A COST BENEFIT STUDY ON

DUAL TRAINING SYSTEM

PHILIPPINES

PCCI HRDF

TESDA

K to 12 PLUS Project

Publisher

Technical Education and Skills Development Authority (TESDA)

Place of Incorporation

TESDA Complex, East Service Road, South Superhighway, Taguig City
Tel. (02) 887-7777
email: po.oed@tesda.gov.ph
po.pred@ tesda.gov.ph
website: www.tesda.gov.ph

Publication Date
September 2016

Authors

Dennis S. Mapa, Ph.D. – Dean and Professor University of the Philippines
School of Statistics - Statistical Center Research Foundation, Inc. (UPSCRFI)

Dr. Josefina V. Almeda – College Secretary University of the Philippines
School of Statistics- Statistical Center Research Foundation, Inc. (UPSCRFI)

Manuel Leonard F. Albis – Professor University of the Philippines
School of Statistics- Statistical Center Research Foundation, Inc. (UPSCRFI)

Editors

Michael Schwarz, Research Associate / Deputy Head of Division
Federal Institute for Vocational Education and Training (BIBB)
Division 1.2 – „International Cooperation and Advisory Services / German Office for International Cooperation in VET“

Felix Wenzelmann, Research Associate
Federal Institute for Vocational Education and Training (BIBB)
Division 2.3 – Costs, Benefits, Financing

Marissa G. Legaspi, Executive Director IV
Technical Education and Skills Development Authority
Planning Office

Maricris Capistrano, Programs Manager
PCCI Human Resources Development Foundation, Inc.

Design & Layout

Asia Society for Social Improvement & Sustainable Transformation
(ASSIST), Makati City, Philippines

Photo Credits

CAPTURERAMA INC. / Raymond Abad Lee

EMBARGOED UNTIL 12 OCTOBER – NOT FOR DISTRIBUTION

TABLE OF CONTENTS

MESSAGE 2
ACKNOWLEDGEMENTS 4

1 INTRODUCTION AND MOTIVATION 6

2 TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) IN THE PHILIPPINES 8
2.1 TVET Budget and Scholarship Programs 10
2.2 TVET Outputs 11
2.3 Enterprise-based Programs and the Dual Training 12
2.4 Dual Training System in the Philippines 14
2.5 Partnership between the training Vocational Institution (TVI) and the Firm 15
2.6 Incentives for the Firms and the Training Institution\ 16
2.7 Dual Training System (DTS) Capacity in the Philippines 17
2.8 Challenges on the Dual Training System (DTS) Program 17
2.9 Enhanced Basic Education Reform 18
2.10 The K to 12 Plus Project and its Project Partners 19

3 OBJECTIVES OF THE COST AND BENEFIT STUDY ON THE DTS 24

4 CONCEPTUAL FRAMEWORK AND METHODOLOGY 30
4.1 Conceptual Framework 31
4.2 Methodology in the Cost Benefit Study of the DTS 34
4.2.1 Sample Coverage 34
4.2.2 Development of the Training Manual, Training of the Researchers, Quality Control 36

5 FIRMS, TVIS AND TRAINEES COVERED IN THE STUDY 40

6 RESULTS OF THE COST AND BENEFITS STUDY OF THE DTS 46
6.1 Average Costs and Benefits 47
6.2 Average Cost and Benefits: Differences across from Size, Industry Type, and Training Duration 49
6.2.1 Comparison According to Firm Size 49
6.2.2 Comparison According to Industry Type 53
6.2.3 Comparison According to Training Duration 55
6.3 Average Costs and Benefits: Regional Differences 57
6.3.1 National Capital Region (NCR) 57
6.3.2 Region 3 (Central Luzon) 59
6.3.3 Region 4A (CALABARZON) 61
6.3.4 Region 10 (Northern Mindanao) 63
6.4 Non-Monetary Benefits of the DTS to the Firms 66

7 RESULTS OF THE SURVEY FROM PARTICIPATING TVIS AND DTS-TRAINEES 72
7.1 Technical Vocational Institutes (TVIS) 73
7.2 Problems Encountered by TVIS with the DTS Program 74
7.3 Difficulty of TVIS in Registering Programs under the DTS 74
7.4 Trainees Evaluation of the DTS Program 75

8 FINDINGS AND RECOMMENDATIONS 78

ANNEXES 82
ABBREVIATIONS 118
REFERENCES 119

MESSAGE

In February 1994, President Fidel V. Ramos signed into law Republic Act No. 7686 or the Dual Training System Act of 1994 which calls for the institutionalization of the DTS in accredited public and private educational institutions, training centers, and agricultural, industrial and business establishments.

The DTS, as its name suggests, is a training modality that combines theoretical and practical training. It is called dual training because learning takes place alternately in two venues: the school or training center and the company or workshop.

Essentially, companies gain competent employees who meet their skills needs, trainees gain the necessary occupational proficiency and the government connects the national labour market demand and human resource supply with the implementation of the DTS. With the potential it wields for generating more employable technical vocational education and training (TVET) graduates, it remains to be one of the more preferred training modality for enterprise-based training in the Philippines today.

In 2014, under our Cooperation Agreement with Germany's Federal Institute for Vocational Education and Training (BIBB), and partnership with the Philippine Chamber of Commerce and Industry (PCCI), the Cost-Benefit Study (CBS) of the DTS in the Philippines was initiated. Since the implementation of DTS program in 1994, this is the first research undertaking which generated baseline data on the program's costs and benefits and other empirical evidence which are useful in crafting policy recommendations towards the program's improvement.

We are encouraged with the positive results of study which indicated that benefits outweigh the costs of training for the firm, both in the short and long run. Hopefully, this will stimulate more commitment of the firms to expand their participation in the DTS.

Indeed, the study has provided us a solid grounding in providing sound improvements for the program. Under the DTS, we can better align the education and training system to the industry requirements, and consequently, reduce job-skills mismatch and enhance the employability of TVET graduates.

This project would not have been possible were it not for the collective effort of all the parties involved. With this, I am extending my sincerest gratitude to the Philippine Chamber of Commerce and Industry Human Resources Development Foundation (PCCI HRDF) and the K to 12 PLUS Project for supporting and funding the research, the BIBB for their technical expertise and guidance towards the completion of the study and the University of the Philippines Statistical Center Research Foundation, Inc. (UPSCRFI), as the research institution commissioned to undertake the study.

My sincerest thanks as well to the TVET providers and the firms for their cooperation during the data gathering and for their active participation during the series of regional consultations and validation of results. Without your cooperation, this study cannot be realized.

ROSANNA A. URDANETA
Deputy Director General
Policies and Planning
TESDA

The Philippine Chamber of Commerce and Industry (PCCI) believes that human resources development is vital for inclusive national growth. The establishment of the PCCI Human Resources Development Foundation (PCCI HRDF) in December 2014 serves as PCCI's commitment to institutionalize programs and projects that will create a pool of qualified, competent and job-ready human resources. This will contribute to the productivity and sustainability of enterprises, generate employment and self-employment, and reduce poverty in our country.

Moreover, the Foundation envisions to catalyze, encourage, and urge business chambers and associations, and business enterprises themselves, to engage and be involved in technical and vocational education and training (TVET), through a dualized approach. This can be done by partnering with, or even setting up, training centers where the theoretical knowledge parts of a qualification can be taught, and to engage the enterprises themselves to provide training spaces on their own premises for the practical and on-the-job parts of the qualification.

Throughout the world, Dualized TVET has proven to be beneficial for labor empowerment. Germany, which is in the forefront of promoting and utilizing Dualized TVET, continuous to reap huge social and economic benefits.

The PCCI HRDF, with the assistance of the German government through its K to 12 Plus Project (K12PP), is pushing the establishment of a working and effective Dualized TVET in the Philippines.

As part of this initiative, the K12PP, together with the Technical Education and Skills Development Authority (TESDA), co-funded the Cost-Benefit Study on the Dual Training System in the Philippines. The University of the Philippines School of Statistics was engaged to conduct the Study. The result of this study will provide empirical evidence for the policy recommendations that could help expand and improve Dualized TVET in the Philippines.

We are extremely grateful to all the firms and technical vocational institutes (TVIs) that participated in the Study. The Study will guide our future efforts to utilize our human resources and turn them into more productive members of the country.

Mabuhay!

GEORGE T. BARCELON
President, PCCI

DR. ALBERTO P. FENIX, JR.
President, PCCI HRDF

ACKNOWLEDGEMENTS

The Cost-Benefit Study of the Dual Training System (DTS) in the Philippines benefited a lot from the inputs of many remarkable people who provided the technical, financial, logistical and moral support to complete this important research undertaking. Great pleasures associated in doing this study come from engaging the experts of the Federal Institute for Vocational Education and Training (BIBB), Michael Wiechert, Head of Division, Division 1.2 -International Cooperation and Advisory Services / German Office for International Cooperation in VET, Michael Schwarz, Deputy Head of Division, Division 1.2 -International Cooperation and Advisory Services / German Office for International Cooperation in VET, Felix Wenzelmann, Research Associate, Division 2.3 – Costs, Benefits and Financing, German Office for International Cooperation in VET, Anika Jansen, Research Associate, Division 2.3 – Costs, Benefits and Financing, German Office for International Cooperation in VET, and Britta Van Erckelens, former Deputy Head of Division, Division 1.2 -International Cooperation and Advisory Services / German Office for International Cooperation in VET. The experts from the BIBB provided the technical guidance for this study.

The research team is also indebted to the officials and members of the technical staff of the Technical Education and Skills Development Authority (TESDA), former Director General Irene M. Isaac, Marissa Legaspi, Executive Director, Planning Office, Ursula Mendoza, Division Chief, Policy Research and Evaluation Division (PRED-PO), and Brian DC Bathan, TESDA Specialist, PRED-PO.

This research study will not be possible without the generous funding from the K to 12 Plus Project and we would like to thank Andreas Meyn, Project Director, K to 12 Plus Project and Tarek Abulzahab, Project Director, sequa gGmbH.

The management team from the Philippine Chamber of Commerce and Industry (PCCI) and its foundation, the PCCI Human Resources and Development Foundation (PCCI HRDF) helped set the direction for the study and the research team is grateful to Dr. Alberto P. Fenix, Jr., President, PCCI HRDF, Antonio L. Sayo, Chairman, PCCI TVET Committee, Marlon P. Mina, Executive Director, PCCI HRDF, Maricris V. Capistrano, Programs Manager, PCCI HRDF, Alfredo M. Yao, President, PCCI (2015), and George T. Barcelon, President, PCCI (2016).

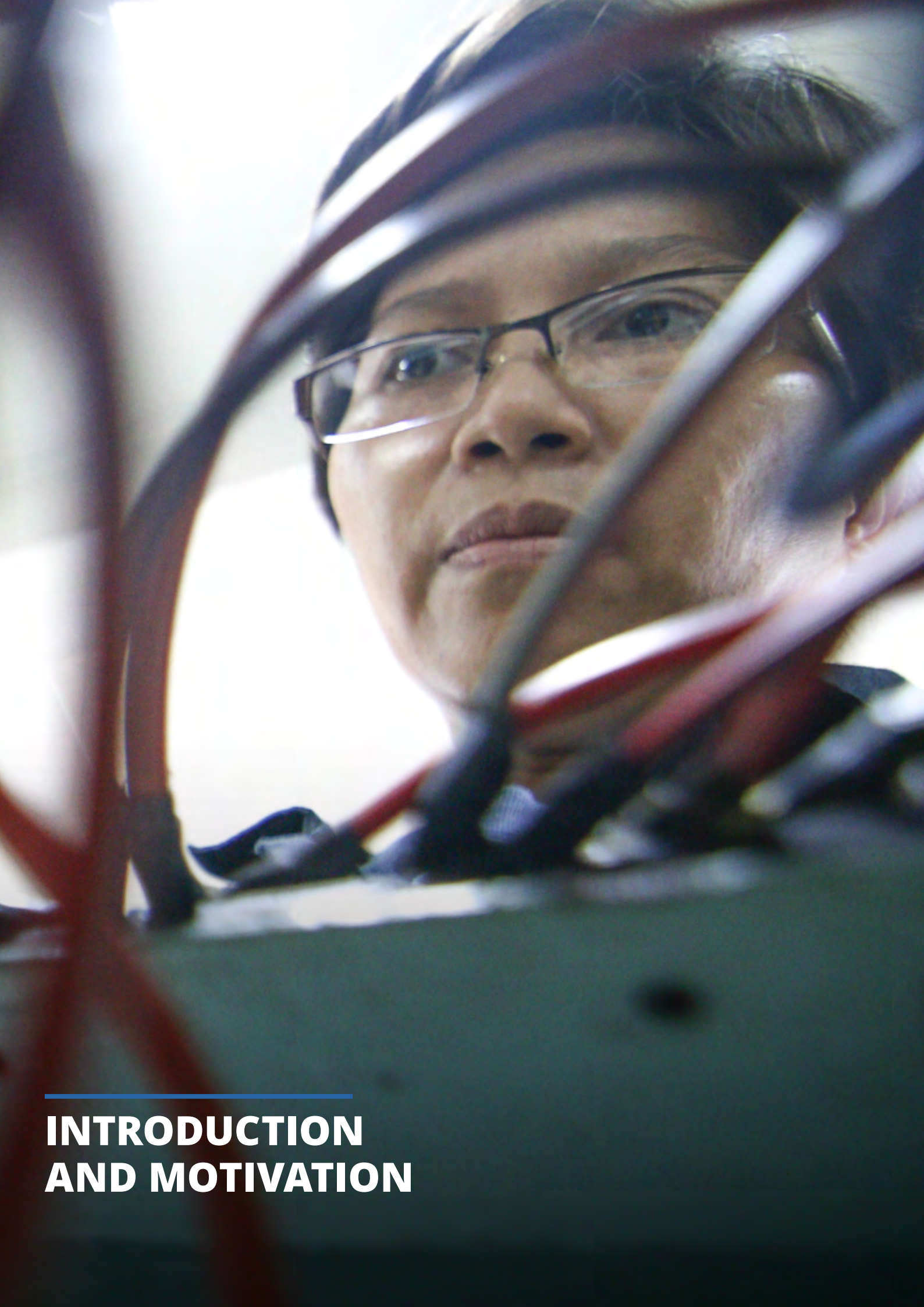
The research design and the survey instruments greatly improved because of daily discussions with the members of the team that visited BIBB in Germany last June 2015, composed of Marcelo and Ma. Lourdes Naval of Palm Beach Resort, Rodolfo Menguita, Training Director, DMCI Technical Training Center, Fr. Jerry Santos, SDB, Coordinator, Don Bosco Technical Institute, TESDA Executive Director Marissa Legaspi, Antonio Sayo, Chairman, PCCI TVET Committee, and Maricris Capistrano, Programs Manager, PCCI HRDF. We are also grateful for the help provided by the management and staff of Marco Polo Hotel, DMCI Technical Training Center and Palm Beach Resort, Laiya, San Juan, Batangas during the pre-testing of the survey instruments.

We are also grateful and indebted to the assistance provided by Ms. Natalie Chun, Economist, Economics and Research Department, Asian Development Bank, Anne Marie N. Jacinto, School Director, Punlaan School, Dr. Gilda Brito, Director, Center for Integrated Technology, Xavier University-Ateneo de Cagayan, Crisanto Malaiba, Business Director, Dualtech Training Center Foundation, Inc., Leonardo Calma, Partners and Programs Office, Dualtech Training Center Foundation, Inc., Arnolfo Morfe, Executive Director and President, Dualtech Training Center Foundation, Inc., Fr. Onofre G. Inocencio, SDB, Office for the Development of Educational Apostolate (ODEA) and Fr. Jose Dindo Vitug, Don Bosco Makati, in requesting their firm-partners to participate in the survey.

We are also thankful to the assistance provided by the various Provincial Directors of TESDA in National Capital Region (NCR), Region III, Region IV-A and Region X during the regional consultative forum on the results of the study.

COST-BENEFIT STUDY OF THE DUAL TRAINING SYSTEM (DTS) IN THE PHILIPPINES

Dr. Dennis S. Mapa, Prof. Josefina V. Almeda and Prof. Manuel Leonard F. Albis
School of Statistics, University of the Philippines Diliman



INTRODUCTION AND MOTIVATION

INTRODUCTION AND MOTIVATION

The Dual Training System (DTS) Act of 1994 mandates for the institutionalization of the DTS in public and private institutions, training centers and agricultural, industrial and business establishments that are accredited by the TESDA. Under the DTS Law, the TESDA is the agency lead to agency in promoting, coordinating and administering the DTS. The DTS is a training modality combining theoretical and practical training. The phrase "*Dual Training*" suggests that training occurs in two venues: the academic institution and the firm. The vital component of the DTS is the school-industry partnership. The school (training institution) and the firm (industry partner) work together in designing the training plan and finding ways to determine the best and efficient mode of training for the trainee-student so he or she can learn the knowledge and skills during the training period. The strong partnership between the educational institution and the firm will guarantee that the student-trainees will have the skills, knowledge, and attitude needed for future employment.

