

# **KRIVET-SEAMEO VOTTECH Joint International Seminar**

**Current Status and Future Directions of Vocational and  
Technical Education in Korea and Southeast Asia**

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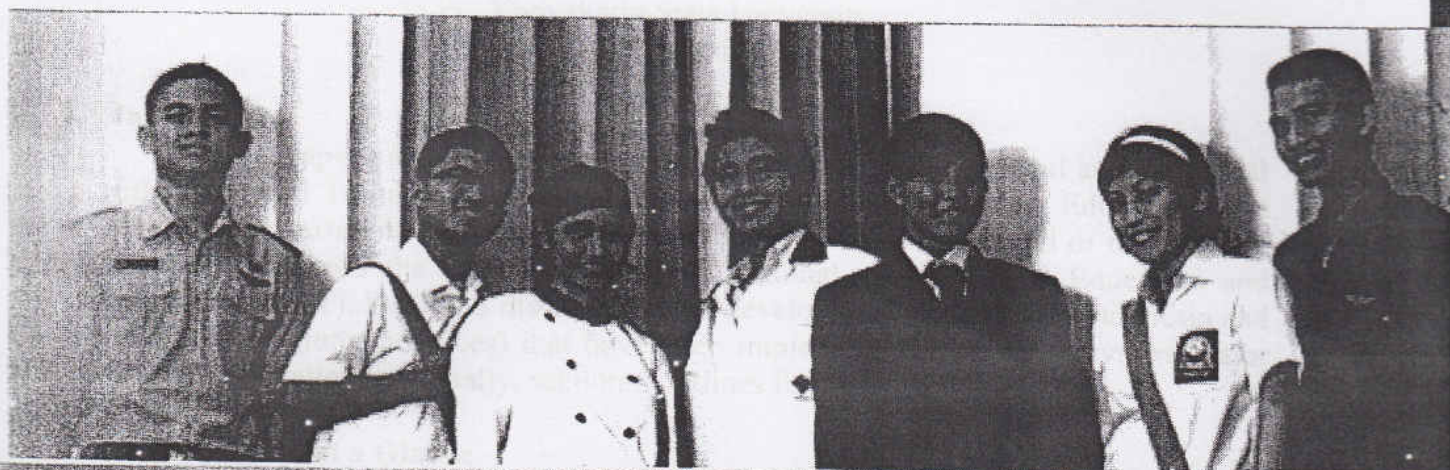
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# **Current Status and Future Directions of Vocational and Technical Education in Indonesia**

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## **Current Status and Future Directions of Vocational and Technical Education in Indonesia**

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### **I. Introduction**

This paper presents a brief overview of Indonesian Vocational and Technical Education and Training. It focuses on Vocational Senior Secondary Education. The report is organized as follows. Section 1 provides a brief background of the country. Section 2 reviews the current status of Vocational and Technical Education and Training (VTET). Section 3 discusses recent developments in VTET in Indonesia and policies (programs/practices) that have been implemented. Section 4 reviews major issues and challenges. Finally, section 5 outlines future plans.

#### **A. Indonesia at a Glance**

Indonesia is the largest archipelago in the world. Located in Southeast Asia, Indonesia consists of more than 17,000 islands and islets, 6,000 of which are inhabited. The population of Indonesia is widely dispersed and many of the people are located in remote and isolated areas. In 2008, the population of Indonesia is estimated at about 241 million. Currently, Indonesia is the fourth most populous country after the People's Republic of China, India, and the United States. The country is divided into 33 provinces and each province is governed by a governor. There are more than 300 ethnically distinct groups who speak about 583 local languages and dialects. The average population density is slightly over 100 persons per sq.km. However, there is wide variation in population density, ranging from a few people per sq.km. in Irian Jaya province, to nearly 1000 per sq.km. in densely populated provinces on Java. The national language is 'Bahasa Indonesia' or Indonesian, and it is the medium of instruction in schools from primary up to higher education. In several areas, local languages are also used as the medium of instruction in the first two years of primary education.

Indonesia ranks as a low or lower-middle income country, with a real Gross Domestic Product of Rp 2,082,103.7 billion (2008). Manufacturing is the largest contributor to GDP. In terms of HDI, Indonesia's ranking remains disappointing at 109 out of 179 countries, in 2008. The education profile of the labor force is dominated by the labor force having only, at most, primary education, which is 52%. The labor force holding senior secondary education is 22%. Nineteen percent have junior secondary education, and only 7% graduated from higher education institutions.



## **B. Brief Vocational and Technical Education and Training (TVET) in Indonesia**

Technical and vocational education had been in Indonesia before the proclamation of independence. The main purpose of the education was to give basic knowledge and skills needed by Indonesian people. At that time, the knowledge and the level of skills supporting national development were not taken into account. (Soenaryo et al., 2002).

VTET plays a key role in providing employable skills to youths and adults, enabling them to avail the opportunities for better employment and higher earnings resulting in a better standard of living for them and their families. VTET certainly has a strategic position for designing school-to-work-transition and forms an important basis for life-long learning. Therefore VTET must work together to develop human resources for emerging knowledge economy (Masriam Bukit, 2008).

Technology development requires the establishment of vocational education owing to the changes in the current social and economic structures that lead to the global paradigm. Such changes will provide many more job opportunities among countries. However, the competition among countries is tighter. To improve the competitive capacity through free trade, tough competitive power is needed, such as the capability of management, technology and human resources. Human resource is an active resource that can determine life and achievement in the competition. Education has a strategic role in producing qualified human resources to compete in the free market. In this case, vocational education prepares students or human resources to have the working capacity as medium-skilled workers to meet the demands of the business and industrial sectors. The role of vocational education in Indonesia is becoming more significant due to the research showing that vocational senior secondary schools contribute to the local economic growth and specifically vocational schools majoring in technology make a positive contribution to the growth of the manufacturing industry (DPSMK<sup>a</sup>, 2008; DPSMK<sup>b</sup>, 2008).

