the field. This may not be easy to plan for there is no such thing as perfect foresight, never the less they could be anticipated. Besides that, the overall size and modalities may also change over time, inventions along the way may take place to accommodate the changing environment, and these need to be accommodated. The most practical approach to developing the National TVET Strategy is, for the time being, is to plan for the revitalization of the existing system of existing TVET portfolio. There is a huge benefit to gain from simply revitalizing the current portfolio by improving how the resource is allocated, making the oversight system work, improving links among the stakeholders.

4.2. Coherence Regulatory Environment and Unified Oversight System

A well-coordinated TVET ecosystem cannot materialized without a coherence regulatory environment to support. There are at least four laws governing the vocational education and training: Law 13/2003 on Manpower; Law 20/2003 on National Education System; Law 12/2012 Higher Education; and Law 23/2014 on Regional Government. To a different extent, all those four laws regulate both formal stream (secondary and tertiary vocational education) and non-formal stream (vocational training). In the formal stream, vocational education at secondary and tertiary levels are governed by the national education law, higher education law, and of course regional government law. As far as the first two laws, national education system and higher education, they are relatively consistent one another.¹⁶ In the non-formal stream, besides the three laws governing the formal system, manpower law also rules, making it more challenging to harmonize.

Table 4-1 maps out the implications of the four laws governing both formal and non-formal stream of the national TVET system. In general, development of TVET program and curriculum, for both formal and non-formal, is the responsibility of central government. MOEC is responsible for developing SMK education and non-formal education (training center) program and curriculum, while MORTHE is responsible for developing programs and curricula for polytechnics, academy, and school of higher learning. Law 20/2003 and Law 12/2012 both stipulate that curriculum has to be developed based on the national standard of education (NSE) and the national standard for higher education (NSHE), competency standards, and that for vocational education both ministries collaborate with relevant sectoral ministries in order to develop the needed competency standards. Law 13/2003, on the other hand, stipulates that vocational training program be developed strictly

¹⁶ The Higher Education Law (12/2012) was developed to replace Law 9/2009 on Education Legal Entity which was developed as mandated by the national education law. Law 9/2009 was revoked by the Constitutional Court not long after its enactment for a variety of reasons including its implication of education commercialization inconsistent with the Constitution.

based on work competency standards. This sort of complexity leads to implementation issues and ramification in the assessment and certification of graduates' competencies.

Table 4-1: Mapping of National TVET System Oversight

Oversight Aspect	Levels of Government		
	Central	Province	Local
Formal Stream (SMK, Polytechnics, Academy, School of Higher Learning)			
Program design and curriculum	- MOEC, MORTHE based on competency standards - Competency standards: - MOM based on industry competence requirement - MOEC, MORTHE based on NSE		
Private school operating license	MORTHE for Polytechnics, Academy, and School of Higher Learning	Local Education Office SMK	
Quality assurance	Nat'l Accreditation Board for School and Madrasah		
Non-formal Stream (BLK, Training Centers)			
Program design and curriculum	BLK by MOM based on industry competency - Non-formal Ed by MOEC based on competency std - Competency standards: - MOM based on industry competence requirement - MOEC based on NSE		
Private provider operating license			- Local Education Office - Local Manpower Office
Quality assurance	Nat'l Accreditation Board for Non-formal Educ for Training Centers	Local Office of Manpower Accreditation	

Another oversight issue relates to private training providers. Manpower law requires private training centers secure operating permit issued by the Local Office of Manpower at the district level. At the same time, National Education law also requires private training institution (non-formal education) secure operating license from Local Office of Education at the district level. Interestingly, the Regional Government law accommodates both, implying that private training centers need to secure two permits, one MOEC-based and another one MOM-based permits. On the quality assurance ground, there is potential overlapping as well. As per national education law, non-formal education, training centers, subject to accreditation by the National Accreditation Board for Non-formal Education. Manpower law, on the other hand, requires training centers to be accredited by manpower provincial local offices.

These regulatory complexities, conflict, and inconsistencies, if allowed to remain persist will certainly make it difficult to realize a well-coordinated TVET ecosystem. Regulatory reforms to synchronize and harmonize the oversight system is absolutely required in the development of an overarching national TVET strategy and plan.

4.3. Effective Fiscal Instruments and Funding Mechanism

Appropriate funding scheme and mechanism will be needed to incentivize all the players to do what they are expected to do. There are at least two dimensions related to TVET funding

need to address: (a) the availability of funding; and (b) funding mechanism. Discussion with stakeholders and players revealed that sufficient funding was not provided along with Inpres 9/2016 to support the implementation. One of the reasons for planning only a small number of SMK revitalization in the Revitalization Roadmap developed by MOEC was a budget constraint. The same reason for the allocation of very minimal equipment to support industry-SMK cooperation that was facilitated by MOI. To support the 1750 SMKs to partner with the industry, MOI provides equipment. However, the equipment provided is much lower and much less than what they considered as appropriate as commonly MOI provides to their own SMKs. In the coming National TVET Strategic Plan, options of TVET modalities, the mix among the various modalities accommodated in the Plan should take into consideration the feasible budget envelope.

The going institutional setting, as regulated under the current Regional Government Law (23/2014), responsibility to manage and implement SMK is with province government. Funding must be available to them, and funding mechanism, rules and regulation must be in such a way that will drive the province government's behavior in accordance with the National TVET Plan. To develop an appropriate and workable funding mechanism we need to learn in depth from the current mechanism, the funding instruments that are available right now. Put in the current context, among the currently available fund channeling, special allocation funds (*Dana Alokasi Khusus, DAK*) is perhaps the most promising one, unless possibilities are open to recentralize parts of the secondary education affairs which clearly is against Law 23/2014.

National TVET Strategy will never be successful without support from the private sector, private TVET providers. We clearly cannot just assume away that the private sectors will do their parts without appropriate incentive from the government. The fact of the matter is that the private sector provider constitutes a spillover effect, and most of them cater for students coming from the less to do a family background. Ironically, many of these schools rely fully on funding from parental contribution. Worse still, many of these schools were established out of commercial and profits motivation; School Operational Assistance (BOS funds), the only funding support provided by the government apparently attractive enough for many to incentivize them establishing a vocational school, but certainly not sufficient to make them improve quality of the schools. An additional instrument, perhaps among others revision of BOS funds regulatory framework, is certainly needed to improve the private school in general.