The TESDA and the Philippine Chamber of Commerce and Industry (PCCI) – Human Resources Development Foundation (HRDF) conducted a study of the Cost and Benefit Analysis of the Dual Training System in the Philippines, with the main objectives of determining the desirability of the program given the costs and benefits for the firms. Ultimately, the study aims to find out if the benefits that can be generated by the firm from the DTS program outweigh the costs of training the student/trainee, then there is the likelihood that the firm will continue investing and participating in the DTS.

The result of this study provides the empirical evidence in identifying the critical constraints (e.g. is there incentive incompatibility on the part of the firm?) in running the DTS program in the country, as well as to provide the appropriate policy recommendations for TESDA on how to expand and improve the DTS program.

The Cost and Benefit Analysis was done by collecting information on the firms who are practicing DTS in the country. This undertaken through a survey of the firms using a structured questionnaire aimed at measuring the costs and benefits of running the DTS. Registered firms included in the survey identified from the database of TESDA. This study focuses on the Costs and Benefits for the firms in running the DTS program and did not include the other enterprise-based programs of the TESDA, namely the *Apprenticeship and Learnership* programs.

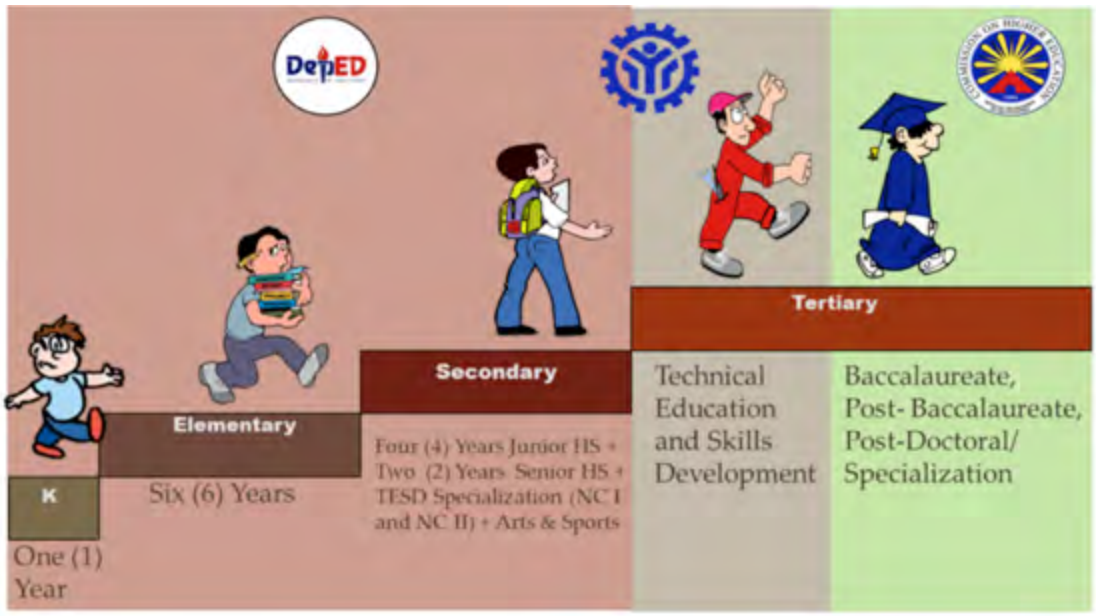
The Cost and Benefit Study of the Dual Training System (DTS) in the Philippines benefited from the technical assistance from the Federal Institute for Vocational Education and Training (BIBB). The study is based on the concept of the German Cost-Benefit-Surveys which undertaken by the BIBB since the early 1980s. The report is divided into seven (7) sections, Section 1 serves as the introduction: Section 2 discusses the TVET system in the country; while Section 3 presents the objectives of the research; Section 4 discusses the conceptual framework and the methodology in estimating the cost and benefits of the DTS in the firms; Section 5 presents the firms covered by the study, as well as the training institutions and the DTS trainees; Sections 6 and 7 present the results of the study and section 8 provides the recommendations of the study.

TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) SYSTEM IN THE PHILIPPINES

TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) SYSTEM IN THE PHILIPPINES

The Philippine education system is tri-focalized. The basic education (Kindergarten to Grade 12) is under the Department of Education (DepEd), the tertiary education composed of the baccalaureate degree programs is under the Commission on Higher Education (CHED) and the Technical Vocational Education and Training (TVET) is under the auspices of the Technical Education and Skills Development Authority (TESDA). The TESDA exercises national leadership in the TVET sector.

Figure 1. The Philippine Education System



Source: TESDA

There are three major modes delivering the training under the TVET: **(a) institution-based (school-based and center-based); (b) enterprise-based; and (c) community-based**. Institution based programs refer to the direct delivery or provision of TVET programs by public and private providers, including TESDA administered schools and centers. **Enterprise based programs** are TVET programs implemented within company or firms such as the Apprenticeship, Dual Training System (DTS), and Learnership Programs. **Community-based programs** are TVET programs conducted in communities, mostly in partnership with local government units (LGUs) and non-government organizations (NGOs). These programs are usually based on local skill requirements and resources available in the area (TESDA, 2016; Orbeta and Esguerra, 2016).

As of July 2015, the TESDA has accredited a total of 4,609 institution-based providers offering 20,329 different programs. In terms of the number of enrollees by training modes, increase of enrolment and graduates from the institution-based training programs were observed. The figures in Table 1 show the number of enrollees and graduates by delivery mode for the years 2005, 2010 and 2014. In 2005, more than two-thirds of the trainees (about 1.14 million) enrolled in community-based programs. Through the years, there are more

[1] The TESDA was established in 1994 by virtue of Republic Act 7796 known as the TESDA Act of 1994. TESDA is mandated by law, "*to provide relevant, accessible, high quality and efficient technical education and skills development in support of the development of high quality Filipino middle-level manpower responsive to and in accordance with Philippine development goals and priorities. It shall encourage active participation of various concerned sectors, particularly private enterprises, being direct participants in and immediate beneficiaries of trained and skilled workforce, in providing technical education and skills development opportunities*". (Sec. 2 R.A. 7796).

trainees to the institution-based programs, and by 2014 about half of the more than 2 million trainees enrolled in institution-based programs, numbering to about 1.03 million. It is noticeable, however, that the number of trainees enrolling in the enterprise-based programs has been limited to a minimum, numbering to an average of just over 70,000 trainees, representing only about 4 percent of the number of enrollees.

Table 1. Enrollment and Graduation by Mode of Delivery

Delivery Mode	2005		2010		2014	
	Number	%	Number	%	Number	%
Enrolled	**1,683,382**	**100**	**1,568,617**	**100**	**2,003,417**	**100**
Institution-based	487,086	18.9	860,919	54.9	1,028,005	50.6
Enterprise-based	59,003	3.5	86,978	5.5	69,138	3.4
Community-based	1,137,293	67.6	620,720	39.6	936,274	46
Graduates	**1,154,333**	**100**	**1,344,371**	**100**	**1,785,679**	**100**
Institution-based	334,757	29	617,488	49.9	833,659	46.7
Enterprise-based	101,550	8.8	73,352	5.5	57,417	3.2
Community-based	718,026	62.2	599,531	44.6	894,603	50.1

Source: Corporate Affairs/LMD-Planning Office, TESDA

2.1 TVET BUDGET AND SCHOLARSHIP PROGRAMS

Undergoing training in TVET institutions is either funded privately or thru scholarship programs funded by TESDA. The funding for TVET of TESDA comes from the national government under the General Appropriation Act (GAA). Private TVET institutions are largely operating from tuition fees paid by the enrolled TVET trainees. The national government also managed TVET providers, such as the TESDA Technology Institutions (TTIs) and other government training centers. These TTIs and Training Centers are funded by the national government. To provide equal access to TVET, TESDA offers scholarships to students/trainees under the Training for Work Scholarship Program (TWSP) and the Private Education Student Financial Assistance (PESFA) Program.

The TWSP is a program that provides immediate intervention to meet the need for highly critical skills in the identified industry's key employment generators (KEGs).[2] The budget for the TWSP is flexible and is supplemented based on the skills in-demand of the KEGS. In the past years, there was a significant increase of funding for the TWSP and by 2016 its budget reached about Php 2 Billion (US$42.55M).

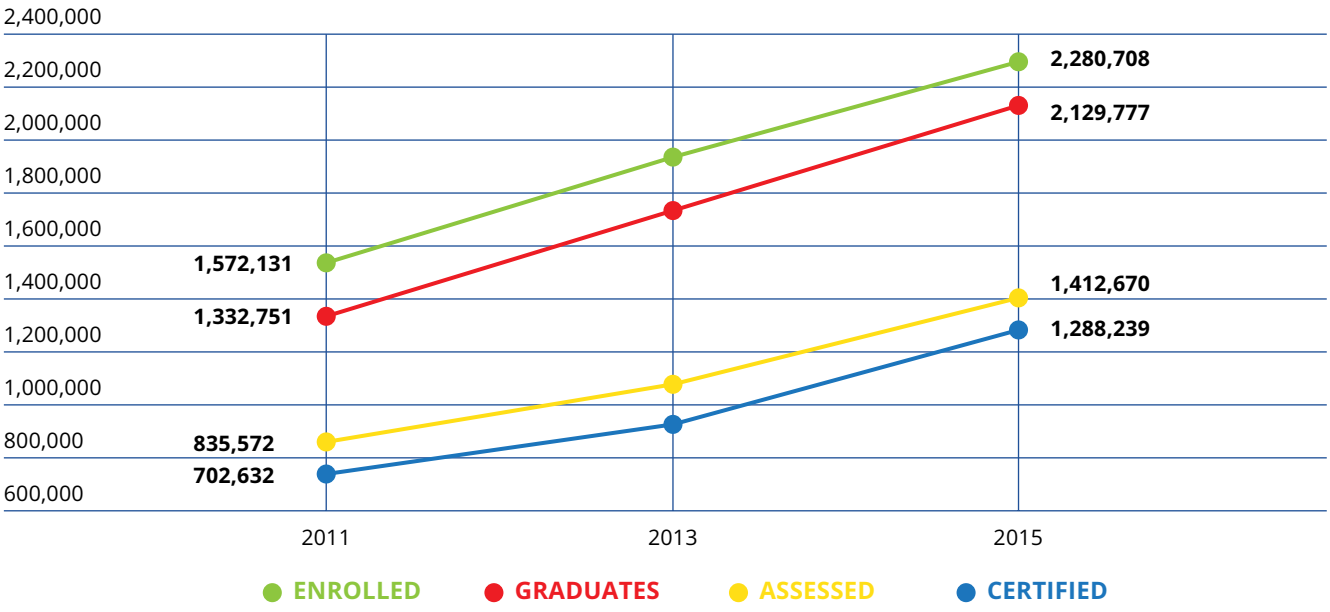
The Private Education Student Financial Assistance (PESFA) is a program established by Section 8 of Republic Act No. 8545, otherwise known as the Expanded Government Assistance to Students and Teachers in Private Education (GASTPE) Act. The PESFA program seeks to extend financial assistance to marginalized but deserving students in post-secondary non-degree courses enrolling in the private TVET providers. The government allots Php 200 million (US$4.26M) annually for the PESFA.[3] The figures in Annex 1 show the budget allocation for the two programs, TWSP and PESFA, and the number of trainees covered by the programs, as well as the number of graduates from 2006 to 2015.

The figures in Annex 1 show the budget allocation for the two programs, TWSP and PESFA, and the number of trainees covered by the programs as well as the number of graduates from 2006 to 2015.

2.2 TVET OUTPUTS

The Records from TESDA show that, on the average, the TVET sector generates an annual enrolment of 1.8 million students from 2011 to 2015. In 2015, enrolment reached to about 2.28 million. Graduates in the same year reached about 2.1 million and from these, around 1.4 million graduates were assessed and some 1.3 million graduates were certified by TESDA.

Figure 2. Enrollment and Graduation by Mode of Delivery



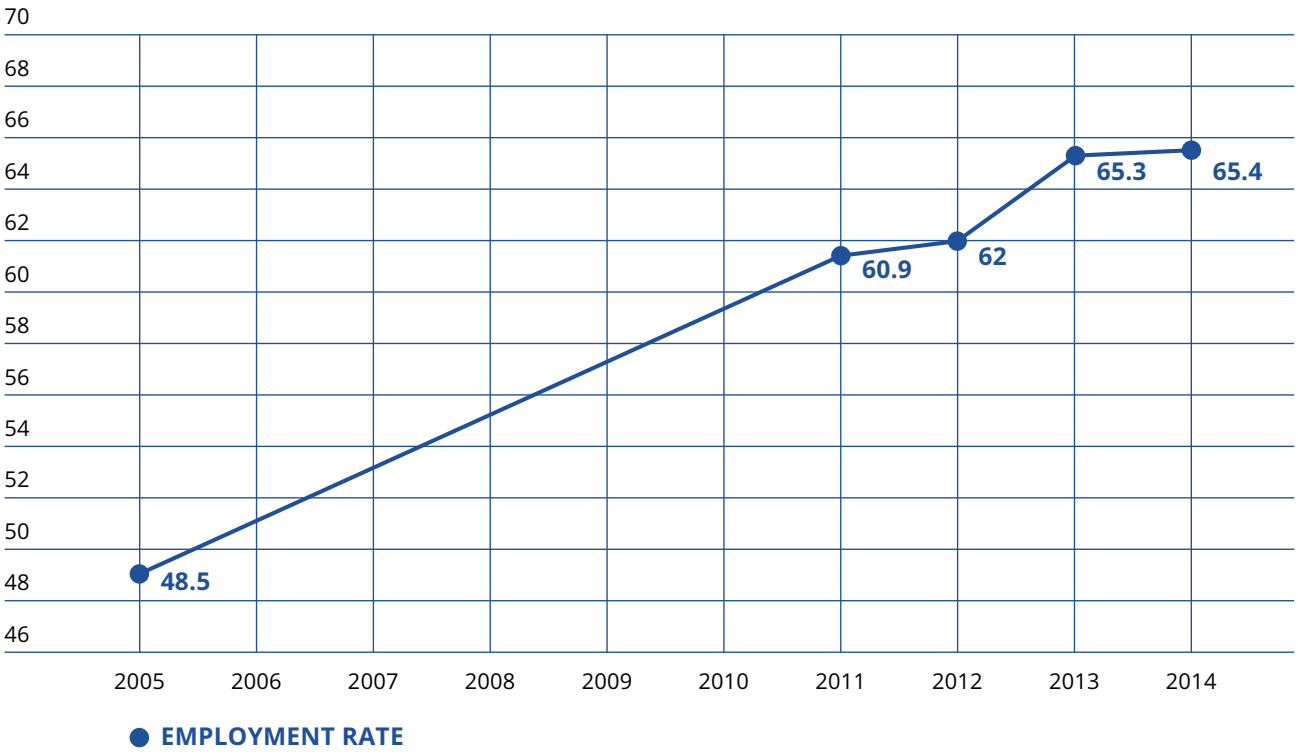
Source: TESDA Labor Market Information Division

[2] The TWSP has two-fold objectives: (1) to purposively drive TVET provision to available jobs through incentives and appropriate training programs that are directly connected to existing jobs for immediate employment, both locally and overseas; (2) to build and strengthen the capacity and capability of TVET institutions in expanding and improving the delivery of quality, efficient and relevant training programs that meet job requirements, including programs for higher levels of technology.

[3] The allocation of slots is based on poverty incidence and the number of high school graduates in a particular area. The PESFA allows for equity distribution of the opportunities made available through government subsidies.

TESDA also regularly reports the employment rate of TVET graduates, which increases over the years, coming from 48.5 percent in 2005 to 65.4 percent in 2014.

Figure 3. Employment Rates of TVET Graduates (2005-2014)



Source: TESDA Impact Evaluation Studies

2.3 ENTERPRISE-BASED PROGRAMS AND THE DUAL TRAINING

Of the 20,000 plus programs being offered and monitored by TESDA, 1,208 programs fall under the **enterprise-based programs** (Apprenticeship Program, Dual Training System (DTS), and Learnership Programs). Researchers such as Lanzona (2008), di Gropello, et. al. (2010) and Orbeta and Abrigo (2013) argued that the main advantage of the enterprise-based training, over the other training delivery modes, is that it increases the probability of the trainee being employed, The researchers argue that the enterprise-based training should be the preferred mode of delivery for training by TESDA. Table 2 shows a comparison of the structure of the Apprenticeship, Learnership and the Dual Training System (DTS).