In summary there are at least five strategic roles that vocational education plays:

- a) Vocational education improves the quality of the Indonesian labor force, particularly for mid-level workers.
- b) Vocational education ensures life skills and employment readiness for those not continuing on to postsecondary education
- c) Vocational education fulfills the need for mid-level workers in the sectors of manufacturing, industry, construction, mining, trading, social services, tourism, information and communications technology (ICT), agriculture, technology and arts.
- d) Vocational education reduces the level of unemployment in Indonesia.
- e) Vocational education drives the economic growth.





## **II. Current Status of Vocational and Technical Education and Training (VTET)**

### **A. Policies.**

In general, vocational and technical education and training in Indonesia can be divided into two groups, formal vocational education and non-formal vocational education. In the formal education area, vocational education in Indonesia starts at the level of senior secondary school. The length of study at schools is three years. By considering the scope and the level of competency that should be achieved, if the board of national standard for competency wants to extend the length of the study for more than three years, the maximum length of study could be extended for two semester or to four years in total.

Non-formal vocational education is performed by developing skills and expertise through Training Providers/Institutions (Lembaga Pendidikan Keterampilan: LPK/Kursus), Job Training Centers, Community Colleges or Career Centers to gain certain skills or expertise. Usually, skills training is conducted by private institutions under the supervision of the Directorate of Course and Institution, the Directorate General of Out of School Education, the Ministry of National Education, and Job Training Center training is conducted by the Ministry of Manpower and Transmigration, for community colleges training is conducted by Vocational Secondary Schools, colleges having study program of vocational education, or other education institutions.

Before independence, schools in Indonesia were classified as schools for women, schools of engineering, schools of agriculture, and schools of commerce. After independence schools were classified as schools of household affairs, engineering education, and agriculture education (Soenaryo et al., 2002). Since August 2008, the spectrum of vocational senior secondary education expertise has been classified into 6 fields of study: technology and engineering; information and communication technology; crafts; tourism; agribusiness; and agro technology; business and management.

In response to human resources development in Indonesia, a strategic decision was made by the government to increase the proportion of VTET students population compared to general school students. According to the Indonesian National Strategic Plan, by 2025, the comparison between VTET students population with the general school population is expected to be 70% to 30%. The trend of changing the student population in several cities or regions is showing positive signs. There are increasing numbers of so called "*City of Vocational*" in many municipalities in Indonesia. This trend of VTET development shows that, in Indonesia, VTET is increasingly considered as one of the three pillars of the educational system along with general school education and university education. To strengthen human resources in the areas such as forestry, agriculture, and plantation, the Ministry of National Education in Indonesia has developed TVET schools through collaboration with several Departments such as Forestry, Agriculture, Plantation, industry and Trade (Masriam Bukit. 2008).

Vocational Senior Secondary Schools are expected to be able to meet the challenge of the development of the country. Thus, in the 2005-2009 strategic



plan of the Ministry of National Education, the policy regarding the development of vocational schools is getting more attention. The expansion of access to SMA/SMK (General Senior Secondary Schools/Vocational Senior Secondary Schools) policy is more directed towards the expansion of vocational schools rather than general senior high schools in order to reach a balanced composition in the number of general high schools and vocational high school students (MoNE, 2005). To fulfill the needs of middle-level employment in the sectors of manufacture, industry, construction, mining, trading, social services, tourism, ICT, agriculture, and technology and arts, the government will ensure that student enrollments in Vocational Schools (SMK) would be significantly increased in 2009.

**Table 1. Ratio of Students of SMK: SMA**

2004	30:70
2005	32:68
2006	34:66
2007	36:64
2008	38:64
2009	40:60

Source: Strategic Plan Ministry of National Education The Republic of Indonesia 2005-2009.

Along with the main policies of the National Education Development the Directorate for Vocational Schools has set up several main targets to improve vocational schools capable of dealing with the competitive global environment.

1. The expansion of access to education:
  - Improving vocational school's capacity.
  - Increasing the role of local government in establishing SMKs.
  - Cooperative programs with local governments in establishing new SMKs.
  - Improvement in community/private sector participation in establishing new SMKs.
  - Establishing an alternative model of SMKs, etc.
2. Improving quality, relevance, and competitiveness:
  - Providing support facilities: libraries, laboratories, and workshops.
  - Developing Information Technology, including Information and Communication Technology Centers as well as computer labs and internet access.
  - Expansion and improvement of textbooks and reading materials.
  - Improving entrepreneurship in SMK.
  - Increasing business center in SMK.