To summarize, successful implementation of the National TVET Strategy could not rely on the current funding level and funding mechanism. Besides commitment of larger amount of funds and adjusting the mix of modalities within the national TVET system, a number of policies and regulatory reforms are needed. Another illustration, development and operation of teaching factory in public vocational schools are constrained by the existing financial management rules and regulations. Until fundamental regulatory reforms to revise

the State Finance Law to accommodate this, including giving greater financial autonomy to the schools no significant progress we could possibly expect.

4.4. Government's Role in Encouraging Private Sector to Actively Participate in TVET Development

Strong support from the private sector, business and industry, is instrumental in developing the national TVET system, its effectiveness and sustainability. As prospective employer of the graduates, industry is the best position to provide input to the national TVET system on skill requirements for the graduates. This will then lead to collaborative effort between TVET providers and the industry representatives to develop curricula to ensure that all the required skill competencies needed by the industry is in the education and training program. Industry also support TVET by offering apprenticeships opportunity to vocational education students at both secondary and tertiary levels. This will expose students to real-world experience to improve job readiness and the probability of employment upon graduation.

The private sector also plays important roles as TVET provider. However, as described in the previous section (Section 4.5), almost all of the TVET private providers lacked of funding and other resources including quality teachers and infrastructure and equipment, preventing them from delivering decent quality of education and training. More than 80% of vocational secondary schools are private ones, although in term of student the private contribution is just under 58%. At the higher education level, more than 85% of vocational training institution contributing 53%. On the non-formal side there are around 24,750 private skill training institution nationwide with total capacity train more than 1,7 million trainees; the second largest portfolio in terms of number of trainees, however receives the least attention from the government. Given the big roles the private sector play in the national TVET system, it is important to develop policy and program to incentivize their sustainable roles.

4.5. Effective Mechanism for Demand Side Monitoring

Information on labor demand, types and level of skill requirements of the industry is key to effective TVET system. These all will serve as the basis for program and curriculum development. In the past, people conducted manpower planning, by means of forecasting manpower need in the future assuming demand for input of educated and trained people will be in fixed technical relationship to increases in national output. Past manpower planning, demand forecast in terms of the kind and level of skills had been checked against what really happened, and the result was not just disappointing, but very disappointing.¹⁷ With the increasingly rapid technological change, technical relationship among production factors

¹⁷ Ahamad, Bashir and Mark Blaug, *"The Practice of Manpower Forecasting"*, Amsterdam: Elsevier Publishing Company, 1973

within an economy changes more rapidly two. In this era of disruption brought about by the fourth industrial revolution certain skills, particularly those replaceable by automation, extinct more rapidly than ever before, leaving the idea of manpower planning to forecast demand for labor with certain characteristics in terms of type and level of skills totally irrelevant.

This situation requires a more pragmatic approach to demand assessment. Development in information and communication technology allows near real time signal of demand for skills in the industry is possible to obtain. Recent studies¹⁸ no longer recommend manpower planning as solution to (near) future demand assessment. For this reason, labor demand assessment should be designed so as to give rough estimates only of knowledge and skills needed for the priority economic sectors. This kind of demand assessment should also be dynamic so that it can easily adjust with the changing technical relationship among factor of production due to technological changes within the economy. To complement such kind of demand assessment labor market information system (LMIS) is increasingly popular and recommended as alternative instrument to assess labor demand. To allow for a longer horizon assessment these instrument and methodology could be combined with analysis of skills that would face shortages in the medium terms.

4.6. Strong Planning and Implementation Capacity at Province and Local Levels and Greater Autonomy for TVET Providers

When the rubber hits the road province and local governments capacity will determine how well the plan is implemented. Regional government law 23/2014 puts responsibility for SMK management with the province, leaving tertiary vocational education with the central government. As for the non-formal stream, there are central government BLKs and regional government BLKS, while private vocational training providers are under the supervision of local government. Therefore, strong capacity to plan and implement TVET at the province and district/city governments is essential for successful implementation nationally, particularly for the formal secondary level and the nonformal TVET at all levels.

Besides strong province and local governments capacity, management at the individual TVET providers has to be strong and accountable to allow them give quick response to changes in the environment. Changes in the industry, including technological change will influence skill requirements and this needs timely response from TVET providers. They have to have capacity to analyze and authority to redesign their program offering without having to go through tedious bureaucratic processes.

TVET providers, public and private, need autonomy at their institution level to develop, open and close study/training programs in accordance with their level of

¹⁸ For example, see ACDP 16

management and governance maturity. Highly reputable institutions: SMK, polytechnic, academy, vocational schools of higher learnings, and BLK, with high accreditation level and exceptional record of graduate employability should be allowed to develop their education and training program autonomously to enable them to quickly respond to the labor market dynamics.

Public TVET institutions need greater financial management autonomy, and should not be treated equally with the rest of the government bureaucracy. The current public financial management practice for them to comply with holds them back at the current level of public funding.¹⁹ Good government owned BLKs and public SMKs with strong management capacity should be transformed into public service agencies (*Badan Layanan Umum, BLU*) status. It is, however, generally perceived that current BLU governance system is too complicated for small institutions and therefore need some simplifying while still upholding principle of maintaining governance integrity.

Greater autonomy opens possibilities for utilizing all the potentials available at larger schools at both secondary and tertiary levels. They could also operate as high-quality training centers to serve both pre-service and continuing education, increasing their infrastructure and expensive equipment utilization. With BLU status, a public SMK and polytechnic would be able to provide a variety of education and training to serve not just regular formal vocational senior secondary education, but also to provide fee-based training for companies' employee needing training to adjust with new technology and equipment in their factories. Financial and human resource autonomy will also allow them to recruit instructors in different modalities, such as part-time instructors from the private sector.

4.7. Effective Management and Institutionalization of TVET Reform

Change management and institutionalization of reform cannot be taken for granted; they have to be managed systematically. A good framework to manage all these needs to be developed at the early stage of the overall reform process. To achieve a common understanding and agreement of the overall scope of the national TVET system, will need coordination, meaning someone somehow has to organize it. Likewise, to make sure that planning at individual line ministries, province governments, and other concerned institution to go through a consultative and process of scrutiny to make sure that they fully in line with the National TVET Strategy mutually developed by all of them together. Development of a unified oversight system will also require management, and someone has to do it, and so will active involvements of the industry will not take place without stern guidance and organization.