Table 2. Comparison of the Structure of the Apprenticeship, Learnership and DTS Programs

Enterprise-based Programs	Learner	Apprentice	Dual Training
Legal Basis	Arts. 73-76 of the Labor Code; TESDA Circular 16, Series of 2004	Articles 57-65 of the Labor Code; TESDA Circular 16, Series of 2004	Dual Training Act or R.A. 7686; TESDA Circular 31, Series of 2012
Type of Skill Required for the Trainee	Semi-skilled and in non-apprenticeable occupations	Highly technical occupations (E.O. 111)	General technical and vocational occupations
Duration of Training	Maximum of three months	More than three months to six months	Depends on Agreement of the parties and approved by TESDA.
Should training be accompanied by theoretical instruction?	No, but it can have theoretical instruction	Yes	Yes
Should the training, if any, be in a partner educational or academic institution?	They are considered as "special workers"	They are considered as "special workers"	No. There is an express provision in Sec. 8 of R.A. 7686 that the trainee is not an employee of the business or establishment
Are the trainees considered employees?	No	No. However, if the employer is found to be guilty of hiring apprentices to prevent regularization to cut on labor costs, the apprentice may be considered as regular employee (Atlanta vs. Sebolino, G.R. No. 187320, January 26, 2011)	No. There is an express provision in Sec. 8 of R.A. 7686 that the trainee is not an employee of the business or establishment
Wages	Not less than 75% of the minimum wage	Not less than 75% of the minimum wage	Not less than 75% of the minimum wage. In DTP, this may not be generally true.
Minimum age of Trainee	15	15	15
Primary Government Regulating Authority	DOLE for labor standards and TESDA for training component	DOLE for labor standards and TESDA for training component	TESDA
Need for an agreement approved by TESDA?	Yes	Yes	Yes
Is the company obliged to hire the trainee?	Only when the trainee desires so	No	No

2.4 DUAL TRAINING SYSTEM IN THE PHILIPPINES

The TESDA Law (R.A. 7796) and the Dual Training System Act (7686) provide the legal instruments in the implementation of the DTS in the Philippines. The Dual Training System (DTS) "*refers to an instructional delivery system of technical and vocational education and training that combines in-plant training and in-school training...Under this system, said establishments and the educational institution share the responsibility of providing the trainee with the best possible job qualifications, the former essentially through practical training and the latter by securing an adequate level of specific, general and occupation-related theoretical institution.*"

The primary objectives of the DTS are the following:

a) To encourage increasing utilization of the DTS by both public and private TVIs;
b) To encourage increasing levels of investment in TVET by both public and private sectors especially in the rural areas;
c) To enhance the employability and productivity of TVET graduates by equipping them with cognitive, psychomotor, and affective skills that are demanded at the workplace;
d) To strengthen cooperation in human resource development between establishments and TVIs by designing and implementing market-led TVET programs in coordination with the Local Government Units (LGUs) concerned.

Under the DTS, the student/trainee learning process can generally be described as 40% **in-school** to learn the theories, develop basic skills and the value formation. The remaining 60% will be **in-establishment** to actualize the learning earned in the school.

Figure 4. Dual Training System Learning Concept

Source: TESDA

2.5 PARTNERSHIP BETWEEN THE TRAINING VOCATIONAL INSTITUTION (TVI) AND THE FIRM

The partnership between the training institution and the establishment (firm) is formalized through a Memorandum of Agreement (MOA). In addition, a Training Agreement is also confirmed by all parties, including the trainee's parent or guardian for the in-plant training. A training plan is prepared to synchronize the schedule of the knowledge and skills to be learned by the trainees in school and the actual work exercises to be done in the workplace (firm). Another important feature of the DTS is the designation of the Industrial Coordinator. The industrial coordinator is a school-based staff who monitors the performance of the trainees in the workplace and makes sure that right skills are learned according to the prepared training plan. For the firm, an In-Plant Trainer is also assigned. The In-Plant Trainer is an establishment-based trainer who makes sure that the trainee/student is trained in the required skills according to the training plan. The DTS also states the need for a Training Station in the establishment where the trainees can perform their in-plant training. The training station must have the complete facilities and equipment needed for training.

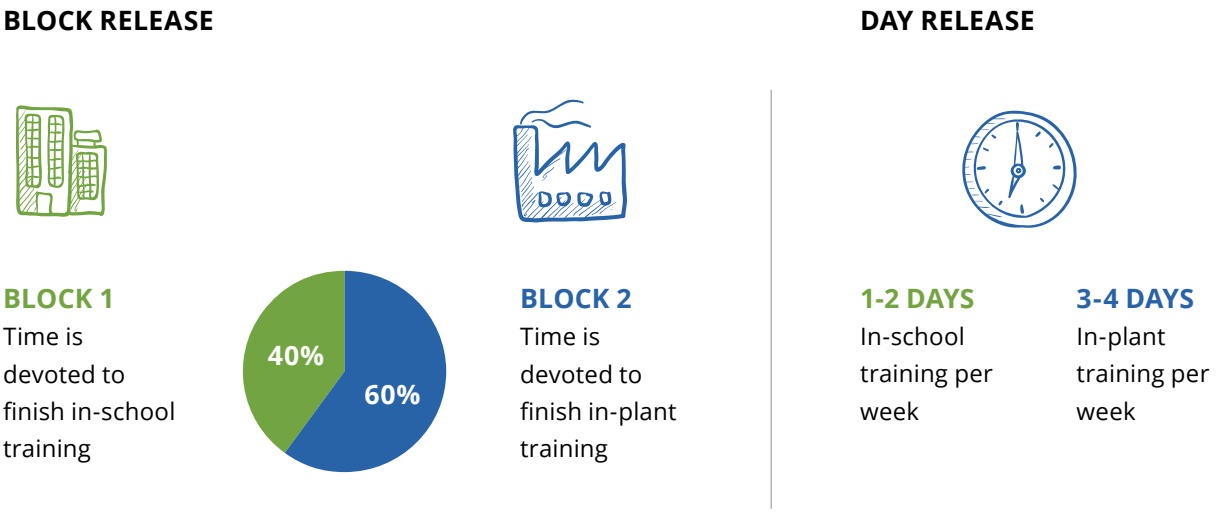
Figure 5. Elements of the Dual Training System (DTS)

Source: TESDA

The DTS is implemented through either the block release or day release schemes. For the block release, the trainee spends full time in the school to finish the forty percent (40%) school curriculum and is then deployed, full time, in the establishment to finish the sixty percent (60%) in-plant training. For the day release, the student spends 1 to 2 days in the school and then 3 to 4 days in the establishment per week.

The DTS law also states that for the duration of the training, the trainee is not considered an employee of the establishment but a trainee of both the educational institution and the establishment. Moreover, during the training period, the trainee is entitled to receive seventy-five percent (75%) of the applicable minimum wage from the establishment (firm). A trainee who has completed a training program in any business (i.e. agricultural, industrial and services) establishment shall be given priority employment in that establishment.

Figure 6. Mode of Implementation of the Dual Training System (DTS)



Source: TESDA

2.6 INCENTIVES FOR THE FIRMS AND THE TRAINING INSTITUTION

The DTS law provides incentives for the firms and training institutions that participate in the DTS program. For the firms, the following are incentives provided by the DTA law:

a) Deduction from the firm's taxable income, the amount of fifty percent (50%) of the actual system expenses paid to the Accredited Dual Training System Educational Institution for the establishment trainees;
b) Donation, contribution, bequest, subsidy, or financial aid actually paid or made for the operation of the system within the taxable year shall also be deductible for income tax purposes in an amount not in excess of three percent (3%) of the taxable business income of the establishment computed without benefit of the deduction;
c) Exemption from donor's tax, provided, however, that not more than thirty percent (30%) of said gifts shall be used by the System for administration purposes pursuant to Section 94(a) of the National Internal Revenue Council (NIRC), as amended.

Section 4 of the said Implementing Rules and Regulation (IRR) of the DTS Law also provides accredited TVI entitlement to avail of the tax incentives. It states that "*Essential equipment, apparatus and materials imported by accredited dual training educational institutions shall be exempt from taxes, such as value-added tax (VAT), ad valorem tax and other duties.*"

Similar to DTS, another mechanism called the **Dualized Training Program (DTP)** is also being implemented in the country. The only difference between the DTS and the DTP is in the form of payment of training allowance to the trainees. In the DTP, the partner company is not obliged to provide the 75% monetary payment. Instead, the firm can provide such in the form of non-monetary benefit like food/meal, transportation, accommodation and uniform equivalent to 75% of the minimum wage.

2.7 DUAL TRAINING SYSTEM (DTS) CAPACITY IN THE PHILIPPINES

As of March 2016, there are 108 TVIs offering DTP/DTS and 706 DTS partner companies offering training for various sectors such as Agriculture and Fishery, Automotive and Land Transportation, Construction, Electronics, Garments Human Health / Health Care, Heating, Ventilation, Air-conditioning and Refrigeration, Information and Communication Technology, Metals and Engineering, Processed Food and Beverages, Tourism (Hotel and Restaurant), and other qualifications without training regulations. Annex 2 shows the number of firms and TVIs involved in the DTS and DTP, classified according to Industry type and Regional location.

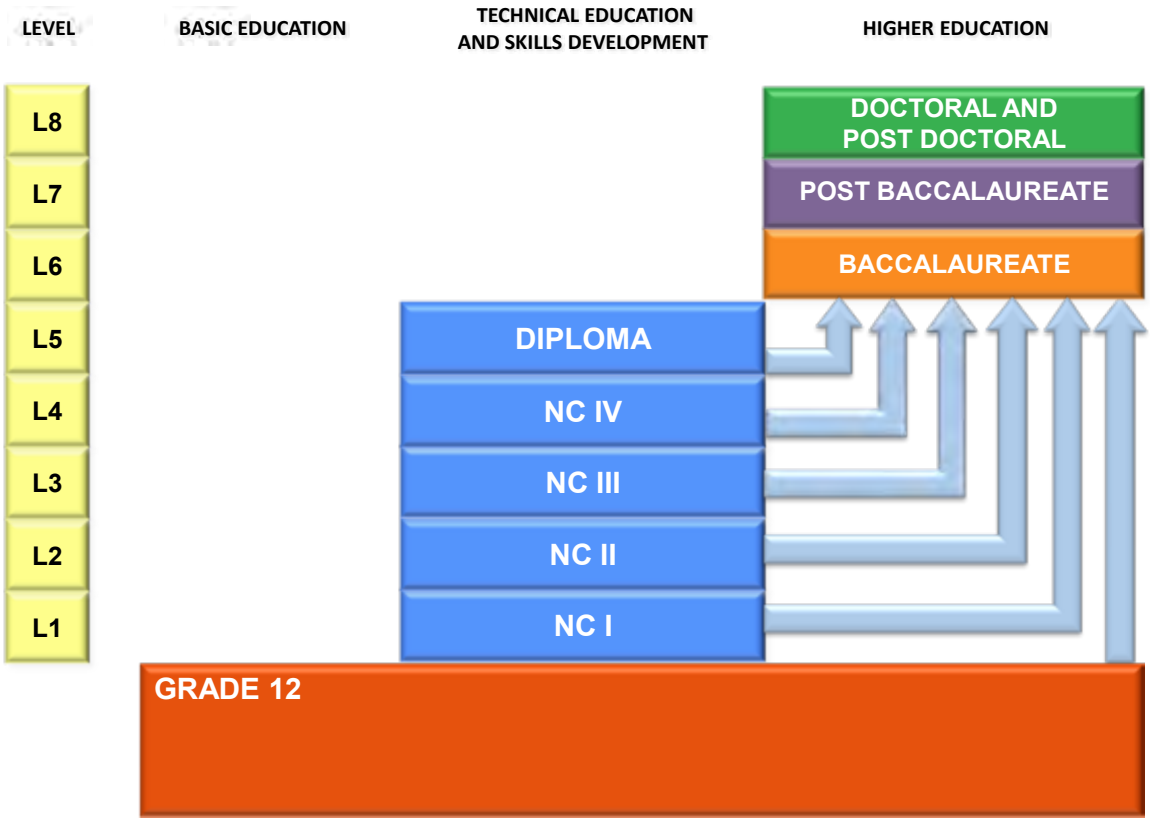
2.8 CHALLENGES ON THE DUAL TRAINING SYSTEM (DTS) PROGRAM

While studies have shown that enterprise-based training, such as the DTS, is the way to go in the practice of TVET in the country and should be given greater emphasis by the government, the number of trainees under this program, as reported by the TESDA is small. Orbeta and Esguerra (2016) identified some potential constraints to the practice of enterprise-based programs. These constraints include the incompatibilities of underlying incentives and possible sources of financing and the problem of monitoring the in-firm wage-training contracts. The authors argued that difficulty in monitoring the in-firm wage-training contract means that it is difficult to enforce this particular provision of the DTS law and therefore can be used by the firms to avoid paying the appropriate benefits. On the part of TESDA, scholarship programs such as the TWSP and FASPE apparently do not include trainees under the enterprise-based programs, such as the DTS. This may be one of the reasons why the number of trainees under the DTS program is small.

2.9 ENHANCED BASIC EDUCATION REFORM

The establishment of K to 12 is referenced on the Philippine Qualifications Framework (PQF). It is a national policy that describes the levels of educational qualifications and sets the standards for qualification outcomes. Moreover, quality-assured national system for the development, recognition and award of qualifications based on standards of knowledge, skills and values acquired in different ways and methods by learners and workers in the country.

Figure 7. Philippine Qualifications Framework



Source: TESDA PQF-NCC Resolution No. 2014-03, Adopted on December 11, 2014

Since millions of Filipinos, in particular, the young workers, cannot find work after graduating from high school, the national government undertook a massive educational reform meant to give every undergraduate a realistic opportunity to earn a livelihood. Realizing the vision "to establish a system of education that truly imbues our youth with the skills they need to pursue their dreams," The Republic Act No. 10533, otherwise known as the Enhanced Basic Education Act, was signed into law in May 2013. The K to 12 educational reform was undertaken by the Philippine government with the cooperation of business groups, associations of private schools, labor groups, parents, and foreign agencies. Under the K to 12 Program, there are four (4) tracks of specialization (refer to Figure 5 in the annex). The K to 12 is expected to make the Philippine educational system comparable to the rest of the world. Moreover, after the completion of basic education, the graduates are ready to enter the world of work or to engage in their own business or continue further specialization.

The additional two years in the senior high school will cause the embedment of National Certificate Level I (NC I) and Level II (NC II) TVET qualifications in the high school curricula for the TVET Track of the K to 12 program. TVET will be offered in Grade 9 and 10 as Specialized TLE where they can earn NC I level. After finishing Grade 10, a student can obtain the Certificates of Competency (COC) or an NC I. NC II TVET qualification can be acquired in TVET track for Grades 11 and 12 if the student passes the competency-based assessment of TESDA. TVET students can earn NCII in any trade offered by their school or by a TVI partner. The national certification from TESDA is expected to enable the graduates to have higher employment opportunities and higher earning potential since they will be more competent and skilled after completion of the programs.

There are at least four (4) sections[4] in the K to 12 Law that concern TESDA. These are in the areas of curriculum development (Section 5), hiring of trainers (Section 6 and Section 8 b), and career guidance (Section 9). TESDA is a member of the K to 12 Steering Committee that sets the policies to be implemented in the program.

2.10 THE K TO 12 PLUS PROJECT AND ITS PROJECT PARTNERS

The K to 12 Plus Project is an initiative of the German Government to help the Philippines in implementing the K to 12 educational reform, particularly the Vocational Education and Training (VET) and the Technical Vocational Track in senior high school of the K to 12 Program. The project supports the Joint Declaration of Intent signed by the Governments of the Philippines and Germany in September 2014 to integrate Dual Training in the K to 12 Program, complemented by Memoranda of Understanding (MOU) signed by the Philippine Chamber of Commerce and Industries (PCCI) with TESDA in August 2014 and with the Department of Education (DepEd) in April 2015.

The partners of the K to 12 Plus Project include, among others, the Philippine Chamber of Commerce and Industry (PCCI), the Federal Institute for Vocational Education and Training (BIBB) of Germany, Philippine Business for Education (PBEd), the Cebu Chamber of Commerce and Industry (CCCI), various industry associations, and enterprises, the Department of Education (DepEd), and the Technical Education and Skills Development Authority (TESDA). Moreover, the K to 12 Plus Project has German partners such as the AFOS Foundation for Entrepreneurial Development Cooperation (founded by the members of the Federation of Catholic Entrepreneurs - BKU), DEG - Deutsche Investitions- und Entwicklungsgesellschaft (member of KfW Group), the German-Philippine Chamber of Commerce and Industry (GPCCI – member of the Association of German Chambers of Commerce and Industry), Deutsche Gesellschaft für Internationale Zusammenarbeit (German International Cooperation - GIZ) the Sparkassenstiftung für internationale Kooperation (Savings Banks Foundation for International Cooperation - SBFIC), sequa, and the Zentralverband des deutschen Handwerks (ZDH - German Confederation of Small business and Skilled Crafts).