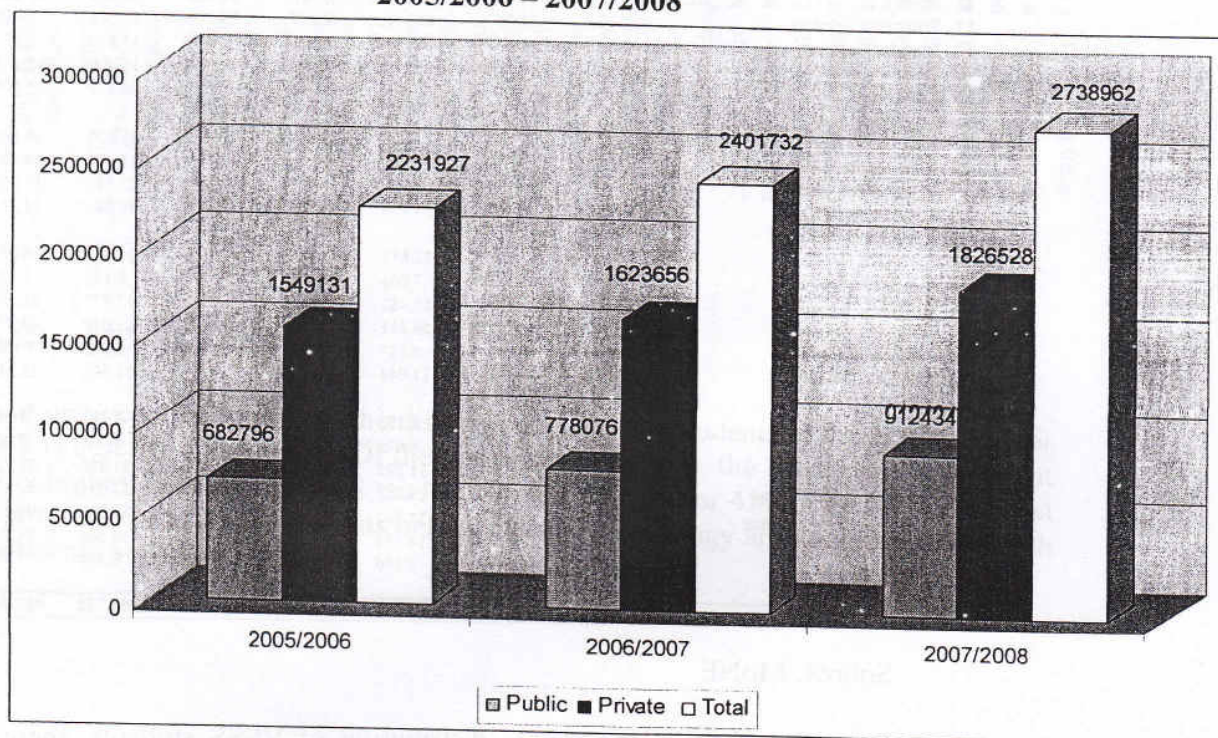


- Improving the average score in National Examinations, etc.
- 3. Strengthening management accountability and public image.
  - Capacity-building programs.
  - Improving the Quality Management System, etc.

## B. Enrollment

In line with the government policy to change the ratio between SMA:SMK (GSSS:VSSS), the goal is for the number of Vocational Senior Secondary Student constantly increase year by year. In the period of 2005/2006, the total number of VSSS student was 2,231,927. In the period of 2007/2008 the total number of VSSS students jumped to 2,738,962.

**Figure 1. Number of VSSS Students  
2005/2006 – 2007/2008**



Source: MoNE

Table 2 shows detailed information about the number of VSSS students in each province from the academic year of 2005/2006 to 2007/2008. A significant increase in the number of VSSS students occurred in all provinces. Over three years, the number of VSSS students rose by 22.72%.