¹⁹ One example, public TVET institutions in most cases, if not all, cannot operate their teaching factories properly at the current level of funding. The provided public budget is far from sufficient, while they are not allowed to revolve the public funds to meet the need. If they are allowed to

Finally, it is important to take careful steps in the institutional framework development to manage all the processes and changes involved. Discussion with stakeholders reveals a wide range of ideas ranging from establishment of a simple coordinating team involving ministries concerned to establishment of a special ministry to manage TVET supported by a TVET law. Among the ideas, this time, for the time being it is more appropriate and feasible to establish an Inter-ministerial TVET Committee.

5. Recommendations

In the following we offer nine recommendations feasible to implement immediately without many preconditions. All these constitute elements of a successful national TVET system under the current decentralized system of government, that will at the same time anticipate the implication of Industry 4.0.

1. Develop mutual agreement on the scope and division of labor among stakeholders

A swift move to analyze the current TVET portfolio is imperative, for this would be the basis for review underlying the needed mutual agreement. This, will have to cover the overall scope of the national TVET system, the size of the portfolio, the components constituting the overall portfolio, and the variety of TVET modalities.

In the mutual agreement it must be clear how each component of the national TVET system with its training modality serves which clients. For example, who the BLK system is to serve, which segments of population/workforce. Will BLK admit SMK graduates into their training program, or will it focus on serving those never went to SMK and other vocational education? When Inpres 9/2016 instructed BLK to open its door to SMK students for practical training, will that be on a temporary basis, or will it be the approach to future SMK education which combined theoretical instruction in school and practical training in BLK? The answer to these questions will influence investment strategy to avoid overlaps and unnecessary spending.

Funds allocation for TVET in the government budget in the last decades has been perceived far from sufficient to support decent operation with the current mix of training modality. Chapter-2 describes lacked of equipment in terms of both availability and technology facing BLK, SMK, and tertiary vocational education systems. Reflecting on this, in the process of agreeing the overall scope, it is essential to comprehensively assess the fiscal requirement to support the National TVET System with the current mix of training modalities. Needs might arise to identify alternative mixes of training modalities if the current level of funding proved much less than sufficient and it is not realistic to expect additional funds to bridge the gap.

Decades of experience, particularly on how difficult it has been to fulfill investment requirement to achieve decent quality of vocational school, it is advisable to explore possibility of a system with a larger component of short-term non-formal approach

involving the industry and private training providers.²⁰ Involvement of the industry is needed to ensure direct connection (link) with the demand side, so the identified demand truly reflect what the industry plans to recruit immediately. Training provision by the private sector is intended to promote flexibility and to allow for quick response to the changing demand and skills in the labor market. This exercise would also tell us what the ideal mix of general education and vocational education at the secondary level that the available budget could sustain.

Once the scope, modalities and size, overall National TVET System is mutually agreed, then the time comes to divide labor among stakeholders. Labor division could simply follow the approach and pattern of assignment in the Inpres 9/2016.

2. Develop and implement regulatory reform agenda

The proposed reform should address inconsistencies and overlapping regulations in order to create enabling environment for a national TVET system to function. Priority reforms should include clarity and consistency with respect to interpretations and uses of competency standard, governance including quality assurance, and mechanisms by which the formal and non-formal TVET interact and cross fertilize to benefit the clients, workers, students and trainees.

Much of the issues are rooted in the sectoral laws, however, so a complete and fundamental solution may need revision of the relevant laws; adjustments are needed for Manpower Law (13/2003), National Education Law (20/2003), Higher Education Law (12/2012), and Regional Government Law (23/2014). In addition, to allow for a more flexible and responsive financial management system²¹, State Finance Law (17/2003) and State Treasury Law (1/2004). Therefore, full implementation of this regulatory reform agenda will take a long time, and for that reason identification of issues and the regulatory reform agenda must be completed as soon as possible. Development of regulatory reform

²⁰ Discussion with MOI and MOM revealed that there are more practical ways to equip workers with single competency by means of conducting short term training in specific skills required by the industry. Information and need signals from individual companies proved very useful and partnership with the companies needing skill workers proved more practical and requiring much less investment.

²¹ Among the needed reforms is to revise the regulatory framework concerning financial and human resource management within public school/higher education institution/training provider. Existing laws and regulation are the most often cited constraints to public SMK and public polytechnic development. Despite limited amount of operational budget to support proper skill training, public SMKs and polytechnics are facing difficulty to make up the difference although there are potential sources for it. The school teaching factory often operate much less than optimally because of lacking sources of funding while they as public institutions are prohibited to get involved in commercial activities. They have actually the capacity to at least recover the cost by selling the products.

agenda must not stop with identification of laws and article to revise, but for revision of the laws will take time identification of tentative solution needs to be conducted at the same time so that second best solution can be developed in the meantime.

3. Develop Fiscal Instrument and Funding Mechanism

Appropriate funding mechanism and other possible instruments to incentivize stakeholders, particularly the province governments and the private sector to do their part needs to be developed. Exploration should begin with reviewing regulatory framework governing the special allocation funds (*Dana Alokasi Khusus, DAK*). Discussion with Directorate of Religion and Education, BAPPENAS, suggests that given planning instruments available recently it is now possible to design and influence DAK allocation to ensure consistency with policy at the national level. Greater involvement of MOEC in the DAK planning and allocation is needed however, particularly to provide supporting data and information to ensure evidence-based planning and budgeting to take place. This needs to be combined with capacity development to improve regional governments capacity to implement the plan and budget.

In addition to that, explore possibilities beyond DAK, for instance possibilities to establish a special funds for skill development. Planning and budgeting of the funds will have to be strictly consistent with the National TVET Strategy. Another possibility is to develop tax incentive and tax deduction scheme for private companies contributing to TVET development and implementation.

4. Develop policy to link industry operational license with support to skill development including to provide internship and apprenticeship

Develop institutional framework and policy instrument to incentivize an active and sustainable involvement of the private sector and industry. One of the policy instruments is to link industry operational license with support to skill development, including to provide internship for students as part of their vocational education and training.