[4] Section 5. Curriculum Development provides that DepEd shall coordinate with CHED and TESDA in the formulation of the enhanced basic education curricula.

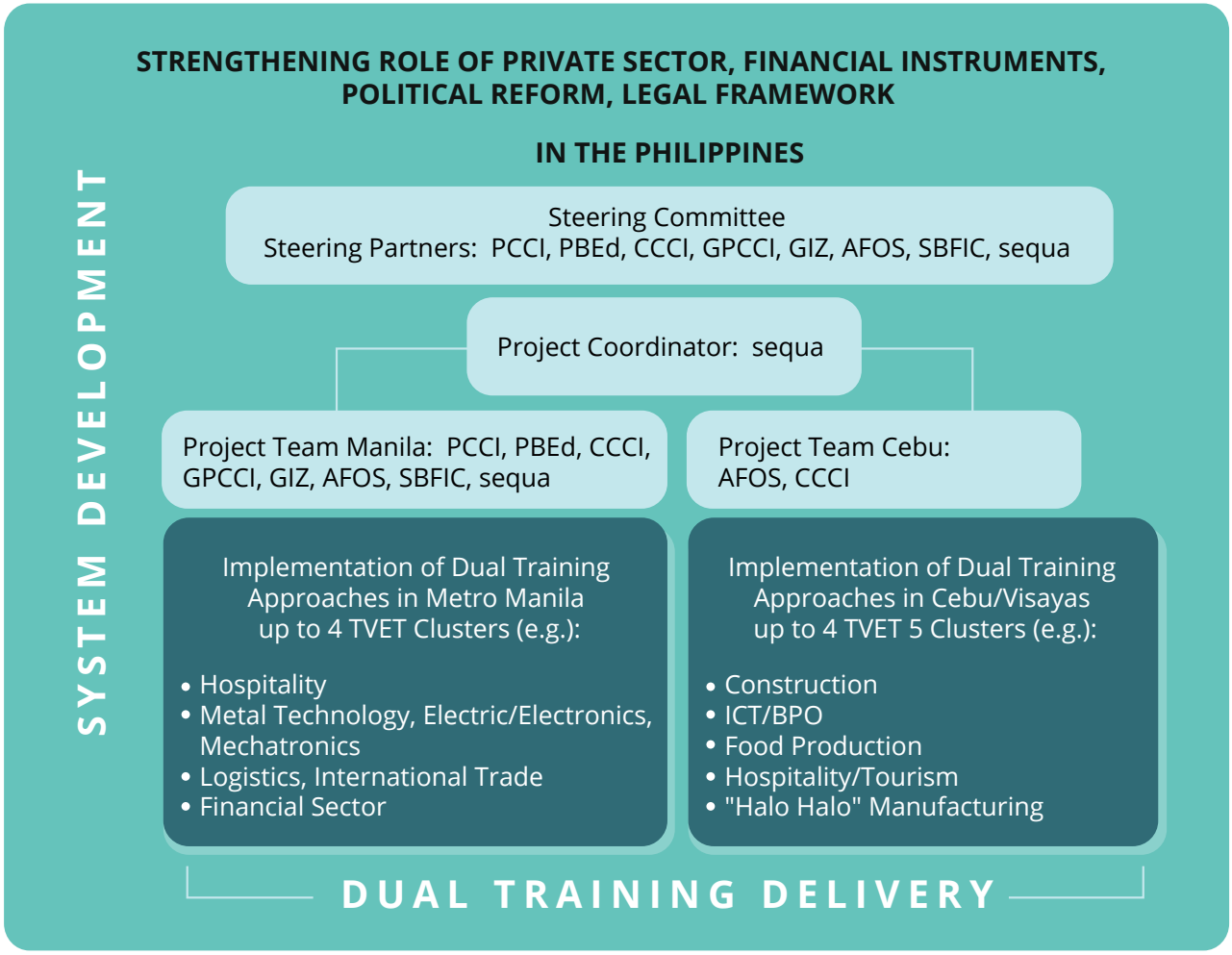
Section 6. Curriculum Consultative Committee provides that TESDA shall sit as member of the Committee. The Committee shall oversee the review and evaluation on the implementation of the basic education curriculum and may recommend to the DepEd the formulation of necessary refinements in the curriculum. TESDA assists DepEd in the conduct of training of TLE teachers for Senior high school and the development of curriculum, curriculum guides, teachers' guides and learning materials. DepEd will follow TESDA's Training Regulations/standards in the implementation of tech-voc programs in SHS.

Section 8 (b). Hiring of Graduates of Science, Mathematics, Statistics, Engineering and Other Specialists with a Shortage of Qualified Applicants, Technical Vocational Courses and Higher Education Faculty provides that graduates of tech-voc courses can teach in their specialized subjects in secondary education provided they possess the necessary TESDA certificates and shall undergo in-service training to be administered by DepEd or higher education institution at the expense of DepEd.

Section 9. Career Guidance and Counseling Advocacy provides that DepEd together with DOLE, TESDA and CHED shall regularly conduct career advocacy activities for secondary level students.

The K to 12 PLUS project started in October 2013 and will end in September 2019. The joint project contributes, through the promotion of dual approaches of vocational education and training, to an increased employability and enhanced income prospects of youth as well as to covering the demand of companies for skilled first-time employees and medium-level personnel. Together with the Philippine Chambers and Industry Associations, innovative dual training approaches are tested for Grades 11 and 12 of the new Senior High School TechVoc Track. These experiences together with other initiatives to improve the technical and vocational education framework will strengthen the key role business membership organizations need to play in establishing and driving strong stakeholder relationships for and permanent dialogue about quality vocational education and training. As part of the project's activities, the German Federal Institute for Vocational Education and Training (BIBB) has been providing its research support in the implementation of the Cost-Benefit Study.

Figure 8. Partnership in the K to 12 Plus Project



SUBIC DRYDOCK CORPORATION: AN EXEMPLAR DTS PARTNER IN CENTRAL LUZON

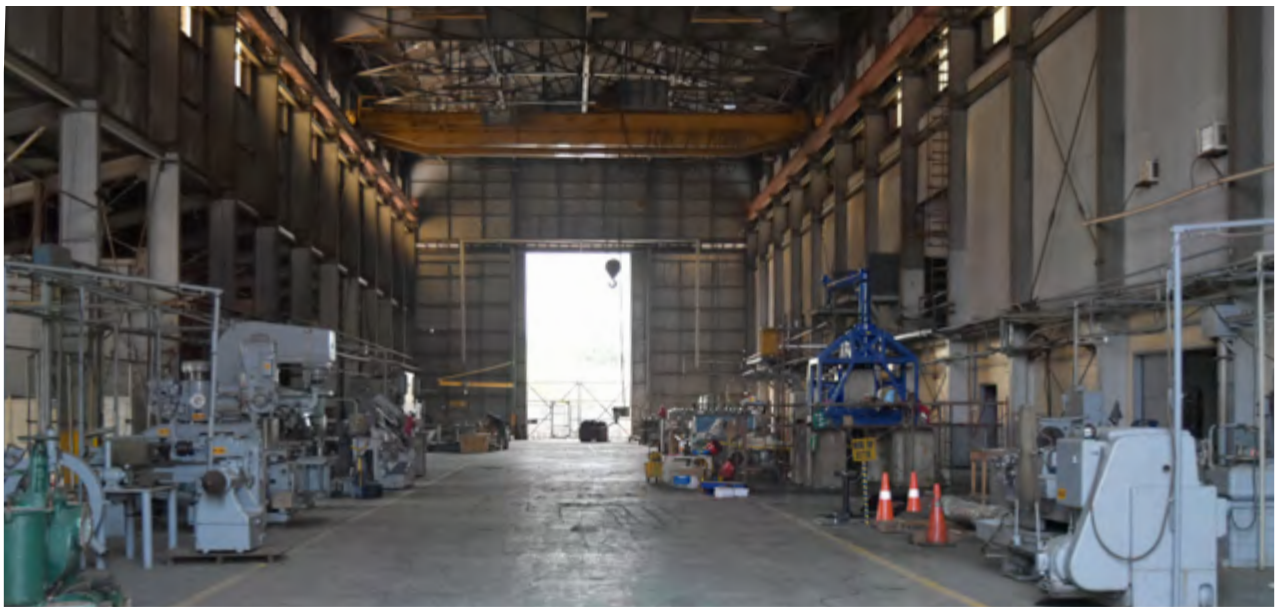
A subsidiary of prominent US-based ship repair service provider, Cabras Marine Corporation, ***Subic Drydock Corporation*** or "SubicDock" is one of the leading firms in the Philippines dedicated in providing high quality building and repair services for ships, barges and lighters. Founded in 2006, SubicDock has 300 workers with expertise in the areas of mechanical engineering, machine shop calibration and ship repair. Since the beginning of its operation, SubicDock has been attracting a growing list of clients from the United States, Australia and North Korea.

DUAL TRAINING SYSTEM (DTS) TRAINEES AND THE COMPANY

Subic Drydock Corporation began accommodating Dual Training System (DTS) trainees in 2013. On the average, the company accommodate about 50 DTS trainees annually. The trainees learn the ropes related to mechanical engineering, machine shop calibration, and ship repair. According to Mr. Alfie Christopher Quiming, the Manager of Human Resources Department, SubicDock partner-TVIs are Bataan Peninsula State University and Don Bosco School. The DTS trainees render service in the company for about three to six months. The company operates 24 hours a day, 7 days a week, but the DTS trainees are only allowed to work during morning shifts for eight hours with the occasional two-hour overtime. SubicDock is motivated to train DTS students because the company wants to give back to the school and the community. The DTS program serves as a window for students to see that there are actual job opportunities in the community.

The company requires trainees to possess the basic knowledge and skillset in mechanical engineering and based on the past years, the assessment of the firm is that the DTS trainees live up to the company's expectations. The training supervisors can attest to the good performance of the DTS trainees in the work place. There has not been any recorded incident where a DTS trainee has shown difficult attitude(s) towards work.

The company's training program paved way for the DTS trainees to have first-hand experience about the actual work in the (real) world of ship repair. The trainees gain more appreciation about their craft and they are more eager to do better in school. Moreover, trainees are exposed to working with different people from other fields of expertise. Mr. Quiming explains that DTS trainees are divided into groups assigned to different processes of the



company's operations, namely: (1) Production, (2) Office Exposure, and (3) Safety Section.

Moreover, each process is further divided into several sections. (e.g., Production is composed of several sections namely: (1) Mechanical, (2) Piping, (3) Structural, (4) Electrical, (5) Shipwright, (6) Rigging and Transportation, and (7) Dock Operations. Students work in rotation in each process thereby maximizing their exposure to the actual tasks. Senior employees, who also serve as their supervisors, train the students and make sure that they can apply what they have learned on their own.

The company believes such strategy provides an effective transfer of learning, the DTS trainees are exposed to the real world application of the theories learned in school. Apart from designing a training program for the students, the company makes sure that all the rules and guidelines imposed by the school are followed. SubicDock supports DTS trainees by providing clear orientation about the company's background, overview about the different sections and processes and their functions, and actual hands-on training.

Human Resources (HR) management uses a written examination to assess the extent of the DTS students' knowledge and skills acquired from the training program. They also conduct an exit interview to obtain feedback from the students regarding their entire experience throughout the training. Results from the examination and interview feedback are compiled in a report, which is submitted to the partner TVI and SubicDock top management.

In terms of productivity, HR management has no formal tool in measuring a DTS trainee's productivity. They simply rely on feedback from training supervisors and based on the feedback, the HR assessed that DTS trainees are relatively the same as average workers of the company in terms of productivity. Moreover, the DTS trainees have a slight advantage over the regular workers because of the formal training in school. The HR management feels that DTS trainees also bring in new innovations and techniques in mechanical engineering.

After successfully completing the training program, DTS students with high performance ratings are given job opportunities in the company. Typically, DTS students are offered skilled positions in wielding, mechanical works, piping, and administrative works as well. DTS trainees not absorb by the company quickly finds employment in other shipyards in Subic and abroad (e.g. Singapore, Guam and Dubai). Mr. Kevin R. Perez, the Asst. Manager of HR Department, explained that SubicDock is very satisfied (8 out of 10 rating) with the performance of DTS students. Both school and company are serious about the development of the students. There is a good harmonious relationship between the students and the partner schools, as evident in the top performance that the students exhibit at work.

BENEFITS FROM THE DTS PROGRAM

Having DTS trainees for the past three years, management cited some advantages and disadvantages. The advantages of having DTS students include: (1) Increased productivity in the workplace; (2) Additional manpower in the workforce; and (3) Gives regular workers time to do other important work. On the other hand, there are certain disadvantages in having DTS trainees. Because DTS students are relatively younger than the regular workers, they are expected to follow the older workers. The age gap between the two groups sometimes surfaces a skills and knowledge gap between them. There have been instances when the DTS trainee insists that what he knows is better than that of the older regular worker. Consequently, jealousy among trainees and workers sometimes arises at the work place. Despite having disadvantages, SubicDock still incurs short and long-term benefits from the DTS students. Some notable short-term benefits that they mentioned are: (1) Increased manpower; (2) Company savings on employee salary and benefits; and (3) Increased productivity. Looking at the long-term benefit from the DTS program, these are: (1) Savings on recruitment costs; and (2) DTS trainees are more productive in comparison to externally recruited workers.

PROGRAM ON SHIP ELECTRICAL AND MECHANICAL ENGINEERING

Subic Drydock Corporation feels that there is a need to develop specialized courses on ship electrical and mechanical engineering by the partner institutions and TESDA. It would be highly advantageous on the part of the student if they will learn formally about said courses in school rather than during the company training itself. Moreover, SubicDock believes that exposure to actual training is what most companies look for. That is why, it is vital that schools select good companies to be partners in the DTS program.

OBJECTIVES OF THE COST AND BENEFIT STUDY ON THE DTS

OBJECTIVES OF THE COST AND BENEFIT STUDY ON THE DTS

The study on the Cost and Benefit Analysis of the Dual Training System in the Philippines conducted for TESDA and the Philippine Chamber of Commerce and Industry (PCCI) – Human Resources Development Foundation (HRDF), with the technical support of the Federal Institute for Vocational Education and Training (BIBB), intends to determine the desirability of the DTS program given the costs and benefits for the firms. If the benefits that can be generated by the firm from the DTS program outweigh the costs of training the student/trainee, then there is the likelihood that the firm will continue investing and participating in the DTS.

The study on the Cost and Benefit Analysis of the DTS program aims to:

a) Determine and analyze the types and amounts of benefits which enterprises receive in relation to their costs in implementing Dual Training System (DTS);
b) Raise the awareness among enterprises (firms) and intensify their involvement in TVET, particularly the DTS;
c) Establish baseline information on DTS program costs and benefits from the enterprises (firms) and TVET institutions.
d) Analyze which determinants have an influence on the costs and benefits (e.g. firm size, sector, training duration and region).

The results of the study will provide the empirical evidence in identifying the critical constraints in running the DTS program in the country, as well as to provide the appropriate policy recommendations for the various stakeholders of the program such as the policy makers in government such as TESDA, the firms doing the DTS, the Technical Vocational Institutes (TVIs) and the PCCI-HRDF, on how to improve and expand the DTS program.

The results of the Cost and Benefit Analysis of the DTS will benefit policy makers in identifying the constraints and challenges associated in running the DTS program.

i. Why is participation of the firms in the DTS program minimal?
ii. Is the non-participation of firms in the DTS program an issue of costs?
iii. Is there incentive incompatibility on the part of the firm in running the DTS program?
iv. Is there a need to include the students in the DTS in the scholarship program of TESDA?

By identifying these constraints, policymakers can implement the appropriate course of action to increase the involvement and investment of the firms in the DTS program.

This study will benefit the firms who are in the DTS program and those that are planning to participate in the DTS. This study will provide empirical answers to questions such:

i. What benefits does a firm get when investment in DTS is done?
ii. What are the types of costs and benefits in running the DTS from the firms' point of view?
iii. What are the amounts of the costs and benefits in running the DTS?
iv. What are the amounts of costs and benefits regarding the duration/length of the DTS?
v. What type of firms gets higher benefits from the DTS?

The information from the study will also be useful to the TVIs and the trainees to enhance their participation in the DTS program. The empirical data associated with the cost and benefit study will provide data on the productivity level of the trainees from the firms' point of view, and the TVIs can validate whether such productivity level is appropriate to the cost of allowance of the trainee. Moreover, this study will also provide a comparison on the productivity levels of the DTS trainee and a non-DTS trainee. If the DTS trainee has a higher productivity level compared to the non-DTS, this will encourage students and the TVIs to go into the DTS program. Finally, the study will also look into the absorption rate of the DTS trainees to the firms where they trained. The main objective of the DTS program is to increase the employment rate of the trainees. If the absorption rate is high, this will make the DTS program attractive to the students/trainees.