**Table 2. Number of VSSS Students by Province  
2005/2006 – 2007/2008**

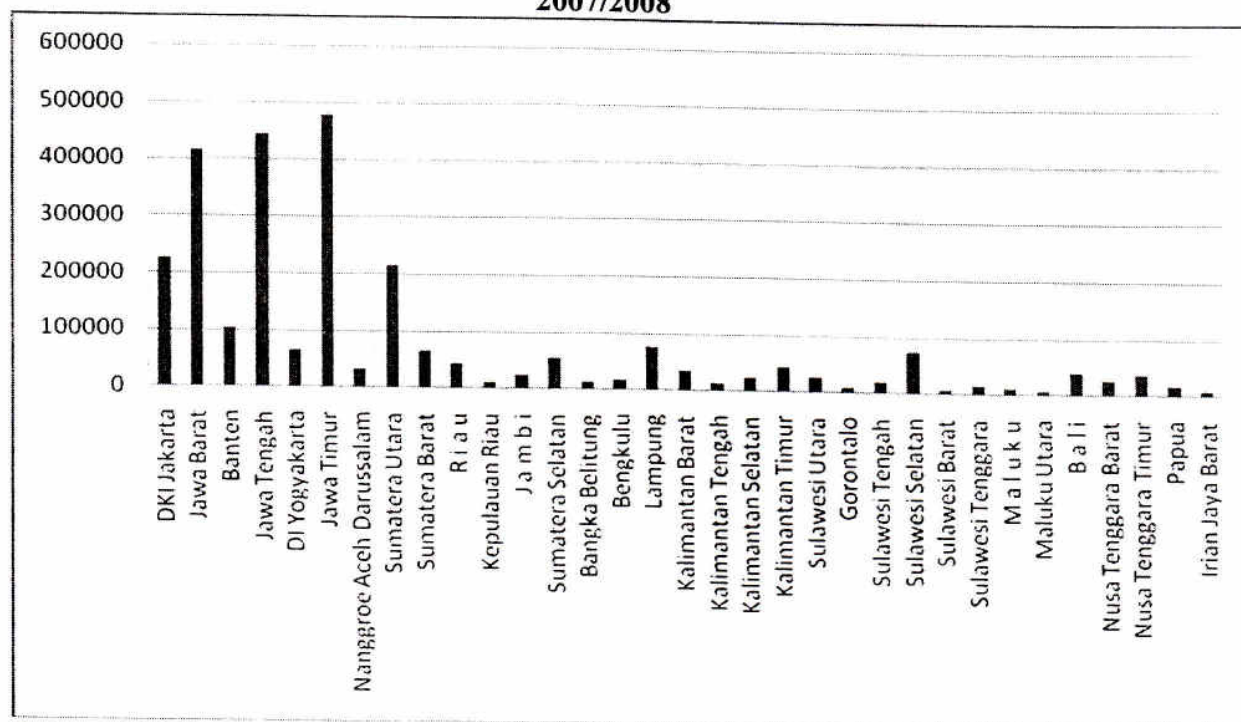
No. Provinsi Province	2005/2006			2006/2007			2007/2008		
	Negeri Public	Swasta Private	Jumlah Total	Negeri Public	Swasta Private	Jumlah Total	Negeri Public	Swasta Private	Jumlah Total
1 DKI Jakarta	42.072	152.627	194.699	44.117	162.422	206.540	47.623	180.185	227.808
2 Jawa Barat	65.356	251.305	316.661	79.768	276.376	356.144	96.326	320.617	416.943
3 Banten	12.334	71.936	84.270	15.187	75.356	90.543	18.056	87.371	105.427
4 Jawa Tengah	87.527	294.489	382.016	96.379	305.513	401.892	109.752	336.596	446.348
5 DI Yogyakarta	24.972	31.932	56.904	26.461	32.721	59.182	28.472	37.470	65.942
6 Jawa Timur	93.604	308.804	402.408	111.019	312.828	423.847	133.471	346.711	480.182
7 Nanggroe Aceh Darussalam	18.047	5.827	23.874	20.648	6.623	27.271	25.303	7.756	33.059
8 Sumatera Utara	40.419	142.125	182.544	45.691	145.958	191.649	53.988	162.055	216.043
9 Sumatera Barat	27.272	26.148	53.420	30.241	26.127	56.368	35.865	29.512	65.377
10 Riau	15.005	18.002	33.007	17.180	19.834	37.014	20.611	23.677	44.288
11 Kepulauan Riau	3.664	6.213	9.877	4.202	6.756	10.958	5.166	7.751	12.917
12 Jambi	9.863	10.206	20.069	10.515	10.923	21.438	11.827	12.479	24.306
13 Sumatera Selatan	18.083	28.067	46.150	20.067	29.276	49.343	22.489	32.360	54.849
14 Bangka Belitung	4.649	7.835	12.484	5.170	7.659	12.829	6.377	8.339	14.716
15 Bengkulu	8.560	4.830	13.390	10.023	5.377	15.400	12.139	6.025	18.164
16 Lampung	15.567	48.586	64.153	18.790	49.582	68.372	22.697	53.984	76.681
17 Kalimantan Barat	12.339	16.237	28.576	13.327	17.723	31.050	16.106	19.640	35.746
18 Kalimantan Tengah	7.339	2.794	10.133	8.185	3.116	11.301	10.167	3.654	13.821
19 Kalimantan Selatan	13.641	6.714	20.355	15.370	7.210	22.580	17.223	8.002	25.225
20 Kalimantan Timur	19.095	16.961	36.056	21.037	18.008	39.045	24.315	21.118	45.433
21 Sulawesi Utara	13.079	8.752	21.831	14.998	9.329	24.327	16.931	10.210	27.141
22 Gorontalo	6.063	1.000	7.063	6.973	1.217	8.190	7.957	1.430	9.387
23 Sulawesi Tengah	10.091	5.591	15.682	11.773	6.104	17.877	13.498	7.305	20.803
24 Sulawesi Selatan	30.944	28.867	59.811	34.634	30.412	65.046	40.672	34.787	75.459
25 Sulawesi Barat	3.304	2.813	6.117	3.830	2.776	6.606	5.108	3.612	8.720
26 Sulawesi Tenggara	9.945	1.999	11.944	11.482	2.113	13.595	13.512	2.479	16.001
27 Maluku	5.692	2.495	8.187	6.945	2.452	9.397	8.932	3.180	12.112
28 Maluku Utara	3.695	1.984	5.679	4.494	2.069	6.563	6.154	2.568	8.722
29 Bali	13.976	17.617	31.593	15.932	18.933	34.865	18.723	22.132	40.855
30 Nusa Tenggara Barat	17.224	3.232	20.456	19.321	3.920	23.241	23.127	4.998	28.125
31 Nusa Tenggara Timur	16.221	15.176	31.397	18.423	15.782	34.205	20.695	17.756	38.451
32 Papua	7.650	6.505	14.155	9.378	7.208	16.586	11.364	8.249	19.613
33 Papua Barat	5.504	1.662	7.166	6.516	1.932	8.448	7.788	2.520	10.308
<b>Indonesia</b>	<b>682.796</b>	<b>1.549.131</b>	<b>2.231.927</b>	<b>778.076</b>	<b>1.623.656</b>	<b>2.401.732</b>	<b>912.434</b>	<b>1.826.528</b>	<b>2.738.962</b>

Source: MoNE

In terms of the demographic distribution of VSSS students, there are five provinces, which had more than 200,000 students in academic year of 2007/2008. Jawa Timur is the province with the highest number of VSSS students – 480,182, followed by Jawa Tengah – 446,348, Jawa Barat – 416,943, DKI Jakarta – 227,808, and Sumatera Utara – 216,043.