To begin with, at the policy level Indonesia Chamber of Commerce and Industry (KADIN) must involve actively and always in the loop. KADIN, together with the rest of the Committee members, is fully involve in developing basic policy and the required policy instruments. Besides their membership in the Committee at the national level, KADIN also required to establish Skill Council at the province level to facilitate and help manage relationship between the government, the TVET providers, and the private sector and industry.

As prospective employer of the graduates, the industry is in the best position to provide input to the national TVET system on skill requirements for the graduates. Industry also support TVET by offering apprenticeships opportunity to vocational education students

at both secondary and tertiary levels. Collaboration with the private sector assures that 3-2-1 system can be implemented by TVET providers. To ensure effective involvement of the industry, a standard mechanism and procedure need to be developed as to how the private sector and industry actively involved in TVET program and curriculum design. Industry associations as well as professional associations, and other brain power in the private sectors need to have proper place to support the national TVET development.

The role of private sector can be further strengthened by mandating every industry cluster to setup TVET providers in the area. This approach will benefit not only the local people and the industry itself in the long run. On the one hand this reflects the industry's social responsibility, on the other this will provide the industry employees with the right knowledge and skills.

5. Develop a system for an effective demand side monitoring

Information on labor demand, types and level of skill requirements of the industry is key to effective TVET system. The information it provides will serve as the basis for an effective TVET program and curriculum development. More pragmatic approach to labor demand assessment is recommended to provide rough estimation of knowledge and skills needed at least in priority economic sectors. The demand assessment system should be dynamic so that it can easily adjust to the rapid technological changes within the economy. In addition, development of real time labor market information system (LMIS) is recommended as a platform to provide information about demand for labor with specific skills in the short-run.

6. Strengthen TVET management and governance capacity at province and local levels

There is a wide range and variety of skills the province and local governments need to have to improve capacity and readiness to assume the ultimate responsibility at the implementation stage of the National TVET Strategy. Among those, higher priority needs to given to: (i) understanding the nature of effective TVET system and its relationship with private sector and industry; (ii) capacity to engage with private sector and industry; (iii) planning and budgeting for TVET – identifying priority, getting useful information and signals from private sector and industry; and (iv) management and governance involving autonomous TVET institutions.

7. Develop scheme to give greater autonomy to the TVET providers

A scheme to give greater autonomy for individual TVET providers needs to be prepared soon, including its implementation strategy. Pilot implementation of the scheme can start with giving the highly reputable institutions: SMK, polytechnic, academy, vocational schools of higher learnings, and BLK, with high accreditation and exceptional record of graduate employability authority to develop their education and training programs. Besides that, give public TVET institutions greater financial management autonomy, do not treat

them the same way the rest of the government bureaucracy. Good government owned BLKs and public SMKs with strong management capacity should be transformed into public service agencies (*Badan Layanan Umum, BLU*) status.

8. *Develop and empower private courses and skill training providers (LPKS and LKP)*

The large number of private skill training providers, 8,688 LPKS and 19,000 LKP nationally (see Table 2.1) means a great potential for contribution towards national skill development, however they need to be strengthened. Strengthened capacity of the private skill training system will make a more credible alternative TVET modality which is practical and cost-effective. Flexibility and responsiveness this system could offer is particularly relevant to the new environment with the increasingly rapid technological change in the work place.

Given their potential roles in the future, more attention for the private skill training providers is therefore needed to systematically improve their performance. Effective policy and programs are needed to improve systematically the performance of the private skill training providers. Strengthening of oversight, support for quality assurance and fiscal incentive needs to be developed to improve their performance. In the future private skill training providers can also assist the government to support *BLK Komunitas* (community-based BLK) to facilitate skill training initiated locally by the community.

9. *Develop system to manage and institutionalize the national TVET reform*

CMEA, CMHDC, and BAPPENAS will have to work together to establish an inter-ministerial committee. The proposed Interministerial Committee consists of representative from relevant line ministries and agencies, representative from the Indonesia Chamber of Commerce, and representatives from a few select province governments. This Committee is responsible to develop a unified oversight system for the national TVET system, and to organize/coordinate the planning process to make sure that planning and implementation at the individual ministries and agencies, province government, and the private sector are consistent with the National TVET Strategy.

The Committee will be supported by a Working Group and technical team to conduct analytical works and manage policy and strategy formulation. The Working Group is responsible for managing the TVET reform to transform the current system into a new and more effective National TVET system, and therefore will have to undertake change management, including socializations during the process. All the required works towards a National TVET Strategy, follow-up planning and programming at individual stakeholder level need to be managed well. To accomplish this, a TVET Reform Blueprint is needed to provide a clear map so that the reform process can be organized more seamlessly. The Working Group.

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Attachment: Summaries of TVET Policy and Planning Documents

This attachment presents summaries of the various TVET policy and planning documents developed recently by a number of government ministries and non-ministerial agency involved in the implementation of TVET system in Indonesia. The policy and planning documents include the followings:

1. MOI Center for Education and Training Strategic Plan 2015-2019
2. MOM DG of Training and Productivity Development Strategic Plan 2015-2019
3. National Standardization Agency Strategic Plan 2015-2019
4. Presidential Instruction 9/2016 on Revitalization of Vocational Secondary School
5. MOI Regulation on Guidelines for Nurturing and Development of Competency-Based SMK and Linked and Matched with Industry
6. MOEC Roadmap for Senior Secondary Vocational School (SMK) 2017-2019
7. MORTHE Vocational Higher Education Revitalization Program and Curriculum Development to Improve “Link and Match” with Industry 2017-2019
8. CMEA Indonesia Vocational Development Policy Roadmap 2017-2025
9. CMHDC Draft Roadmap for Indonesia Human Resource Development 2018-2020
10. MOM Grand Design of National Vocational Training 2018
11. Chamber of Commerce Grand Design of Vocational Training Development 2018

1. MOI Center for Education and Training Strategic Plan 2015-2019

The Strategic Plan of the 2015-2019 Education and Training Center implements national industrial policies and coordinates the implementation of tasks, fostering and providing administrative support to the ministry, especially in improving the quality of industrial human resources and improving the quality of industrial vocational education. This Strategic Plan contains vision, mission, strategies, policies, programs and development activities as well as indicative budgets by the main tasks and functions of the industrial education and training centre.