This study will further enhance the cooperation between TESDA and PCCI-HRDF in terms of strengthening the collaboration between the two institutions related to the DTS program. The cost and benefit study will also improve the research capability of TESDA and the PCCI-HRDF through the transfer of knowledge from this research.

The Cost and Benefit Analysis was undertaken by collecting information on the firms that are practicing DTS in the country. This was done through a survey of the firms using a structured questionnaire aimed at measuring the costs and benefits in running the DTS. Registered firms that were included in the survey were identified from the database of TESDA.

HONEYWELL CAESA SUBIC BAY COMPANY INC: PROVIDING A UNIQUE TRAINING OPPORTUNITY IN THE AVIATION INDUSTRY

Honeywell Ceasa (Subic Bay) Company Inc, which was founded on March 2003, operates as a subsidiary of Shanghai-based CEA Honeywell Aircraft Wheels and Brakes Repair and Overhaul Co. Ltd. ("CEASA"), of which Honeywell owns a 60 percent stake. The subsidiary provides maintenance, repair and overhaul facility for commercial aviation wheels and brakes.

Honeywell is a Fortune 100 diversified technology and manufacturing leader, serving customers worldwide with aerospace products and services; control technologies for buildings, homes and industry; turbochargers; and specialty materials. Honeywell's Aerospace, Performance Materials and Technologies, and Automation and Control Solutions, are working closely with local distributors and dealers to provide products and services in the Philippines.

Honeywell Ceasa Subic Bay Company Inc. performs its corporate social responsibility by developing training programs to address the needs of the community. It focuses on five areas of vital importance to communities around the world: Science & Math Education, Family Safety & Security, Housing & Shelter, Habitat & Conservation, and Humanitarian Relief.

DUAL TRAINING SYSTEM (DTS) TRAINEES AND THE COMPANY

Honeywell Ceasa Subic Bay Company Inc. began training students under the DTS program in 2013. They provide trainings in aircraft maintenance, in particular to repair and overhaul of aircraft wheels and brakes. Presently, they have four (4) DTS students. Normally, the students are trained by the company for about 600 hours.

Before exposing the DTS trainees to actual work place training, the trainees first undergo an orientation or safety training. Only then the trainees are exposed to hands-on training involving about 20 processes or stages. Ms. Brenda Panton, the Finance Manager of Honeywell Ceasa, explains that many strict systematic processes are involved in repair of aircraft wheels and brakes. Normally DTS trainees are assigned to aircraft wheels only. Medical examination is also conducted to ensure the health of the students; this is done before and after the training period. The company operates from Monday to Friday, so normally the students train in the company for three to five months, clocking in

about 8 hours per day. Although all airlines have in-house repair technicians, Honeywell, is the only company that offers this type of service in the country. This is the main motivation of the company when training students, so that more DTS trainees will develop skills in the field of aircraft maintenance and repair.

DTS trainees live up to the expectations of Honeywell management because they perform well and show good attitude at work. During orientation, trainees are made aware about the health and safety rules and regulations of the company. It also extends to the rules of conduct enforced at work. If they fail to comply with the aforementioned rules and regulations, HR management calls the attention of the trainee. Discussion with the trainee is done then an investigation before any decision regarding termination takes place.

Honeywell's training program is designed so that each trainee will have the opportunity to be trained in all the processes involved in aircraft repair of wheels. The trainees go through each of the 20 processes or stages and are graded by their supervisor. The DTS trainee moves up to the next process only after successfully passing the training on that particular process. Ms. Panton emphasized that it is the trainee's knowledge and familiarity to the process, which make the transfer of learning to the workplace effective.

Management supports DTS trainees by offering them job opportunities, provided that they have successfully completed the training and that they fit the qualifications needed for the position. Whenever there are job vacancies in Honeywell Caesa, DTS trainees are given the priority in employment.

Performance-based examinations are conducted to evaluate the transfer of learning of the trainee to the workplace. Management puts quality of work above speed in assessing the performance of its workers in each process. Productivity of the DTS trainee is measured by their company through attendance, attitude towards other employees and cross-trainings, among others.

Compared to their average worker, a DTS trainee is not much different in terms of productivity. However, there are certain limitations to the type of tasks that trainees can only handle. As mentioned by Ms. Panton, trainees are only allowed to handle basic processes involving wheel repair. Regular workers still handle brakes repair and the more crucial wheel repair processes. Age-wise, DTS trainees are younger than their average worker.

Honeywell Ceasa ensures that the training given to the DTS trainees will give a positive and equitable return to the organization. Aside from giving job opportunities, they also provide meals and transportation allowance to the trainees.

Ms. Panton said that the company is perfectly satisfied with the DTS students, performance-wise. It goes back to the kind of students endorsed by the school to their company. So far, all students recommended by the school are accepted for training. In terms of identifying DTS trainees' job satisfaction, the students appoint a cell leader among themselves, and their supervisor gets feedback from the leader.

BENEFITS FROM THE DTS PROGRAM

Having DTS trainees has been advantageous for their company, since they help in the basic process which makes the repair job faster. At the same time, because they only have few regular workers, DTS trainees are actually additional manpower. They are able to accommodate other repair jobs. On the other hand, the main disadvantage of having DTS trainees is due to the limitations in the type of work that they can handle. Being just students, their skills are not yet fully developed. The more difficult and crucial processes are not given to them; as a result, trainees are

clustered in the basic processes. Overall, Honeywell Caesa has incurred benefits from the DTS program. Notable short-term benefits include: (1) Increased number of repaired units accomplished, (2) More efficient job flow; and (3) Increased efficiency. As for the long-term benefit, the company saves on recruitment and training costs.

CONCEPTUAL FRAMEWORK AND METHODOLOGY

4.1 CONCEPTUAL FRAMEWORK

The Cost and Benefit Study of the Dual Training System (DTS) in the Philippines benefited a lot from the technical assistance from the Federal Institute for Vocational Education and Training (BIBB). The study is based on the concept of the German Cost-Benefit-Surveys conducted by the BIBB since the early 1980s. A short overview of the general methodology and results of the most recent German survey is provided by Jansen et. al. (2015). This framework was also used in the Cost and Benefit Analysis of TVET Internship Programs in Enterprises in Vietnam (Quang Viet, et. al.; 2015). Applying the concept in the Philippine case, the **gross costs** of training are divided into three cost categories: (a) Personal costs for the trainees; (b) Costs for the Trainers; and (c) Physical Costs.

a) The ***personal costs for the trainees*** consist of the monthly training allowance and other additional voluntary or obligatory social benefits such as health insurance, clothing allowance, lodging allowance, transportation allowance and meal allowance. The total personal costs for the trainees in computed monthly and expressed in pesos.
b) The ***costs for the trainers*** cover basically the wages of the trainers when providing orientation and training to the trainees, adjusted for the wage costs of trainers. These include full time and part time trainers as well as external trainers, as the case may be. The time spend with the trainees is only included in the cost calculation as far as the productivity of trainers, respective to the companies output, is reduced. The total cost for the trainers is expressed in pesos per month per trainee.
c) The ***physical costs*** include all costs for tools and equipment for trainees, plus the costs of any training workshops or in-company teaching; also the costs of consumable materials that are required for teaching purposes. Also included are costs of teaching and learning materials and external courses and fees and the costs of the training administration in the firm. The total physical cost is expressed in pesos per month per trainee

The benefits derived from the DTS can be divided in **short-term benefits** which arise by the productive contributions of the trainees while undergoing training and **long-term benefits** that may arise if the trainee is employed by the firm after completion of the training.

Short-term benefits include the **productivity and seasonal benefits** derived by the firms from the trainees. Using the survey instrument, the time trainees spend with productive tasks is measured by their supervisors. These tasks are measured using the relative productivity of trainees in comparison to the skilled workers. For example, the supervisor may assess that the productivity of the trainee is about 75 percent of the average skilled worker. To calculate the value of the productive contributions, the productivity of the trainee is multiplied with the wage costs for a skilled worker. In addition to the productivity of the trainees, the short-term benefits also include the **seasonal benefits**. There are cases, particularly in hospitality industry, where companies hire additional workers during peak months (e.g. resorts during summer). The survey instrument ask the firms about their experience demand for

workers during peak months and if they timing the arrival of trainees during such period. If so, the firms benefit from the trainees during the peak months. The overall seasonal benefit derived from the trainees is divided into 12 month to get the average monthly seasonal benefit. The sum of the monthly productivity and the seasonal benefit constitute the short –term benefits. This is expressed in pesos per month per trainee.

In addition to the short-term benefits, companies can also gain the **long-term benefits** from the DTS, if the trainees are employed and stay with the firm after the training. These long-term benefits include the savings of the company in terms of the search process for new employees. The savings can be in terms of (a) ***recruitment costs*** (e.g. cost in advertising); (b) ***cost in hiring manpower*** that will process the application of the new employees (e.g. human resources personnel), both internal and external; (c) ***costs in the orientation*** of the new employees covering both manpower used in the orientation and materials (e.g. DTS trainees need minimum if not zero orientation); and (d) the benefit the firms gains because of ***productivity differences between the DTS-trained workers and externally recruited workers*** (externally recruited workers will experience adjustment period in the early months with the firm and they may not be able to achieve the productivity level of DTS-trained workers who have already spend months with the firm).

In addition to the short-term and long-term benefits, there are other non-monetary benefits derived from the DTS. These include the positive image for the firm of being a responsible company helping the young members of society become productive through training and the potential increase in the welfare of the trainees (e.g. higher salary in the future, higher probability of being employed).

After computing for the gross costs and the short-term benefits, the **net costs** are computed as the difference between the gross costs and the short-term benefits.

The Cost and Benefit Study of DTS in the Philippines adopted the conceptual framework of the BIBB in calculating for the gross costs, short-term benefits, long-term benefits and the net costs associated with the DTS program in the country. The cost and benefit components are summarized in figures 9 and 10, respectively.

Figure 9. Cost Components of the Dual Training System

COSTS FOR TRAINEES	COSTS FOR TRAINERS	PHYSICAL COSTS
Allowance of Trainees	Salary of Full time trainer	Tools, equipment and consumable materials
Health Insurance, Clothing Allowance, Transporation Allowance	Salary of Part time trainer	Rental of Company training workshop
Meal and Lodging Allowance	Salary of External trainer	Teaching and Learning Materials, Administrative Fees

Source: Federal Institute for Vocational Education and Training (BIBB); Adopted for the Philippines

Figure 10. Benefit Components of the Dual Training System

BENEFITS THROUGH TRAINING (SHORT-TERM)	BENEFITS THROUGH RETENTION (LONG-TERM)	OTHER NON-MONETARY BENEFITS
Productive contribution of trainees and Seasonal benfits derived from the trainees	Saving in recruitment ads	Positive image for the firm
	Savings in manpower during the hiring process and orientation	Attractiveness for potential employees and clients
	Long-run productivity differences between DTS-trained and externally-recruited workers	Increase welfare of the trainees (e.g. Higher wages after training, higher probability of being employed)

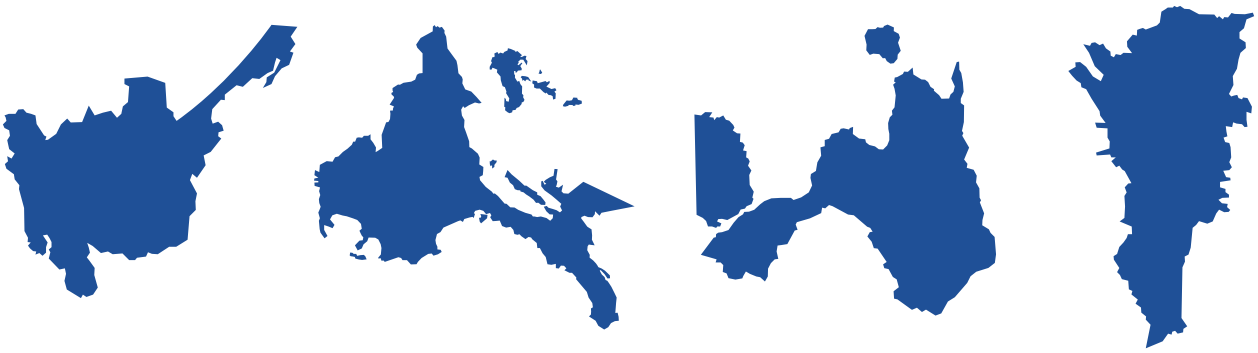
Source: Federal Institute for Vocational Education and Training (BIBB); Adopted for the Philippines

4.2 METHODOLOGY IN THE COST BENEFIT STUDY OF THE DTS

4.2.1 SAMPLE COVERAGE

The costs and benefits study of DTS program aims to collect information from the firms and TVIs that are practicing DTS in the country. As of December 2015, data from TESDA show 706 firm-partners and 106 TVIs practicing DTS (refer to Annex 2).[5] The data collection for this particular study covers only four (4) regions, namely: the National Capital Region (NCR), Region 3 (Central Luzon), Region 4A (CALARBAZON) and Region 10 (Northern Mindanao). The choice of the firms and TVIs included in the study mainly depended on location (NCR and adjacent areas – Regions 3 and 4A) and representation from areas outside Luzon (Region 10 in Mindanao). The four regions have a total of 451 firm-partners and 82 TVIs. The selection of the firms and TVIs were not done randomly. Notwithstanding that the firms and TVIs covered are not nationally representative sample, the information collected and the results from the analysis of the empirical data can provide the necessary policy recommendations for the enhancement and improvement of the DTS program in the country.

Table 3. Number of TVIs and Firm-Partners in the DTS by Region Covered in the Survey



REGION III	REGION IV-A	REGION X	NCR	
NO. OF TVI				**TOTAL**
56	**20**	**2**	**4**	**82**
NO. OF PARTNER FIRMS				
114	**75**	**116**	**146**	**451**

[5] The original master list from TESDA (as of 05 August 2015 during the start of the survey) consisted of only 359 firms and 82 TVIs. During the course of the study, this list was updated to reflect additional firms that are practicing the DTS.

4.2.2 FIRM, TVI AND TRAINEE QUESTIONNAIRES

A structured questionnaire to capture the firms' costs and benefits in participating in the DTS program was developed based on the BIBB's framework. The firm questionnaire was modified according to the Philippines firms' peculiar characteristics (refer to Annex 3 for the firm's questionnaire). The preliminary draft of the firm's questionnaire was developed at the BIBB Office in Bonn, Germany in June 2015, under the guidance of the technical experts from the BIBB. A team composed of representatives from TESDA, Academe (UP School of Statistics), Technical Vocational Institute (Don Bosco), and representatives from the hospitality and construction sectors, as well as from PCCI-HRDF worked on the development of the questionnaire. The preliminary version of the questionnaire was then turned over to the research team from the University of the Philippines School of Statistics tasked to collect the information from the firms and analyze the results. The firm's questionnaire is divided into six (6) major parts and collects the following information:

Part 1: Gathers information related to the profile of the companies (e,g. type of industry, size of the company, number of employees, location of the company, among others).

Part 2: Seeks information related to the training activities of the company (e.g. number of trainees in 2012, 2013, 2014 and the reckoning period for the costs and benefits of the DTS: 01 July 2014 to 30 June 2015). This part also asks for the Personal Cost of Trainees by Occupation, as well as the costs associated with the trainers.

Part 3: Collects information related to the physical costs of the training by occupation.

Part 4: Asks information associated with the short-term benefits, benefits associated with seasonal demand and long-term benefits.

Part 5: Asks the expenses occurred in giving orientation per training per skilled worker who are not under DTS.

Part 6: Asks more detailed question on the long-term benefits, accidents and wastage in the company.

In addition to the firm's questionnaire, two other questionnaires were developed for the TVIs (refer to Annex 4) and Trainees (refer to Annex 5). While the main focus of the study is the costs and benefits of the DTS for the firm, information associated with the TVIs and the trainees in the practice of the DTS are also important in providing additional information in identifying the key constraints in the expansion of the DTS program in the country.

The firm questionnaire was pilot tested to check that questions are properly phrased and clear to the respondents. Three firms were identified to participate in the pre-testing: DMCI Technical Training Center (Construction Industry), Marco Polo Ortigas, Manila (Hospitality Industry) and Palm Beach Resort (Hospitality Industry). Appropriate revisions were then incorporated into the final version of the questionnaire.

4.2.2 DEVELOPMENT OF THE TRAINING MANUAL, TRAINING OF THE RESEARCHERS, QUALITY CONTROL

A training manual was also developed to guide the researchers in the data collection process. A copy of the training manual is available upon request from the project team leader. A training of researchers assigned to cover respondents in Region 3, Region 4A and the National Capital Region (NCR) was conducted from 26 to 27 August 2015, with the support of the technical expert from BIBB, at the University of the Philippines Diliman Hotel, Quezon City. Another training of researchers assigned to cover the respondents in Region 10 was initiated from 17 to 18 October 2015 at the Mallberry Suites in Cagayan de Oro City.