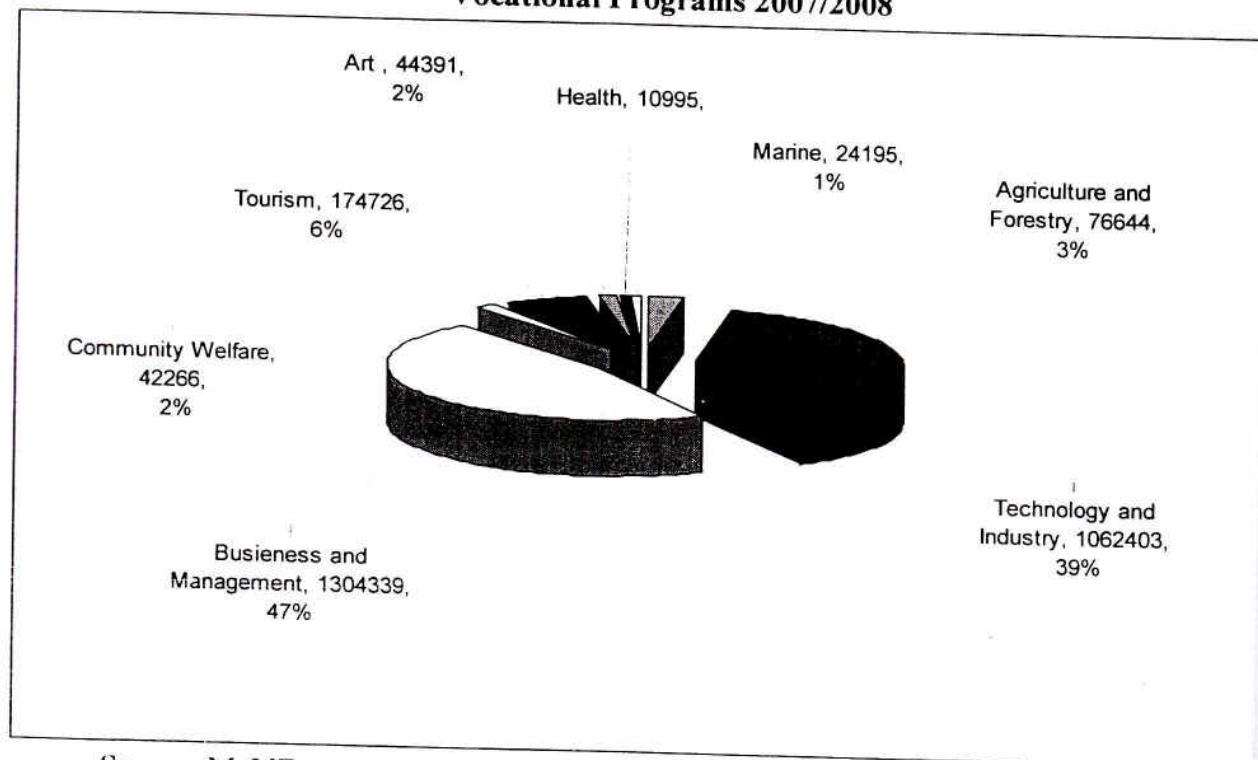
**Figure 2. Number of VSSS Students by Province  
2007/2008**



Source: MoNE.

Based on vocational program, the distribution of VSSS students in the academic year of 2007/2008 is described in figure 3. Of the vocational programs, the Business Management group has the highest number of VSSS students with 1,302,339 or 47%. The Second largest vocational program for of VSSS students belongs to the Technology and Industry group with 1,062,403 students or 39%.

**Figure 3. Number of Vocational Senior Secondary School Students by Vocational Programs 2007/2008**



Source: MoNE

### **C. Employment**

Relevance in technical and vocational education is assessed through employer satisfaction with the quality of graduates and labor market outcomes. VSSS graduates comprise 25% of the skilled labor force and outperform graduates of general schools. They have a higher labor force participation rate than General Senior Secondary School (GSSS) graduates—about 10% higher overall. Unemployment rates are lower than for diploma, academy, or university graduates. The wage returns are also impressive as these graduates not only outperform GSSS graduates in obtaining quality jobs but also earn slightly more (ADB, 2008).



**Table 3. Labor Force Participation and Earnings 2006  
(VSSS and GSSS Graduate)**

Item	General Senior Secondary School	Vocational Senior Secondary School	All Workers
Labor Force Participation	67.6	77.6	66.2
% of Total Labor Force	14.8	7.1	100
% in Formal sector	56.2	66.2	31.1
% in Informal Sector	43.8	33.8	68.9
% Unemployed	18.1	17.3	10.3
% Underemployed	13.5	13.2	27.4
Earning in Rp/month (formal sector)	1,045,303	1,079,580	997,000

Source: SAKERNAS 2006

### III. Recent Developments and Policies (programs/practices) that have been implemented

The development of vocational senior secondary education in Indonesia has been achieved through several changes made for the sake of improvement. This is obviously seen from the government's efforts, starting from the procurement and improvement of facilities, graduates' as well as teachers' quality, and the revision of the curriculum. Hence, in the future Vocational Senior Secondary Schools are expected to be able to meet the challenge of the development of the country. The policy regarding the development of vocational schools is getting more attention, for example, by expanding the implementation of vocational schools in the form of Vocational Senior Secondary Schools, such as vocational schools in industrial areas, long-distance vocational senior secondary schools in Islamic boarding schools/other institutions, vocational schools in border areas, vocational schools in remote areas and villages, open vocational schools, and integrated secondary schools. To meet the needs of middle-skilled workers in the manufacturing sector, manufacturing industry, construction, mines, trade, social services, tourism, telecommunication, information and communication, agriculture, technology and arts (cultural conservatory), the government is planning to increase the number of vocational schools' students significantly until 2009 (Pusat Informasi dan Humas Depdiknas, 2007).

To improve the quality of the graduates from Senior Vocational Schools, the Department of Education and Culture since 1993, has applied a link and match policy at the schools. The link and match concept focuses on providing competency to the students (theory at schools) and practice with industry to obtain a balance between the educational and industrial sectors, relevant to demand. Even the orientation of the demand is developed by considering local, national, regional and global/international demand. The Directorate of Vocational Education has been making several efforts to improve the quality of the graduates of vocational senior secondary schools. The application of the link and match philosophy through the dual system is a significant effort to improve the quality of the graduates (Direktorat Menengah Kejuruan, 1994).