Although the Strategic Plan was prepared two years before Inpres 9 of 2016 it seems that most of these documents have been substantially included in the Inpres. There are also two priority activities funded from 2015-2019, namely improving the quality of industrial human resources and improving the quality of vocational industry education with a total budget requirement of IDR 3.75 trillion. Improving the quality of industrial human resources has targets related to Inpres No. 9 of 2016, including training, certification and placement (3-in-1) prospective workers. Then it also included facilitation of competency certification, SKKNI preparation in the industrial sector, the establishment of LSP and TUK, education and training in licensing and competency assessments and development of supporting facilities and infrastructure.

Meanwhile, to improve the quality of industrial vocational education, it includes industrial administration in 9 specialization and competency based Vocational Schools, holding vocational higher education in 8 industrial polytechnics and community academies, establishing D1 and D2 at the Polytechnic and Community Academy, supplying laboratory equipment at Polytechnics and Vocational Schools to support facilities and infrastructure. However, the range of involvement of SMKs and polytechnics is generally limited to SMKs and Polytechnics which are directly fostered by the Ministry of Industry so that in the future it needs to include the target of public and private Vocational Schools, Private Academy and Polytechnics under other ministries in order to accelerate the overall quality of SMKs, Academies and Polytechnics.

On the other hand, this document does not seem to have answered the demand side relating to development projections, the type of competency (job title), and the location of the industry especially those related to vocational graduates need to be done. At least with the planned development of Industrial Estates that have been included in the 2015-2019 agenda. It also relates to cooperation with the industrial world for work practices in internships (PKL) and apprenticeship programs for educators and vocational education staff. This is important considering that in all locations at the provincial level there are potential industries as the location PKL and apprenticeship programs. Finally, this document needs to prioritize the teaching factory as a priority activity in the future period.

2. MOM DG of Training and Productivity Development Strategic Plan 2015-2019

The Development Strategic Plan 2015-2019 of Directorate General of Training and Productivity of MOM aims to provide guidelines in the planning and implementation process of manpower in term of training and productivity for the period of 2015-2019. This document is not specifically designed to revitalize TVET in Indonesia. It is developed before the issuance of the Inpres No. 6 of 2019. As the standard planning document, this document consists of policy, development strategies, regulation framework, institutional framework, and performance targets and budgeting for training and productivity of manpower during five years.

Priority activities for training and productivity of manpower during 2015-2019, among others are: improving the competency and productivity of labors, developing standardization for competency and training, enhancing the capacity and productivity of training institutions, improving the competency of instructors and trainers, developing domestic and international internship programs, developing system and implementation of professional competency certification, improving productivity, management and technical support. The Development Strategic Plan 2015-2019 of Directorate General of Training and Productivity of MOM aims to provide guidelines in the planning and implementation process of manpower in term of training and productivity for the period of 2015-2019. This document is not specifically designed to revitalize TVET in Indonesia. It is developed before

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3. National Standardization Agency Strategic Plan 2015-2019

This Strategic Plan was prepared by the National Standardization Agency (BSN) as guidance in implementing BSN's duties, functions and authorities in the formulation, implementation, monitoring, evaluation, and reporting of programs and activities, as well as measuring the accountability of BSN's performance during 2015-2019. The Strategic Plan contains the vision, mission, goals, objectives, policy directions, regulatory and institutional frameworks, performance targets, and funding frameworks prepared based on the 2015-2019 National Medium-Term Development Plan (RPJMN). The BSN Strategic Plan contains a number of key strategies, including the development of the standardization system and suitability assessment, standardization research and development, standardization cooperation, improved laboratory accreditation and inspection institutions (national priority activities to increasing certification institution accreditation and implementing standards).

The Strategic Plan was prepared before Inpres 9 of 2016 was drafted so that the content was the implementation of duties, principal and functions of BSN in standardizing a competency, including SKKNI proposed by other ministries. It is important for this document to contain specific policies and programs in order to accelerate competency certification for SM graduates. It also includes accelerating competency certification for educators and vocational education staff and accelerating licensing for SMKs as first-party professional certification institutions.

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4. Presidential Instruction 9/2016 on Revitalization of Vocational Secondary School

Presidential Instruction (Inpres) 9/2016 on ‘Revitalisation of Vocational Senior Secondary Education to Improve the Quality and Competitiveness of Indonesian Human Resources’ was issued to improve synergy among vocational school’ stakeholders. More specifically this gave instructions to twelve cabinet ministries²², one non-ministerial agency, the National Board for Competency Certification (BNSP), and all provincial governors to share responsibility and work hand in hand to revitalize the senior secondary vocational school system. The actions require work at both supply and demand side, although the supply side works still dominate the overall image of the policy instrument.

The key point of the instruction was to link the national competency standards (SKKNI) with the learning process, including internships and apprenticeships, and competency certification of SMK graduates. To achieve this, the Inpres highlights the need to realign curriculum to the needs of the business and industry, the world of work. This would necessarily include improvement of teaching materials, strengthening of practical skill training, and strengthening of evaluation and certification. The need to involve business and industry in training was also highlighted, acknowledging they are the ones who really understand the skill needs, particularly in the priority economic sectors.

Reflecting on the detailed assignment in the Inpres, although it is not mentioned clearly in the document, it is easy perceive that on the supply side the lead agency is the

²² The twelve cabinet ministries include Ministry of Education and Culture, Ministry of Research, Technology, and Higher Education, Ministry of Industry, Ministry of Manpower, Ministry of Transportation, Ministry of Marine and Fisheries, Ministry of State Own Enterprises, Ministry of Energy and Mineral Resources, Ministry of Health, and Ministry of Finance.

Ministry of Education and Culture (MOEC) and provincial government, and on the demand side the lead agency is the Ministry of Manpower (MOM). On the supply side, MOEC is tasked with; (a) improvement and alignment of the curriculum in order to produce graduates with competency matching the need of the world of work, business and industry world; (b) development of strategy to improve teachers, particularly productive teachers, and support staff for vocational schools in terms of numbers and quality and competency; (c) development of strategy to promote cooperation and synergy among relevant ministries, regional governments, and business and industry worlds; (d) development of strategy to improve access to accreditation for vocational schools and skill certification for vocational school graduates; and (e) development of a roadmap for the overall vocational school revitalization. Provincial government as the level of government responsible for provision of education services at the senior secondary level is tasks with improving access to vocational education.