Letters from TESDA and PCCI were sent to the companies informing them of the research project. Interviews were done face-to-face, with the President or the General Manager of the firm as the respondent and the Owner or the Head of the Institution for the TVI. Considering, however, the technical nature of the questionnaire, it is a common practice that a Human Resource Manager or the Training Officer or the Operations Supervisor/ Manager will provide information to the researcher. As part of the protocol of the research team, the General Manager or President of the firm is the one who will clear the questionnaire and verify its content/responses, before the questionnaire is accepted.[6]

Considering that the trainee's questionnaire is a rider to the firm's questionnaire, interviews were conducted only for trainees who were at the premises of the firms during the visit of the researchers. Trainees who were not in the company premises during the time of the visit of the researcher were excluded in the study.

Quality control in the survey operations is a crucial part of the data collection. In particular, two strategies were developed for the study. First, spot checks were made by a field supervisor through random and unannounced visits to the enumerators to check if the work is being done according to the timeline and the agreed standard. Spot checks were carried out in at least 100 different firms. Second, the project team in Quezon City made random callbacks to firms to validate the information the respondents provided in the questionnaires. This is to make sure that proper responses are recorded in the encoding stage. Moreover, the research team also checked, edited and verified the entries in the questionnaires before the encoding process. The editors were the ones making the necessary callbacks to the firms. The research team also put in place the necessary procedures to guarantee a timely double entry of data. Randomly selected 20% of the data were double entered. The preference is for a direct electronic entry of data. This process started as soon as the interviews are being fielded and completed within a period of 2 weeks after the field work ends.

[6] In some cases where the firm are not keen in participating in the research study, the enumerators visited the firms three times before declaring it as part of the non-response.

CUMMINS SALES & SERVICE PHILIPPINES INC.: DTS PARTNER FOR YOUTH DEVELOPMENT

A global brand synonymous with designing and manufacturing of diesel & compressed natural gas engines, generator sets, filtration products and lubricants, **Cummins Sales & Service Philippines Inc. (CSSPI)**, has been aggressively marketing said products since August 2001. The company is a wholly owned subsidiary of Cummins Inc. USA, a global power leader in Indiana USA. For more than a decade, CSSPI has provided quality service for engines and generator systems in almost all industrial and marine applications. The company is well-known for its engines and diesel-power generator sets. Cummins' engines drive well-known machinery and industry equipment brands made in the US, Europe, Japan and Korea. CSSPI also packages its product with complete "after-market-support", which includes an open line to a so-called Quick-Serve Team available 24/7. With about 100 employees, the company continues to deliver excellence in their products and services. CSSPI assures clients that its service representatives have undergone "Cummins Certified Training" to meet specific customer requirements.

DUAL TRAINING SYSTEM (DTS) TRAINEES AND THE COMPANY

Since 2012, Cummins Sales & Service Philippines Inc. (CSSPI) has been training Dual Training System (DTS) students in mechanical and electrical engineering. On the average, 10 DTS trainees, from Meralco Foundation and Dual Tech, are enlisted in the company per year. The training program lasts for 18 months, wherein trainees are required to report for work during weekdays from 8AM to 5PM. Initial screening and interview are conducted before the trainees are accepted by the company. The company strongly believes that it is their duty to give back to the community, and one way to do this is to help train students in their line of business. At the same time, CSSPI needs the DTS trainees as future pipeline of workers for the industry.

As explained by Ms. Jean Estuesta, the Manager of Human Resources Department, the company is looking for a trainee who is highly motivated, fast-learner, with good work behavior, a team player and someone with known integrity. Since CSSPI is a multinational company, management requires their trainees to have some proficiency in English. As assessed by the company's HR, the DTS trainees passed the company's expectations. The trainees' overall work performance has always been favorable. If a DTS trainee has showed difficult attitude towards work, the company calls the attention of the trainee to discuss the problem. As much as possible, the company will provide a solution to resolve the matter immediately.

Initially, DTS trainees are oriented about the company's culture. As they undergo training, they are eventually exposed to the actual work and practices that take place inside the company. They get to interact with the regular workers, who impart vital knowledge and skills to them. In a span of 18 months, there are noticeable improvement in the DTS trainees' attitude and skills. CSSPI devised a curriculum composed of classroom lectures and hands-on training. During classroom lectures, DTS trainees are oriented about the company, its rules and regulations, safety discussions, products and services. Meanwhile, during hands-on training, DTS students are trained in mechanical and electrical repairs, assembly and services.

For the hands-on training, the batch is divided into small groups. A lead-man is assigned to each group. The lead-man is in-charge of evaluating and overseeing the training given to his team. The lead-man also takes care of the team's training schedule for each station. A satisfactory performance must be achieved by the DTS trainees before they can move to the next station. All groups must be able to go through all stations for the entire training period. The stations are not assembly-based, but are systematic processes such as (1) Disassembly, (2) Wash Area, (3) Assembly, and (4) Fuel Charging Area. In order to make the training program effective, CSSPI makes the DTS trainees feel that they are highly valued. The solid training curriculum makes the transfer of learning to the workplace more effective. Weekly tasks are given to the trainees so that they have a clear direction on what needs to be achieved and learned that week. The company feels that the contributing factors in the training program's effectivity are (1) Transparency; (2) Clear specified set of goals; (3) DTS trainees are treated as part of the company and (4) Strict emphasis on safety.

Management supports the DTS trainees by providing them with sets of uniform, safety equipment and highly trained lead-men who are ready to assist them. CSSPI also offers job opportunities to the DTS trainees, whenever there is a job opening in the company and that the trainees have satisfactory performance. At the end of the training, the company gives the trainees a certificate of completion, which the trainees can use as additional credential. The company hires regular workers who have relevant experience in the position and most often, the company hires those trained from the DTS program.

BENEFITS FROM THE DTS PROGRAM

Overall, management is completely satisfied with the performance of the DTS trainees. They are known to be very good trainees who listen to the instructions of their supervisors. The HR gets feedback from the trainees through a survey given at the end of the training. The major advantage of having DTS trainees is the additional manpower that they render. Ms. Estuesta mentioned that the short-term benefits that CSSPI generates from having DTS trainees are increase efficiency and productivity and having additional manpower. Long-term benefits from having DTS trainees in the company includes savings on recruitment costs and that DTS trainees are more productive compared to other externally hired workers.

RECOMMENDATION TO STRENGTHEN THE DTS PROGRAM

Cummins Sales and Service Philippines Inc. hopes their partner institutions, Dual Tech and Meralco Foundation, would have a specialized program that matches the skills requirement of the company, considering that their partnership has been going smoothly for the past 4 years already. However, CSSPI acknowledges this would be difficult for the schools, because the equipment that the company uses are expensive. One solution is to simply donate the equipment. Management feels that the curriculum of the schools covers only the basic. The schools need to offer more specialized training or courses to the students in order to truly produce highly skilled workers. The company did not encounter any problem with DTS training regulations or requirements. So far, the Dual Training System (DTS) Program has been working well for the company due to the benefits they get from it.

FIRMS, TVIS AND TRAINEES COVERED IN THE STUDY

FIRMS, TVIS AND TRAINEES COVERED IN THE STUDY

A total of 201 firms participated in the Cost and Benefit Study (CBS), out of the 706 firm-partners (as of December 2015), for a participation rate of about 28 percent of the total number of firms. Table 4 shows the number of firms by region and industry type. Most of the firms that participated in the survey are from Region 10 (Northern Mindanao), with 38 percent, followed by Region 3 (Central Luzon) with 26 percent; Region 4A (CALABARZON) with 22 percent and the National Capital Region (NCR) with 13 percent. Classifying by industry type, the firms came mostly from the Manufacturing Sector with 40 percent, Wholesale and Retail Trade Sector (particularly, repair of motor vehicles) with 15 percent, Hospitality Sector with 11 percent and the Construction Sector with about 8 percent of the firms.

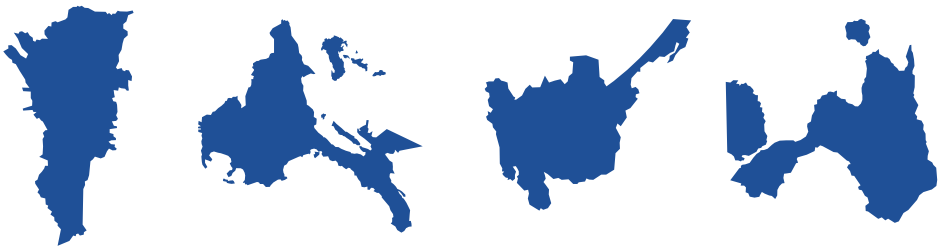
Table 4. Number of Firms that Participated in the Study by Region and Industry Type

Type of Industry	NCR	Region 3	Region 4A	Region 10	Total	Percent
Agriculture, forestry and fishing		2		2	4	1.99
Manufacturing	**5**	**23**	**43**	**9**	**80**	**39.80**
Electricity, gas, steam and air-conditioning supply	2	1		3	6	2.99
Water supply, sewerage, waste management				2	2	1.00
Construction	**1**	**3**		**12**	**16**	**7.96**
Wholesale and Retail: Repair of motor vehicles	**5**	**1**		**25**	**31**	**15.42**
Transportation and Storage				8	8	3.98
Accommodation and Food service activities (Hospitality)	**7**	**16**			**23**	**11.44**
Information and Communication	1			1	2	1.00
Financial and insurance activities	1			1		0.50
Professional, scientific and technical services	1				1	0.50
Education				1	1	0.50
Arts, Entertainment and Recreation		1			1	0.50
Other service activities	5	5	2	13	25	12.44
TOTAL	**27**	**53**	**45**	**76**	**201**	**100**
PERCENT BY REGION	**13.43**	**26.37**	**22.39**	**37.81**	**100**	**-**

[7] It should be noted that the terms of reference (TOR) covered only the firms in the NCR, Regions 3, 4A and 10 covering only 481 firms. Using this number the survey response rate is 45 percent. Moreover, 21 firms in the master list were found to be closed already and another 12 firms were found to be not practicing the DTS during the visits.

The figures in Table 5 show the number and percentage of firms that participated in the survey, categorized according to the firm size (by the number of employees) and regional location. All the four firm types: micro (with 1 to 9 employees), small (10 to 99 employees), medium (100 to 199 employees) and large firm (more than 200 employees) sizes are well represented in the study.

Table 5. Number of Firms by Firm Size by Region



REGION	NCR	REGION IV-A	REGION III	REGION X	TOTAL	PERCENTAGE
MICRO	1	0	2	23	26	12.94
SMALL	12	9	23	33	77	38.31
MEDIUM	6	11	5	7	29	14.43
LARGE	8	25	23	13	69	34.33
TOTAL	27	46	53	76	201	100.00

For the duration of the training programs as shown in Table 6, most of the firms follow a training program with short duration of less than three months, about 44 percent of the firms reported short training duration, while about 37 percent of the firms practice a medium duration training program ranging from three to twelve months. Only nineteen percent of the firms reported a longer training duration of more than 12 months or 1 year (about 19 percent of the firms reported longer training duration).

Table 6. Number of Firms by Training Duration and Regional Location

Region	Less than 3 months (Short duration)	3 months to 1 year (Medium duration)	More than 1 year (Longer duration)	Total
NCR	5	12	8	25
Region 4A (CALABARZON)	0	23	21	44
Region 3 (Central Luzon)	15	28	8	51
Region 10 (Northern Mindanao)	65	9	1	75
TOTAL	**85**	**72**	**37**	**195**[8]
PERCENTAGE	**43.59**	**36.92**	**19.49**	**100.00**

Out of the 82 targeted TVIs in the TESDA master list, only 21 TVIs participated in the study for a response rate of 26 percent. The information from the TVIs is not part of the original terms of reference (TOR) and the questionnaires for the TVIs served as a rider for the study of the firms. While a number of the TVIs do not practice the Dual Training System (DTS) and thus are excluded from the study, the research team noted the reluctance of the TVIs to share information about how they run the DTS program, particularly on the finances and information on their firm-partners. Perhaps in the future, TESDA can encourage the TVIs to participate in similar studies in the future.

Table 7. Number and Percentage of Training Vocational Institutes (TVIs) in the Study

Region	Count	Percent
NCR	3	14.3
Region 4A (CALABARZON)	8	38.1
Region 3 (Central Luzon)	6	28.6
Region 10 (Northern Mindanao)	4	19.1
TOTAL	**21**	**100.0**

In addition to the firms and the training institutes, the costs and benefits study also covered trainees that are in the firms during the time of the visit. All the trainees in the vicinity of the firm during the scheduled interview were given their own instrument to answer. The instrument focused more on the perception of the trainees on the firm's training program. A total of 112 trainees were given the instrument, and the number of trainees by regional locations is reported in Table 8 below.

Table 8. Number and Percentage of Trainees by Regional Location

Region	Count	Percent
NCR	17	15.2
Region 4A (CALABARZON)	35	31.3
Region 3 (Central Luzon)	13	11.6
Region 10 (Northern Mindanao)	47	42.0
TOTAL	**112**	**100.0**

[8] The difference between the 195 and 201 is that the 6 companies do not practice DTS.

PHIL – NIPPON KYOEI CORPORATION: PARTNER IN STRENGTHENING WORK VALUES OF DTS TRAINEES

Phil – Nippon Kyoei Corporation (PNKC) is a holding company of strategic business unit engaged in Power, Shipping, Food Manufacturing, Cold Storage, Logistics, and Industrial Supply & Services. The company was founded in 1995 and it began providing supplies of spare parts and equipment in the marine industry that stabilized prices at standard level. The majority equity holder of the company is Technomarine Co. LTD, a company based in Kobe, Japan.

Through the years after it entered the industry, the company has launched several big projects with the top companies in the country. In 1999, PNKC and Pilipinas Shell Petroleum Corp (PSPC) partnered for the Rehabilitation, Operation and Maintenance of 16MW Diesel power plant fueled by heavy fuel oil. Moreover, PNKC was awarded the Built Own Operate (BOT) contract with Trans National Paper Corp. in 2002 and the company finalized 15 years power supply partnership with Air Liquid Philippines Inc. in 2006. The company employs more than 100 workers in the Philippines. The company has satellite offices and plants in the other provinces. PNKC also opened their first storage plant in Food Terminal Inc. Taguig City and launched the Philippine's first industrial Solar Power Plant Facility located at San Miguel, Tarlac.

DUAL TRAINING SYSTEM (DTS) TRAINEES AND THE COMPANY

As part of the company's community and social responsibility, Phil – Nippon Kyoei Corp. (PNKC) train students under the Dual Training System (DTS) since 2006. Together with its partner institution, Dual Tech, the company helps mold the DTS students in becoming highly skilled workers in engineering and technical repair. Currently, the company trains 17 DTS students in generator set maintenance, motor maintenance, heavy equipment repair, electrical, among others. The training program lasts for 18 months and the trainees are expected to report for work eight hours a day during weekdays. During Saturdays, they are required to attend classes at Dual Tech.

Initial screening is done before the students are accepted in the training program. The company expects DTS trainees to have basic knowledge in mechanical or electrical engineering. Moreover, the company prefers trainees with strong work values. Ms. Marvie Tariga, the Chief Finance Officer of PNKC, mentioned that for the past 10 years, they have been getting male trainees from Dual Tech. She hopes that in the future, they could receive female DTS trainees as well. In general, Ms. Tariga assessed that DTS trainees passed the PNKC's expectations.

Knowing that trainees come from different backgrounds, the company is aware of the diversities in attitude and skills of the trainees. Whenever a DTS trainee shows problem towards work, management communicates with the trainee and personnel from Dual Tech to assess the situation. The trainee is sometimes transferred to a different process where he might perform better. The company's training program has significantly changed DTS trainees' attitude in the workplace. As the students experience hands-on training, they gradually gain knowledge and skills that are not taught in school. What PNKC does is to match the trainee with the process where he will be most likely productive.

A batch of DTS trainees is divided into small groups composed of a maximum of 3 trainees. The groups are assigned to the different areas of operation of the company. In each area, a supervisor is assigned to train the group and evaluates each DTS trainee based on performance. The supervisor is in-charge of daily activities of the DTS trainees in the assigned area. At the end of each week, Human Resources Department personnel counterchecks and make sure that the actual process has been taught to the trainees. PNKC makes sure that proper training is being conducted to the trainees because eventually, they want to hire the trainees as future workers. The groups of trainees are assigned to the different areas by rotation. The length of time that each group spends in a particular training area depends on the supervisor's evaluation of their performance.

PNKC believes that the critical component in the effectivity of the company's training program is the high caliber of education and good values that Dual Tech provides to the DTS trainees while they are in school. PNKC supports DTS trainees by giving them daily allowance and overtime pay. They also include trainees in company events. DTS trainees are given equal and fair treatment like a regular worker in the company.