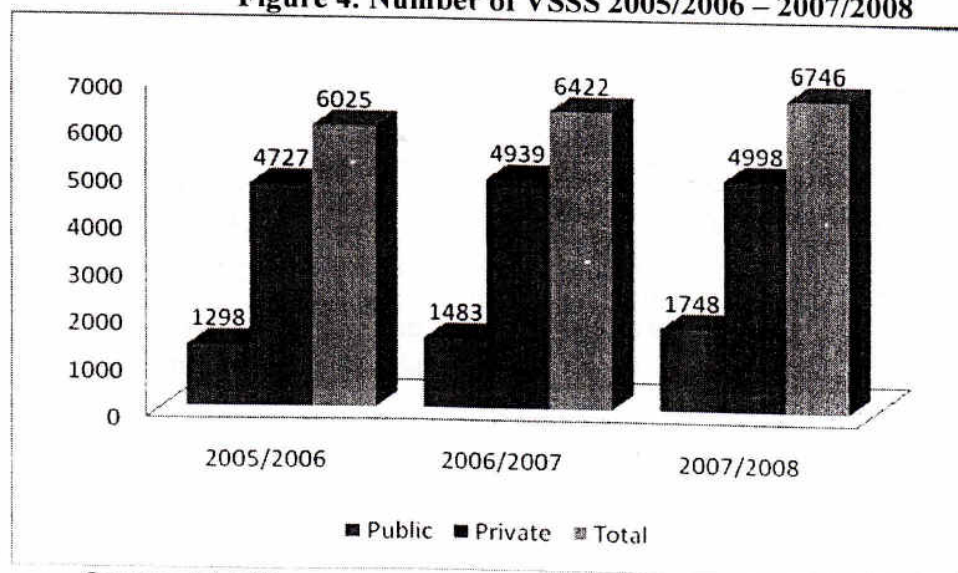


In line with national policy and by considering several problems as well as strategic issues in developing national education in the 2006-2010 road map of the management of vocational schools, the priority of the development and improvement program of the vocational schools has been established gradually and continuously. The priority is directed to: (1) The enlargement and fair distribution of the vocational school access by maintaining quality levels; (2) The improvement of quality, relevance, school competition, as well as guidance to several vocational international schools; and (3) The improvement of vocational school management by applying good governance principles.

1. The enlargement and fair distribution of the vocational school access by maintaining quality levels:

One of the implementation policies is to enlarge and distribute access, focused on increasing the number of Junior High School graduates continuing their studies in the Vocational Senior Secondary Schools; for example, by founding new buildings for vocational schools, providing new classes, conducting rehabilitation of the school buildings, founding new building units, developing long distance vocational schools at Islamic Boarding Schools and other institutions, founding new school buildings in the borders, developing vocation cities, pioneering vocational program at Junior High Schools, developing community-based vocational boarding schools, providing aid for students, and other programs. The growth of Vocational Senior Secondary Schools from 2005/2006 to 2007/2008 is shown in figure 4.

**Figure 4. Number of VSSS 2005/2006 – 2007/2008**



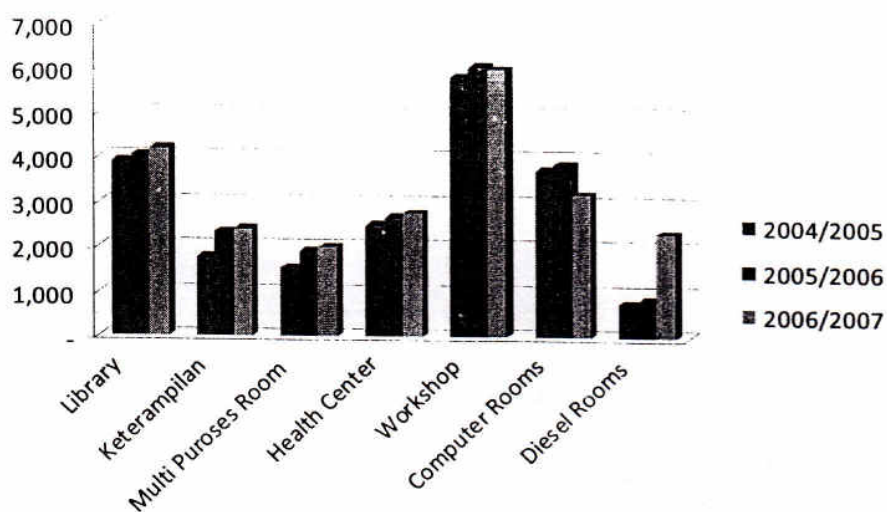
Source: MoNE

2. The improvement of quality, relevance, school competition, as well as guidance to several vocational international schools.



The efforts to improve the quality, relevance, and competition of the vocational schools is directed at improving the quality of the teaching and learning process as well as the graduates. This policy is implemented through strategic issues, such as: development of SMK with international standards, development of ICT, development of industry participation in SMK, development of key competencies, development of entrepreneurship, improving competencies of teachers and other educational staff, improving quality and relevance of TVET, repair and maintenance of TVET education facilities, development of competency standards, development of vocational school models, development of libraries, certification of competency, development of talent and interest clubs, certification of English language, scholarships, the aids of quality management operation of vocational schools, and student competitions. Figure 5 illustrates Vocational Senior Secondary Schools main facilities over three years from 2004/2005 to 2006/2007.

**Figure 5. Number Of VSSS Facilities  
2004/2005 – 2006/2007**



Source: MoNE.

3. The improvement of vocational school management by applying good governance principles. To assure quality management, Vocational Senior Secondary Schools in Indonesia are compelled to adopt the ISO 9001:2000 quality management system.