On the demand side, Ministry of Manpower (MOM) is tasked with development of projection of demand for vocational school (SMK) graduates by level of competencies, types (of occupation), number (quantity) of manpower needed, location, and time (when they are needed). Besides this challenging task, MOM is also tasked to open up their training centers (*Balai Latihan Kerja-BLK*) facilities and equipment to SMK students to gain practical experience. In relation with this, and more on the supply rather than demand side, BNSP is tasked with accelerating competency certification of SMK graduates.

Ministry of Research, Technology, and Higher Education (MORTHE), despite the role to manage vocational education at the tertiary level, as far as Inpres 9/2016 is concerns, plays a supporting task, to produce skilful teachers for vocational schools. Other sector ministries, including Ministry of Industry (MOI), Ministry of Transportation (MOT), Ministry of Health (MOH), and Ministry of Marine and Fisheries (MOMF), despite their ownership of vocational schools in their relevant fields, are positioned to play supporting roles. The roles generically include development of industry specific competency standards (SKKNI), to provision of wider access for vocational students and graduates to skill certification, and to facilitate access to industry for vocational school students. It is interesting that the Ministry of Tourism which owns and manages tourism schools at the secondary level and has also been actively developing industry competency standards is not included in the Inpres 9/2016.

An important, facilitating, the assignment was given to the Ministry of Finance (MOF), to develop norms, standards, procedures, and criteria (better known as NSPK) to support SMK's teaching factory financial management, to ensure effectiveness, efficiency, and accountability. This was underlined by the following task for MOF to deregulate regulatory framework hindering SMK development and revitalisation. Implementation of the task given to MOF is really crucial for development and revitalisation of SMK, for financial management issues is the most constraining for the badly needed effective teaching factory.

Having said that, it must also be acknowledged the fact that the current State Finance Law (17/2003) is not accommodating to the idea of reforms.

5. MOI Regulation on Guidelines for Nurturing and Development of Competency-Based SMK and Linked and Matched with Industry

The Minister of Industry Regulation No. 3 / M-IND / PER / I / 2017 aims to provide guidance for; (i) Vocational Schools in developing and conducting competency-based vocational education that links and matches Industry; and (ii) Industrial Companies and / or Industrial Estate Companies in facilitating the development and development of Vocational Schools to produce competent Industrial workforce. Nevertheless, this legal basis has not included Inpres No. 9 of 2016 as a consideration and does not include development projections, types of competencies (job titles), and industrial locations specifically related to vocational graduates, as mandated in the Inpres 9 of 2016.

This Minister of Industry Regulation contains several important things, namely learning is carried out through curriculum development, fulfilment of vocational teachers in productive study and industrial apprenticeship. This regulation also encourages industrial work practices for students and industrial apprenticeships for teachers in productive studies where the industry provides teaching factories, workshops, and/or laboratories and instructors. The preparation of the curriculum itself must involve industry associations, industrial companies and or industrial estate companies. While the position of professional associations has not in a place, even though in practice, professional associations are quite involved in the preparation of SKKNI. In addition, this regulation also does not encourage a broader role in the industry to encourage an increase in normative teachers to become adaptive teachers. Even though this is important considering the number of vocational school teachers in normative studies is more than three times that of existing productive vocational school teachers.

Competency development is carried out through teaching factories and/or laboratories as well as competency infrastructure in the form of SKKNI, LSP, TUK, and competency assessors. However, the development of training, certification and placement (3-in-1) has not been an important consideration in this regulation. This approach is the most complete for SMKs to link and match with the industrial world. Placement does not seem to be an obligation for the Ministry of Industry but also requires other parties to encourage SMK graduates who are certified to immediately get jobs in industry.

At the end of this document, the provision of incentives for industries that carry out guidance and development of Vocational Schools is based on applicable regulations, but the direction has not been explained, whether in fiscal or non-fiscal forms. This is probably due to the Ministry of Finance not issuing regulations related to fiscal incentives and other forms related to vocational education and training conducted by the industrial world. Fiscal

incentives should be part of the norms, standards, procedures and criteria (NSPK) prepared by the Ministry of Finance.

6. MOEC Roadmap for Senior Secondary Vocational School (SMK) 2017-2019

This roadmap was designed by the MOEC aiming to prepare graduates of SMK with the attitude, knowledge, and technical skills needed for businesses and industries of the 21st century. The roadmap covers priority programs for developing SMK, such as synchronization and improvement of the curriculum; increasing the number and the competence level of teachers and administration staffs; enhancing the cooperation among SMK, government ministries/institutions, local governments, and businesses/industries; certification of the graduates; and accreditation of the SMK. The roadmap is basically in line with the Inpres No of 2016 on the Revitalization of Vocational Secondary School and the Draft Roadmap for Indonesia Human Resource Development 2018-2020. The development of SMK in Indonesia will be based on a demand-driven approach so that the graduates can meet the required skills by businesses and industries.

The road map also illustrates the condition of the SMK in sufficient detail, regarding the number of SMKs, the level of education of the vocational teacher and the quality of the SMK education unit. It firstly describes economic issues and labor markets in Indonesia, the challenges of industry revolution 4.0, and the national development priorities. Secondly, it describes the existing condition of TVET in Indonesia as one of the programs to meet the challenges of the industry and to meet the national development priorities. Lastly, the roadmap covers vision, objectives, programs and strategies to enhance TVET in Indonesia in 2017-2019.

However, a more detailed picture of the condition of SMK staff and how far the cooperation of SMK with the business world and the industrial world has been carried out has not been supported by supporting facts. The same things as the quality of vocational students, curriculum conditions and accreditation and certification of vocational competencies have also not been described more clearly. This has become the foundation of several strategies and priority activities in the development of SMK, including the determination of targets to be achieved.