To evaluate the DTS training program, the company developed a Key Performance Index (KPI) as a tool to measure the trainees' transfer of learning to the workplace and to measure DTS trainees' productivity. There are specific items that are measured for each training area. For example, under the generator set component, one of the items measured is downtime of the equipment. For heavy equipment services, the trainee must achieve the Preventive Maintenance Schedule. PNKC offers job opportunities to its DTS trainees, depending on the availability of position. Once a trainee has shown great potential and his qualities match the job position, he is sure to land a job in the company. In a batch of DTS trainees, around 2 to 4 trainees are usually absorbed by the company for employment.

BENEFITS FROM THE DTS PROGRAM

One major advantage of having DTS trainees in the company is having loyal future workers, an important quality highly valued by PNKC. Ms. Tariga cited that employees who were former DTS trainees are deemed to be the most loyal in their workforce. In addition, the DTS training program also brings short-term benefits such as additional manpower needed in areas where regular workers require assistance, increased productivity and efficiency of the DTS trainees and the influence of DTS trainees bring, such as good values, to the company's regular workers. Moreover, long-term benefits are also generated by the company through participation in the DTS program such as strengthening the good reputation of the company, increase the availability of excellent technicians in the future, and increased customer satisfaction.

The company has an excellent relationship with it partner institution and also with TESDA. In general, the existing DTS training regulations and requirements are working favorably to the company.

RECOMMENDATION TO STRENGTHEN THE DTS PROGRAM

Phil – Nippon Kyoei Corporation wishes that more schools will offer vocational courses. It is also important that schools strengthen the written and oral skills of the students both in English and Filipino. The company also suggests that the training period be increased, to deepen the knowledge and skills acquired by the DTS trainees. In terms of training location, the company suggests that DTS trainees be assigned to sites outside Metro Manila so that the company can also train the students in other specializations which are only available in areas outside Metro Manila. Lastly, the company hopes that more private institutions and the government, through TESDA, could subsidize the tuition fee of DTS students in the future.

RESULTS OF THE COST AND BENEFITS STUDY OF THE DTS

6.1 AVERAGE COSTS AND BENEFITS

As discussed in the conceptual framework in computing for the costs and benefits of running the Dual Training System in the firm, there are three (3) major costs categories: (a) Costs for the Trainees (e.g. allowance of the trainee); (b) Costs for the Trainers (e.g. salary of the trainers); and (c) Physical Costs (e.g. materials used in the training).

Using the data from the survey, the research team was able to compute the average overall cost per trainee per month for the firm in running the DTS program. The results show that overall cost of training per trainee per month is about Php 12,800 (or about US$ 272.00), but the figure varies across regional location and type of industry.9 The figures in Table 9 show the composition of the cost per trainee in the firm. A substantial percentage of this average cost is for the allowances and other benefits given to the trainees (cost of trainees), representing about 44 percent of the aggregate average cost.10 The second large component of the aggregate average cost is from the physical cost (e.g. materials and equipment used by the trainees), followed by the cost for the trainers.

Table 9. Average Cost per Trainee per Month in Running the DTS for the Firm

			95% Confidence Interval	
Cost Category	**Mean (in Php)[10]**	**Standard Error**	**Lower Limit**	**Upper Limit**
Cost of Trainees (e.g. allowance)	5,588	316	4,964	6,212
Cost of Trainers	2,365	383	1,609	3,121
Physical Costs	3,828	674	2,497	5,159
TOTAL COSTS	**12,801**	**873**	**11,077**	**14,524**

On the benefits side, two types of benefits can be derived from the DTS: (a) short-term benefits which arise by the productive contributions of the trainees; and (b) long-term benefits that may arise if the trainee is employed by the firm after having finished the training. For the short-term benefits, both the productive contribution (productivity) and the seasonal benefit contribution are computed. The seasonal benefit contributions of the DTS trainees occur when the firm experiences peak demand for goods and services in months within the year (e.g. resorts experience high demand for services by tourists during summer season). In this case, firms hire seasonal employees to augment the workforce during periods with peak demand. The timing of the training for the DTS trainees is sometimes scheduled during periods of peak demand, thereby creating the additional seasonal productivity benefits. The numbers are presented in Table 10 below.

[9] The assumed exchange rate is US$ 1 = Php 47.00.

[10] The sum of the individual (trimmed) averages does not sum up to the total (aggregate) cost since these are trimmed averages.

[11] The trimmed mean is used to compute for the average to minimize the effects of extreme values. The trimmed mean is the average (mean) after taking out the lowest and highest 5 percent of the data.

The results show that overall short-terms benefits for firms derived from the DTS program is about Php 5,487.00 or US$ 117 per trainee per month, representing about 43 percent of the average cost of training. This number also varies across regional location and type of industry. It should be noted that the average short-term benefits is almost equal (at the sample) to the direct costs for trainees (Php 5,588 or US$ 119). The average net cost is computed at about Php 7,314 (or US$ 156) per trainee (the difference between the total costs and the short-term benefits).

Table 10. Average Short-Term Benefits per Trainee per Month in the DTS

			95% Confidence Interval	
Short-Term Benefits	**Mean (in Php)**	**Standard Error**	**Lower Limit**	**Upper Limit**
Productivity	5,105	209	4,694	5,517
Seasonal Benefits	382	58	268	497
TOTAL BENEFITS	**5,487**	**220**	**5,053**	**5,920**

In addition to the short-term benefits, the DTS trainees also provide long-term benefits to the firm if the trainees stay in the firm after the training. The long-term benefits include savings in recruitment costs, such as cost of ads and the cost of personnel that will process the externally recruited workers, the benefit the firms' gains due to the productivity differences between DTS-trained workers and the new externally-hired workers and the cost in the orientation of new workers, which includes orientation materials and personnel doing the orientation.

The long-term benefits per trainee are provided in Table 11 below. One interesting item in the long-term benefits is the long-run productivity difference between DTS trained worker and an externally hired (non-DTS) worker, which is quite substantial at about 16 percent (about Php 2,032) of the average overall cost per person.

Table 11. Long-Term Benefits per Trainee for the Firm

Long-Term Benefits	**Mean (in Php)**[12]	**Standard Error**
Cost of Ads	997	324
Cost of Manpower (Internal) in Hiring	11,488	1930
Cost of Manpower (External) Services	822	138
Cost of Orientation Materials	16.5	28
Cost of Manpower in Orientation	3,169	702
Productivity Difference	2,032	135

In addition to the short-term and long-term benefits derived by the firms from the DTS training program, there is also a substantial spill over benefit to the trainees undergoing the program. The figures in Table 12 show that about one-third (33 percent) of the trainees are hired by the firms hosting the training. Moreover, discussion with human resources personnel during the survey revealed that majority of the DTS-trainees not absorbed by the company are being recruited by other firms in the same line of business here and abroad.[13]

Table 12. Percentage of Trainees Hired (Retained) by the Firms after the Training

	Total	Standard Error	Lower Limit	Upper Limit
Total Trainees	5,625	1,073	3,508	7,742
Total Hired	1,834	416	1,014	2,654
Percentage of Trainees Hired	32.6%	5.9%	21.0%	44.2%

6.2 AVERAGE COST AND BENEFITS: DIFFERENCES ACROSS FIRM SIZE, INDUSTRY TYPE, AND TRAINING DURATION

6.2.1 COMPARISON ACCORDING TO FIRM SIZE

Initial observations from the survey data reveal that total costs and benefits of administering the DTS vary across firm size (in terms of the number of employees), industry type and duration of training. This section provides the empirical evidence to show such differences in overall costs and benefits. The numbers in Tables 13 and 14 shows the average cost and short-term benefit, respectively, per trainee per month classified by firm size (in terms of the number of employees). The numbers show a distinctive pattern. On the one hand, as the size of the firm gets larger, the average cost per trainee gets smaller, while on the other hand, the average short-term benefits are highest as the size of the firm gets larger.

Comparison of the cost and short-term benefits by firm size shows that short-term benefits, as a percentage of overall costs, is highest for large firms where the short-term benefits derived from the DTS program account for about 58 percent of the overall cost. This is followed by firms classified as medium-sized, with the average short-term benefits account for 48 percent overall costs and small-sized firms with a corresponding value of 38 percent. Microenterprises have the highest average costs of running the DTS program and the average short-term benefit from the program is only about 21 percent of the cost – the lowest in the group. Most of these microenterprises are found in Region 10 (Northern Mindanao) and are engaged in motor vehicle repair. The results suggest that DTS will be more beneficial and attractive to medium and large firms compared to micro-enterprises and small firms.

[12] The averages are not computed on the same number of firms since some firms only report specific type of cost associated with the computation of the long-term benefits.

[13] The information was shared by the Human Resources personnel of Subic Drydock Corporation (SDC) a company engaged in ship repair services and Honeywell Casea (Subic Bay) Company Inc., a company engaged in aircraft wheels and brakes repair.

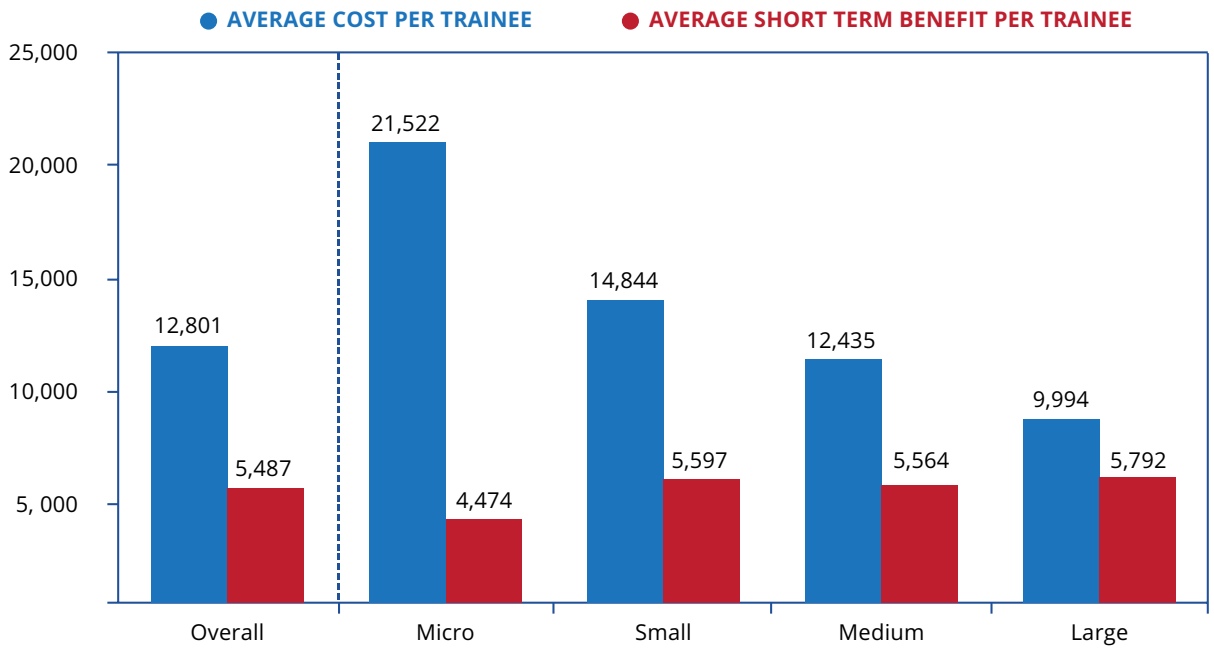
Table 13. Average Cost per Trainee per Month in Running the DTS by Firm Size

Firm Size (Number of Employees)	Number of Firms	Mean in Php (in US$)	Standard Error
Micro (1 to 9)	24	21,522 (US$458)	5,408
Small (10 to 99)	68	14,844 (US$316)	1,495
Medium (100 to 199)	25	12,435 (US$265)	1,547
Large (200 and above)	58	9,994 (US$213)	616

Table 14. Average Short-Term Benefits per Trainee per Month in Running the DTS by Firm Size

Firm Size (Number of Employees)	Number of Firms	Mean in Php (in US$)	Standard Error
Micro (1 to 9)	24	4,474 (US$95)	447
Small (10 to 99)	68	5,597 (US$119)	336
Medium (100 to 199)	25	5,564 (US$118)	781
Large (200 and above)	58	5,792 (US$123)	352

Figure 11. Average Cost and Short-Term Benefits per Trainee per Month by Firm Size



In addition to having the highest average short-term benefits, the information in Table 15 further reveals substantial long-term benefits that large firms can derive from the DTS program, if the DTS trainees stay with the firm after the training. These long-term benefits are the savings in advertising and searching for new workers, manpower costs in the hiring process, the orientation of new workers and productivity differences between DTS-trained and externally-hired workers. The tables showing the same long-term benefits for micro, small and medium-sized firms are reported in Annexes 6A to 6C, respectively.

Table 15. Average Cost per Trainee per Month in Running the DTS by Firm Size

Long-Term Benefits	Number of Firms[14]	Mean (in Php)	Standard Error
Cost of Ads	34	1,771	753
Cost of Manpower (Internal) in Hiring	41	4,964	1399
Cost of Manpower (External) Services	21	759	212
Cost of Orientation Materials	58	206	179
Cost of Manpower in Orientation	41	1,299	401
Productivity Difference (Monthly)	55	2,364	263

SIMULATION COMBINING THE SHORT-TERM AND LONG-TERM BENEFITS VIS-À-VIS TOTAL COST

To determine the full benefits of the DTS program for large firms, the researchers performed simulation exercises to calculate both the short-term and long-term benefits of the DTS program under the assumption that a trainee stays in the firm for three (3) months. Using the numbers in Tables 13 to 15, the simulation resulted in the following computation:

Scenario: Firms provide a three month training program.

(1) Overall cost for the three month period: Php 9,994 x 3 months = Php 29,982
(2) Short-term benefits for the three month period: Php 5,792 x 3 months = Php 17,376
(3) Long-term benefits (e.g. saving in recruitment)[15]: = Php 9,000
(4) Productivity Difference: Php 2,364 x 3 = Php 7,092
(5) Net Benefits = (Php 17,376 + Php 9,000 + Php 7,092) – Php 29,982 = Php 3,486

The simulation exercise shows that on the assumption the trainees stay in the firm for three (3) months, the combined short and long-term benefits is bigger than the overall costs by about 3500 pesos (about US$ 75) per trainee thereby providing an incentive for large firms to engage in the DTS program.

[14] The number of firms per item varies because of missing data. For the simulation estimations we assume that firms with missing data concerning an item have on average the same costs/benefits as those reporting data.

[15] The long-term benefits include the saving in advertising expenses, manpower hiring (external and internal), costs of orientation manpower and materials.

6.2.2 COMPARISON ACCORDING TO INDUSTRY TYPE

Table 16. Average Cost per Trainee per Month in Running the DTS Classified by Industry Type

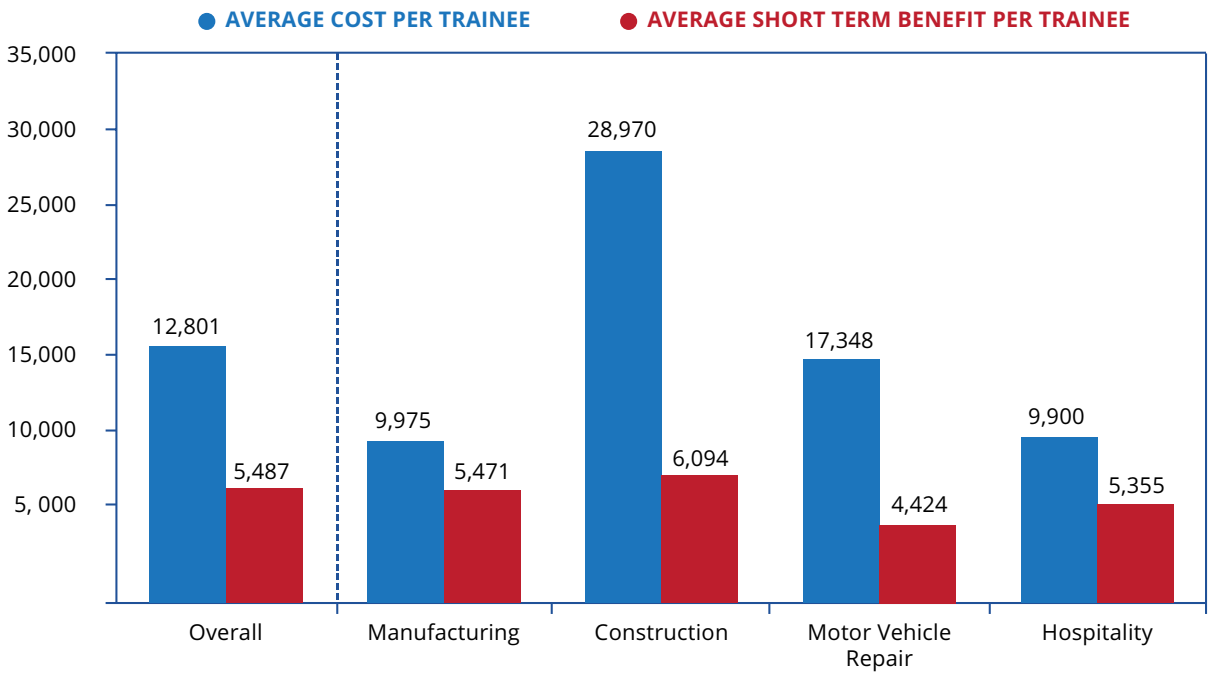
Industry	Number of Firms	Mean in Php (in US$)	Standard Error
Manufacturing	72	9,975 (US$212)	465
Construction	16	28,970 (US$616)	7,457
Motor Repair	25	17,348 (US$369)	2,583
Hospitality	20	9,900 (US$213)	671

Table 17. Average Short-Term Benefits per Trainee per Month in Running the DTS Classified by Industry Type

Industry	Number of Firms	Mean in Php (in US$)	Standard Error
Manufacturing	72	5,471 (US$116)	324
Construction	16	6,094 (US$130)	706
Motor Repair	25	4,424 (US$94)	441
Hospitality	20	5,355 (US$114)	545

Comparison of average costs and short-term benefits by industry type, as shown in Tables 16 and 17, respectively, and summarized in Figure 11, shows that short-term benefits as a percentage of the overall costs of the DTS program, is higher for firms in the Hospitality and Manufacturing sectors. In both industries, the short-term benefits account for about 55 percent of the overall costs for the trainee per month. For firms in the Construction sector, the short-term benefits of the DTS program are the lowest as a percentage of costs, where it accounts for only about 21 percent of the overall costs per trainee per month. For firms in the motor vehicle repair (under the wholesale and retail trade sector), the comparative number is 26 percent. It should also be noted that firms in the wholesale and retail trade, particularly in the motor vehicle repair industry, are found mostly in Region 10. These companies are also classified as either micro-enterprise or small-sized type of firms, using the number of employees as the benchmark.