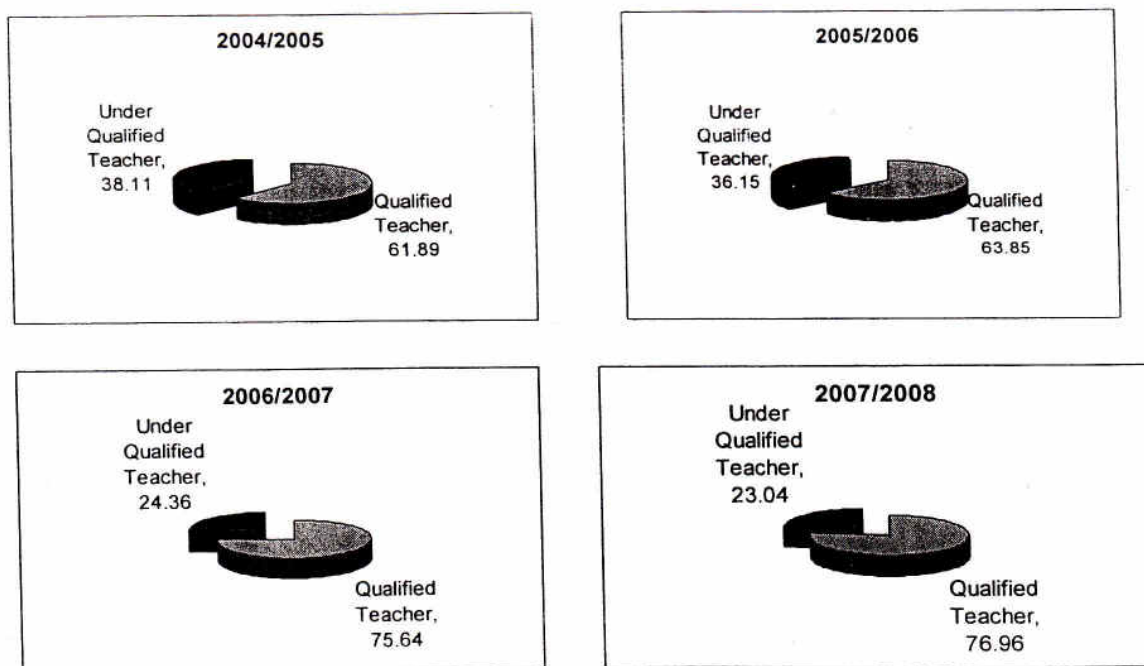
#### IV. Major issues and challenges

Although the government has performed several actions and policies to improve the condition of Vocational Senior secondary School in Indonesia, many problems and challenges still exist and need to overcome.

##### a. Human Resources

The data of the Ministry of National Education show that, in the academic year of 2004/2005, only 61.89% of teachers of Vocational Senior Secondary Schools could be categorized qualified. Four years afterwards, in the academic year of 2007/2008, the percentage of qualified teachers increased to 76.96%. Findings from field study conducted by the Curriculum Center, Research and Development Agency, Ministry of National Education, show that (i) there are several teachers with limited mastery of information and technology, facilities, information access (ii) several teachers do not have the experience to practice in the industrial sector, (iii) inadequate knowledge of teachers for new subjects, and (iv) the mismatch between the teachers' fields of study and their teaching subjects (Puskur, 2007). Furthermore, ADB (2008) states that good teachers with industry experience are rare.

**Figure 6. Percentage of Qualified and Under Qualified Teachers in VSSS  
2004/2005 – 2007/2008**



Note: Qualified teachers are teachers with the qualifications of Graduate Program of Teacher Training and above

Source: MoNE

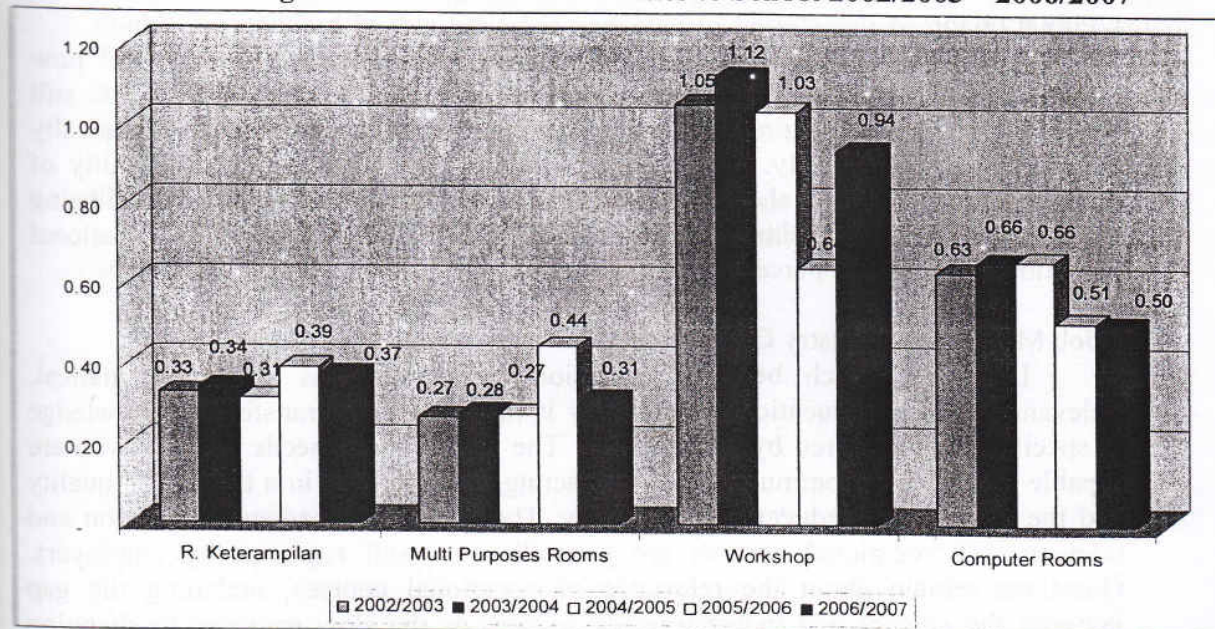


#### b. Facilities

Another problem faced by Vocational Senior Secondary School is the inadequacy of facilities to support the learning process. Vocational education is a type of education with more practicum than theory. The gap between the number of facilities compared with the number of available vocational schools shows that not all Vocational Senior Secondary Schools have adequate learning facilities. If a vocational school does not have facilities, (like practicum room, computer room, garage, laboratory) it will constrain the teaching and learning process. It is difficult for the school if it does not have adequate facilities for practicum. This will have an impact to the quality of the students.