Priority activities for the development of Vocational Schools in 2017-2019 have basically been quite complete. However, the target to be achieved until 2019 where the target of revitalizing SMK is 1,650 SMKs seems to be not consistent with the target of priority activities until 2017-2019 which is much lower. In the target of this activity, revitalization of SMK seems to be interpreted as the implementation of 4-year program alignment (dual system) and SMK that carry out the teaching factory. Whereas in Inpres 9 of 2016, revitalization of SMK also concerns curriculum, teachers and education personnel, cooperation with business / industry to competency and certification. It might also need to

be added to this road map, the part of the SMK revitalization priority program that seems lost in the roadmap structure as well as a more detailed description of some of the strategies that want to be applied, especially relating to access to certification of SMK students.

7. MORTHE Vocational Higher Education Revitalization Program and Curriculum Development to Improve “Link and Match” with Industry 2017-2019

This plan was developed by the Ministry of Research, Technology, and Higher Education (MORTHE) in response to Inpres 9/2016. Although revitalization of vocational higher education was not covered under the Inpres, development this program represents a positive response on the part of MORTHE²³The program is in line to the Inpres and at the same time reflect the understanding that the real need for revitalization covers the whole national TVET system, encompassing both formal education, at secondary and tertiary levels, and non-formal education and skill training.

The program aims to: (i) improve the relevance of education in polytechnics the meet the demand of industries; (ii) encourage specific competencies in polytechnics according to their local potentials; (iii) update the teaching methods, teaching equipment, and provide certificate of competence in addition to diploma certificate; (iv) improve the bargaining power of the polytechnics to work together with industries and similar institutions from developed countries; and (v) increase the efficiency of teaching system by utilizing the training materials into products with economic values (teaching industry).

Specifically, the program includes the revision of polytechnic curriculum in cooperation to industry, preparation of industrial lecturer, implementation of dual system 3-2-1, development of teaching factory, re-tooling and certification of polytechnics' lecturers, preparation of polytechnics as a place for competency test (*Tempat Uji Kompetensi-TUK*) and as the institution of professional certification (*Lembaga Sertifikasi Profesi-LSP*), certification of polytechnics graduate, and provision of productive high school teachers. In implementing the programs, it allocated IDR 398 billion from the government budget for the revitalization of higher education.

The document is basically in accordance to the Inpres No of 2016 on the Revitalization of Vocational Secondary School as the roles of MORTHE to provide teachers for SMK and development of study programs at the university level to provide teachers needed for SMK. However, one of the mandates in the Inpres 9 of 2016 is development of study programs in higher education to produce vocational teachers needed by SMK not yet facilitated in this program even though there are activities to provide productive teachers.

²³ As briefly described in the previous section on the Inpres 9/2016, MORTHE was tasked mainly to support the development of SMK by means of expanding capacity and quality of senior secondary vocational school teacher training.

There is even a moratorium policy for the establishment of non-Science, Technology, Engineering and Mathematic (STEM) study programs. Whereas in the future there are several needs of the business community regarding the tourism sector and services that require the development of relevant study programs, in accordance with the private sector in the ASEAN Economic Community. Finally, the revitalization of vocational higher education is aimed at 12 polytechnics during the 2017-2019 periods. Of course, there should be at least 27 other state polytechnics that need to be targeted and 1,150 private polytechnics and vocational colleges.

8. CMEA Indonesia Vocational Development Policy Roadmap 2017-2025

The roadmap prepared by the Coordinating Ministry for Economic Affairs provides an overview of future employment conditions from 2017 to 2025. The roadmap aims to depict future Indonesian labor market until 2025 and the skills needed by TVET graduates to meet the labor market. In other words, this roadmap describes the demand side for revitalizing vocational education in Indonesia. This document includes the current profile of TVET in Indonesia (SMK, BLK, Polytechnic), the current profile of TVET employment (industrial growth and absorption rate of the vocational graduates), and the planning for the TVET graduates in the future. The roadmap concludes by providing policy recommendations for TVET revitalization in Indonesia.

The main content of the roadmap is the planning of TVET graduates to meet the future labor market in Indonesia. It covers the Indonesian economic outlook, demographic trend, and economic sectoral growth until 2045, and highlights change of technology and automatization and its impact to the TVET graduates. The future labor demand of the TVET graduates is firstly projected based on the sector of the Indonesia Stock Exchange using Global Industry Classification Standard (GICS), which is based on the projection the future labor demand is in the sector of information technology, healthcare, and consumer staples. However, the use of GICS as the base in projecting the sectors is different from the real sector, hence the assumption of priority sectors is different from the priority of vocational sectors. Furthermore, the roadmap projects the employment potential for the TVET graduates based on the Indonesian superior products. The potential sectors that are projected can absorb the TVET graduates are: oil palm, swallow nets, rubber, and e-commerce platform industry such as: furniture, food and beverages, agriculture, beauty and care, home and garden, energy, construction and real estate, textile and leather products, electronic consumers.

Following the projection from the demand side, the roadmap further projects future field of works for the TVET graduates to meet the future labor demand. There are 30 prospective work field for the TVET graduates in the following sectors: infrastructure and transportation, energy, utility, consumer discretion, healthcare, consumer staples, materials, and information technology. However, the roadmap does not mention the estimated number

of workers in each of the work field. Despite the details sectors mentioned in the roadmap, further analysis is needed to match the sectors to the current competencies and certification of TVET, such as the 146 competencies of SMK and the certification of BLK graduates.

The final part of this roadmap contains policy recommendations covering focus on the leading economic sectors, focus on the majors of TVET, the need of labor market, and information access of labor market. The issue of TVET is mostly in term of quality not quantity. Hence, the roadmap recommends on how to improve the quality of TVET. The TVET has to be developed in line with the potential industrial sectors such as: agribusiness, tourism, healthcare, e-commerce, and export workers. SMK, BLK and Polytechnics has to be focused in the following majors: information technology, healthcare, consumer staples, durable goods, office services, consumer discretionary, construction and transportation, and energy.

Lastly to revitalize TVET, it is recommended to revise SMK curriculum, enhance teachers' competency by providing productive teachers, revitalize facilities and infrastructure of TVET, and provide online job platform. Despite the comprehensive projection in this roadmap, especially from the demand side, a further analysis is required to implement the policy recommendation, such as an institutional and funding framework for TVET revitalization for the period of 2017-2025.

9. CMHDC Draft Roadmap for Indonesia Human Resource Development 2018-2020

The Draft Roadmap for Indonesian Human Resources Development 2018-2020 was developed by the Coordinating Ministry of Human Development and Culture (PMK) as a policy framework of human resources development in Indonesia, which covers policy, strategies, challenges, and priority programs for human resources development in Indonesia. The roadmap was developed by referring to the Medium-Term National Development Planning (RPJMN) on human resources development 2015-2019 to produce Indonesian professional labors facing the ASEAN Economic Community. The priorities of human resources development in Indonesia among others include an improvement of TVET. Other priorities include improvements of the quality of teachers, educational facilities, teaching quality, educational institutions, quality assurance, and early childhood education.

For the revitalization of TVET from the supply side, this roadmap covers vocational high schools (SMK), polytechnics and academies, and non-professional trainings, whereas from the demand side it mentions about 12 sectors and 8 professions needed in the ASEAN Economic Community, such as doctors, engineers, dentists and accountants. There are five priority programs of TVET in this roadmap, which are (i) enhancement partnership with business and industry; (ii) improvement teaching quality; (iii) education and training for entrepreneurship; (iv) improvement of educational facilities; and (v) improvement the

quality of teachers. According to the roadmap, the current development of TVET in Indonesia is still supply-driven (school) and has to be shifted into demand-driven (industry). As the focus of TVET will be demand-driven, priority target of businesses and industries with specific requirements of labors need to be firstly determined. Hence, the TVET can be designed to meet the demand of labors so that the graduates will have the required skills and knowledge for the businesses and industries.

This roadmap has covered overall strategies of human resources development in Indonesia, especially from the supply side. However, this roadmap has not discussed the legal position of the road map between summative human resource development planning documents, including translating the duties of the Coordinating Ministry for Human Development and Culture (PMK) in the Inpres 9 of 2016 as an institution authorized to conduct monitoring and evaluation of revitalization of vocational education. Improvement TVET in Indonesia requires coordination among related ministries at the central government (such as MOEC, MORA, MORTHE, MOF, MOI, etc.) and local governments. Further technical regulations under the related line ministries need to be developed to assure the implementation of the programs, such the financial resources to support the programs.

10. MOM Grand Design of National Vocational Training 2018

Grand design compiled by the Directorate General of Training and Productivity Development, the Ministry of Manpower aims to alleviate unemployment through vocational training with the target of training, certification and placement. This means that the 3 in 1 approach is the main approach in national vocational training even though there are more varied variations in it. This approach was carried out at the national vocational training for Special Economic Zones, Priority Industrial Zones, 35,000 MW Projects, Sea Toll Projects and Infrastructure Projects. This implies that the projections of labour requirements are only focused on the national projects above, while the projections of vocational graduates' workforce requirements which include the level of competence, type, number, location and time have not been explained, as mandated in the Inpres 9 of 2016.

This grand design also illustrates the map of government, private BLK, industry apprenticeship, ministry training institutions and the potential and conditions of national vocational training. However, the picture of the capacity of government, private BLKs and the diversity of industries and ministry training institutions is much higher (above 1.8 million people) while institutional capacity and funding range from 1.48 million people. This indicates that under utilized from the national vocational training infrastructure. This gap seems to need to be deepened in this grand design document.

There is an institutional scheme for accelerating access and quality of vocational training with five strategies implemented (labour market information, competency standards, vocational training, accreditation and certification). The institutional scheme at the central level is carried out through a single information system for vocational training,

while at the regional level there is a provincial vocational training communication forum. At the national level, the structure seems like a top-down structure with the responsible person being the President rather than the three coordinating ministries below. This will certainly be less effective considering the main problem is coordination between ministries / institutions and the too large a task of the President to deal with national vocational training. At the regional level, the main task of coordination is carried out by the Governor, considering that most of the national vocational training participants are SMK graduates who are under the authority of the province. This structure is basically quite good but will be a problem regarding the focus of training on national projects (Special Economic Zones, Priority Industrial Zones, 35,000 MW Projects, Sea Toll Projects and Infrastructure Projects), most of which are at the level of the central government and/or state own enterprise. If not done, a 3 in 1 approach will be difficult to be implemented.

This grand design is only very short term, which is one year. This can be seen from the Workforce and Productivity Competency Improvement Program with a budget of IDR 2.2 trillion in 2018. For this reason, it is necessary to consider the scope of the validity period of this grand design considering there are several priority activities whose dimensions are the medium term or valid for five years, such as competency-based training, productivity training, entrepreneurship training, apprenticeship, instructor training and certification training.

11. Chamber of Commerce Grand Design of Vocational Training Development 2018

This grand design was arranged by the Indonesian Chamber of Commerce and Industry (KADIN) in hopes of collaboration and partnership between the Government, Industry and the world of vocational education and BLK. By due to, to meet the industry needs, SMKs and BLKs must synchronize training programs and industrial work practices. This document also contains several key issues, the development and development of human resources, developing the concept of vocational training and ideal apprenticeship, developing link & match programs that are accompanied by strengthening stakeholder relations in vocational training. In addition, it also contains training and socialization of vocational training programs for the industry.

However, expectations of the picture of demand in the development of vocational education have not been presented in its entirety. Demand described as competencies, dimensions and levels of workers, but the sectors, industries, types of work, competencies and standardization (SKKNI) needed have not been further reviewed. While from the supply side it was mentioned about Vocational Schools, Vocational Schools, Polytechnics, Universities, and BLK, PBK (Training) and teaching factories. However, the choice of 10 supply-side priority sectors, namely health, tourism, logistics, travel, agro, electronics, fisheries, plantations, textiles, automotive has not been clearly described.

Other content related to the institutional acceleration of vocational training and the establishment of regional vocational and productivity committees. This should be appreciated considering that there are not many planning documents that discuss national institutions, including Inpres 9 of 2016. However, the institutions described are still "liquid" and not yet in detail the position of each ministry/government institution, including coordination functions. Of course, this will be interesting from the internal side of the business world and the industrial world to be more actively involved in revitalizing vocational education.

This document is limited to only three years without any limitations when this road map is executed and when it ends. The funding framework from the business world and the industry itself is also not including. In addition, this document also does not contain important issues related to the industrial world, including increasing access to vocational schools for field practice, internships and collaboration in the preparation of SKKNI.