Although the government has conducted some programs to increase the number of school facilities, such as laboratories, libraries, and computer rooms, the lack of these facilities remains a problem. In terms of absolute number, the quantity of school facilities in Vocational Senior Secondary Schools has significantly increased. However, the available school facilities are insufficient. Figure 7 shows that, in 2005/2006 and 2006/2007, the ratio of school facilities (skill room, multi purposes rooms, workshop rooms, and computer rooms) to school is smaller than 1. This indicates that there are a number of vocational schools that do not have school facilities.

**Figure 7. Ratio School Facilities to School 2002/2003 – 2006/2007**



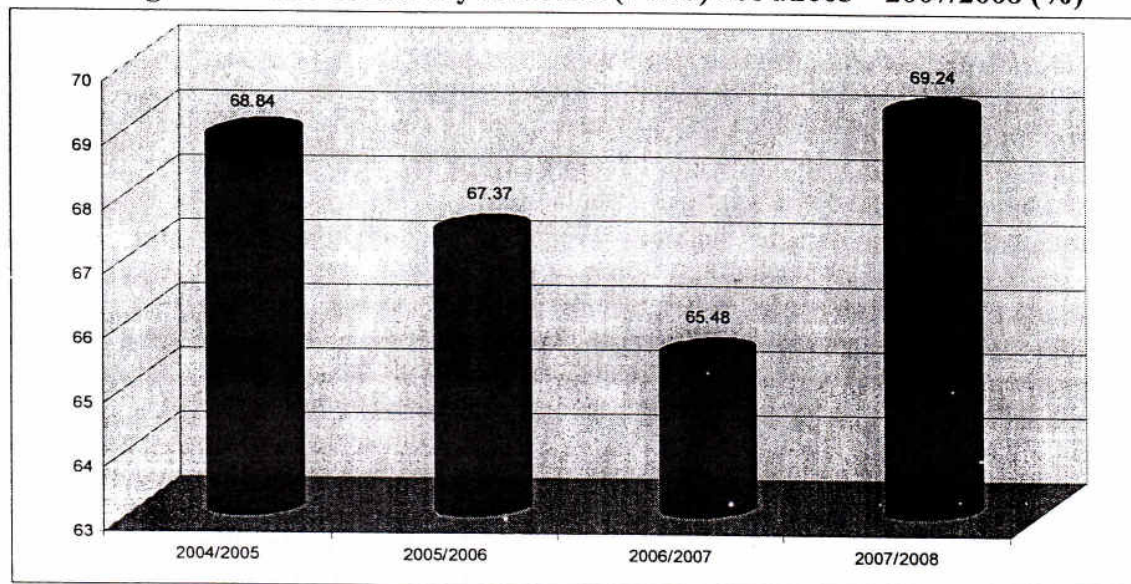
Source: MoNE

Ratio of library to school 2004/2005 to 2006/2007 declined from 68.84% to 65.48%. In 2007/2008 the ratio rose to 69.24. During the period of 2004/2005 –



2007/2008 the ratio of library to school is smaller than 1. These data demonstrate that not all vocational schools in Indonesia have a library.

**Figure 8. Ratio of Library to School (VSSS) 2004/2005 – 2007/2008 (%)**



Source: MoNE

**d. Public Image**

Although Vocational and Technical Education and Training are now becoming more popular, VTET still suffers from a negative image. VTET is still perceived as an education for those from economically and academically disadvantaged groups only. The general public perception is that the quality of VTET is lower than general education. Vocational education has suffered from being perceived as a second class education. The low prestige attached to vocational education is a common perception in Indonesia.

**e. Job Market and Industry Correlation**

Link and match between education and industry is still problematical. Relevancy between education and industry is more than just transferring knowledge or specific skills required by the industry. The industry also needs workers who are capable of thinking, communicating, interacting, and working in a team. The quality and the relevance of education is still low. The quality of academic education and relevance of vocational courses are generally not well regarded by employers. Questions remain about the relevance of vocational courses, including the gap between the courses and industry needs, as well as the slow response to changing labor market needs and technological advances.



#### **E. Absorbtion into Job Market**

The employment absorbtion rate of VSSS graduates into job the market is relatively low. The ideal rate of employment absorbtion is between 80% to 85%. However, in 2006, the rate of employment absorbtion of VSSS graduates is about 61%. The total of VSSS graduates in 2006 was 628,285 students, while the employment absorbtion projection or the demand for VSSS graduate workers in 2007 was 385,986 workers or about 61.43% (Balitbang Jawa Tengah. 2009).

#### **V. Future Plans**

##### **Period 2010-2015: Service Empowerment**

This theme calls attention to the need for ongoing development in order to empower services. After reaching a more favorable ratio for demand of school facilities to supply, the next focus is on the improvement of the quality of education to facilitate relevant and competitive education. The targets and the related programs should be capable of responding to the increasing requirements of quality and capacity, as well as in anticipating the growing maturity of financial decentralization. These empowerment strategies will be the millstones of the transformation of both these initiatives to lift both the quantity aspects and the quality aspects.

##### **Period 2015 – 2020: Regional Competitiveness**

The period of 2015-2020 will focus on the quality of education that encompasses regional competitiveness among ASEAN countries. The sustainable quality of standard in this period is expected to be relevant to the ASEAN market. The regional market-oriented program becomes an essential factor in order to achieve the desirable competitiveness. The management of education through standardization, quality assurance, and accreditation will be a focus in this period.

##### **Period 2020 – 2025: International Competitiveness**

The period of 2020-2025 focuses on the quality of education reaching OECD standards.

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