Figure 12. Average Cost and Short-Term Benefits per Trainee per Month by Industry Type



Considering the higher short-term benefits generated by firms in the Manufacturing and Hospitality industries in running the DTS compared to firms in the Construction and Retail Trade (Repair of Motor Vehicle) industries, the numbers in Table 18 and 19 highlight the additional and potential long-term benefits that can also be gained by the these firms through the practice of the DTS. It has to be emphasized, however, that such long-term benefits can be harvested only when the trainees stay with the company, thereby creating savings in the recruitment and orientation expenses.

Table 18. Long-Term Benefits Derived from the DTS for Firms in the Manufacturing Industry

Long-Term Benefits	Number of Firms[16]	Mean (in Php)	Standard Error
Cost of Ads	30	3,401	1567
Cost of Manpower (Internal) in Hiring	40	10,806	3569
Cost of Manpower (External) Services	25	823	176
Cost of Orientation Materials	72	96.9	95
Cost of Manpower in Orientation	40	2,146	810
Productivity Difference (Monthly)	68	2,166	217

[16] The number of firms per item varies because firms did not indicate some items as part of their cost, resulting in missing data. These items were dropped in the computation of the average since it will be difficult to estimate the firm-level values from available data.

Table 19. Long-Term Benefits Derived from the DTS for Firms in the Hospitality Industry

Long-Term Benefits	Number of Firms[17]	Mean (in Php)	Standard Error
Cost of Ads	16	573	406
Cost of Manpower (Internal) in Hiring	18	10,372	2113
Cost of Manpower (External) Services	10	675	155
Cost of Manpower in Orientation	19	7,778	3954
Productivity Difference (Monthly)	68	1,863	360

Using a similar simulation exercise, as in the case of large firms, and assuming the trainees stay for three months with the firm, the combined short-term and long-term benefits from the DTS amounts to about Php 40,183.00 (or US$ 855) for a typical firm in the manufacturing industry. The overall cost is estimated to be about Php 29,925.00 (or US$ 637) for the same three-month period, thereby creating an average net benefit, or the difference between total benefits less total cost, of about Php 10,258.00 (or US$ 218) per trainee.

The combined short-term and long-term benefits for an average firm in the Hospitality industry total about Php 41,053.00 (or US$ 873), while the total cost is around Php 29,700.00 (or US$ 632) for the three-month duration. This results in a net benefit of Php 11,353.00 (or US$ 242) per trainee. The empirical evidence suggests that practice of the DTS program will be beneficial to the firms in the Manufacturing and Hospitality industries, where there is a substantial and positive net benefit that can be acquired by the firms from the DTS program. It should be also noted that firms in the Manufacturing and Hospitality industries typically belong to the medium-sized and large-sized firm categories in terms of the number of employees and as shown earlier have positive net benefit from the DTS program.

However, not all firms showed large and positive net benefit from participation in the DTS program, as firms in the Construction and Motor Vehicle Repair experienced large overall costs of running the program. Most of the firms under these sectors are found in Region 10 and one of the factors attributing to the high overall cost in running the program is the high shipping costs between Manila and Mindanao, resulting in higher cost of materials used in the training.

[16] [17] The number of firms per item varies because firms did not indicate some items as part of their cost, resulting in missing data. These items were dropped in the computation of the average since it will be difficult to estimate the firm-level values from available data.

6.2.3 COMPARISON ACCORDING TO TRAINING DURATION

The numbers in Tables 20 and 21 provide a comparison of the average costs and short-term benefits, respectively, for firms practicing DTS categorized according to training duration. The figures show that average cost is highest per trainee per month for short-term programs (less than three months) and the average benefit derived by the firms account for only about 27 percent of the overall costs. For firms where the DTS program ranges from 3 months to 12 months, the short-term benefits is about 59 percent of the average costs per trainee per month. For firms in the DTS program lasting for more than 12 months, the short-term benefits account for about 51 percent of the average costs per trainee per month. The results suggest that it is advantageous for firms to engage in training programs that are longer (at least three months), where the expected benefits from the DTS program are higher. Moreover, additional interviews from human resources and training personnel revealed that firms prefer longer program (minimum of 6 to 9 months), since according to the firms' informants, the trainees acquire skills better when they are engaged in the operations of the firm for a longer period.

Table 20. Average Cost per Trainee per Month Classified by Training Duration

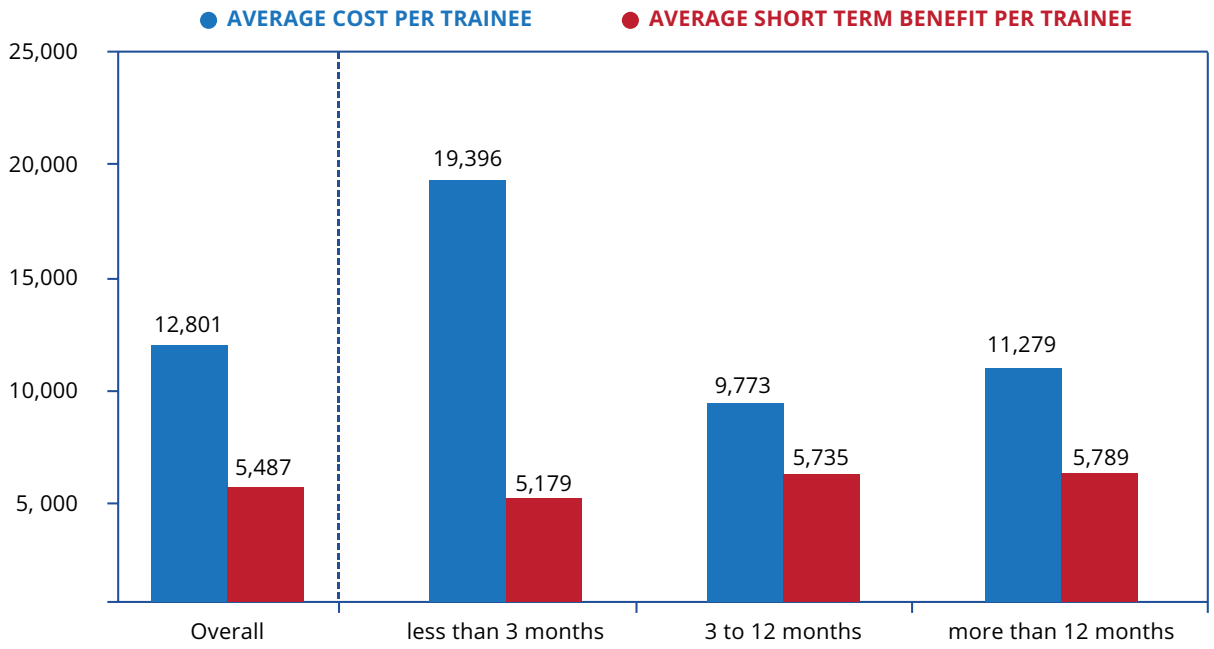
Duration	Number of Firms[16]	Mean in Php (in US$)	Standard Error
3 months or less	73	19,396 (US$413)	2,398
Greater than 3 months to one year	66	9,773 (US$208)	553
More than one year	36	11,279 (US$240)	481

Table 21. Average Short-Term Benefits per Trainee per Month Classified Training Duration

Duration	Number of Firms[16]	Mean in Php (in US$)	Standard Error
3 months or less	73	5,179 (US$110)	370
Greater than 3 months to one year	66	5,735 (US$112)	336
More than one year	36	5,789 (US$123)	416

[16] The number of firms per item varies because firms did not indicate some items as part of their cost, resulting in missing data. These items were dropped in the computation of the average since it will be difficult to estimate the firm-level values from available data.

Figure 13. Average Cost and Short-Term Benefits per Trainee per Month by Firm Size



The numbers in Table 22 present the additional long-term benefits from the DTS program for firms with training duration ranging from more than three (3) months to one (1) year. The substantial components of these long-term benefits are the items associated with hiring and orientation of newly-hired workers, with estimated average of Php 9,626.00 and Php 2,518.00, respectively. Assuming that trainees stay for six (6) months with the firm, study estimates the overall long-term benefits to be at Php 25,987.00 per trainee. Adding the short-term benefits of about Php 34,408.00 (Php 5,735.00 per month for six (6) months), the combined short-term and long-term benefits per trainee for the period will total to Php 60,395.00 (or US$ 1285). The overall costs of running the DTS program for six (6) months is around Php 58,639.00 (US$ 1248), giving a net benefit of Php 1,756.00 (US$ 37) per trainee.

Table 22. Long-Term Benefits Derived from the DTS for Firms with Training Duration of More than 3 Months to 12 Months

Long-Term Benefits	Number of Firms[18]	Mean (in Php)	Standard Error
Cost of Ads	37	1,368	694
Cost of Manpower (Internal) in Hiring	43	9,626	2,662
Cost of Manpower (External) Services	24	777	113
Cost of Orientation Materials	66	32	48
Cost of Manpower in Orientation	43	2,518	976
Productivity Difference (Monthly)	62	1,944	215

6.3 AVERAGE COSTS AND BENEFITS: REGIONAL DIFFERENCES

6.3.1 NATIONAL CAPITAL REGION (NCR)

The average costs and benefits in running the DTS vary across regional location and these differences will be discussed and highlighted in this section.

The figures in Table 23 show that the overall costs of training per trainee per month in the NCR is about Php 11,829 (or about US$ 252.00), slightly lower compared to the national average costs of about Php 12,800. Moreover, the composition of the average costs per trainee for a firm in the NCR shows that a large percentage of costs goes to the allowances and other benefits given to the trainees (cost of trainees), representing about 83 percent of the aggregate average cost. The second large component of the aggregate average costs is from the physical cost (e.g. materials and equipment used by the trainees), followed by the costs for the trainers.

Table 23. Average Cost per Trainee per Month in Running the DTS for the Firm in the NCR

Cost Category	Mean in Php (in US$)[19]	Standard Error
Cost of Trainees (e.g. allowance)	9,850 (US$210)	890
Cost for Trainers	564 (US$12)	399
Physical Costs	1,347 (US$29)	386
Total Costs	11,829 (US$251)	908

The results from table 24 show that overall short-terms benefits for firms derived from the DTS program in the NCR amount to Php 5,891.00 or US$ 125 per trainee per month, slightly higher compared to the national average short-term benefits, and represents about 50 percent of the average costs of training. The average net costs of the training, or the difference between the total costs and the short-term benefits, in NCR is about Php 5,938 (or US$ 126) per trainee per month.

Table 24. Average Short-Term Benefits per Trainee per Month in the NCR

Short-Term Benefits	Mean in Php (in US$)[20]	Standard Error
Productivity	5,286 (US$112)	746
Seasonal Benefits	321 (US$68)	202
Total Benefits	5,891 (US$125)	863

[19] [20] The trimmed mean is used to compute for the average to minimize the effects of extreme values. The trimmed mean is the average (mean) after taking out the lowest and highest 5 percent of the data. The sum of the individual (trimmed) averages does not sum up to the total (aggregate) cost since these are trimmed averages.

The estimated long-term benefits per trainee are provided in Table 25 below. One should note that the long-run productivity difference between a DTS trained worker and a non-DTS trained worker is quite substantial at Php 3,618 (or US$78), representing about 31 percent of the average overall cost per person for firms in the NCR.

Table 25. Long-Term Benefits per Trainee for the Firm in the NCR

Long-Term Benefits	Mean (in Php)	Standard Error
Cost of Ads	7,170	4,165
Cost of Manpower (Internal) in Hiring	21,700	7,161
Cost of Manpower (External) Services	3,669	2,987
Cost of Orientation Materials	246	213
Cost of Manpower in Orientation	7,694	3,260
Productivity Difference (Monthly)	3,618	498

SIMULATION COMBINING THE SHORT-TERM AND LONG-TERM BENEFITS VIS-À-VIS TOTAL COST

To determine the full benefits of DTS to the firm in NCR, a simulation is made to calculate both the short-term and long-term benefits of the DTS program under the assumption that a trainee stays in the firm for three (3) months. Using the numbers in tables 23 to 25, we have the following:

Scenario: Firms provide a three month training program.

(1) Overall cost for the three month period: Php 11,829 x 3 months = Php 35,487
(2) Short-term benefits for the three month period: Php 5,891 x 3 months = Php 17,673
(3) Long-term benefits (e.g. saving in recruitment)[21]: = Php 40,479
(4) Net Benefits = (Php 17,673 + Php 40,479) – Php 35,487 = Php 22,665
Plus: additional benefit due to the long run productivity difference: = Php 3,618

The simulation exercise shows that it is beneficial for firms in NCR to undertake DTS, considering the overall benefits (short-term and long-term) clearly outweigh the costs of the training. Using the resulting figures in the simulation, the net benefits can be at least Php 22,665.00 (US$ 482) per trainee for a three-month program. The net benefits exclude the substantial contribution of DTS trainees in terms of the long-run productivity difference between a DTS-trained from a non-DTS-trained worker, estimated at about Php 3,618.00 per month. Most companies in NCR are classified as either Manufacturing or Hospitality industry and the earlier discussion showed that firms in these two sectors have the advantage of gaining substantial and positive net benefits in running the DTS program.

[21] The long-term benefits includes the saving in advertising expenses, manpower hiring (external and internal), costs of orientation manpower and materials.

6.3.2 REGION 3 (CENTRAL LUZON)

The figures in Table 26 show the overall cost of training per trainee per month in Region 3 (Central Luzon) is about Php 9,006 (or about US$ 192.00), and is relatively lower compared to the average costs of firms in other regions in the sample. The composition of the average cost per trainee for the firm in Region 3 (Central Luzon) shows a large percentage going to the allowances and other benefits given to the trainees (cost of trainees), representing about 76 percent of the aggregate average cost.

Table 26. Average Cost per Trainee per Month in Running the DTS for the Firm in Region 3

Cost Category	Mean in Php (in US$)[22]	Standard Error
Cost of Trainees (e.g. allowance)	6,836 (US$145)	417
Cost for Trainers	2,037 (US$43)	655
Physical Costs	1,007 (US$21)	452
Total Costs	9,006 (US$192)	1037

The results from Table 27 show that overall short-terms benefits for firms generated from the DTS program in Region 3 (Central Luzon) is about Php 5,859.00 or US$ 125 per trainee per month, representing about 65 percent of the average costs of training. The average net cost of the training, or the difference between the total costs and the short-term benefits, in Region 3 (Central Luzon) is about Php 3,147 (or US$ 67) per trainee per month.

Table 27. Average Short-Term Benefits per Trainee per Month in Region 3 (Central Luzon)

Short-Term Benefits	Mean in Php (in US$)[23]	Standard Error
Productivity	5,282 (US$112)	366
Seasonal Benefits	557 (US$12)	115
Total Benefits	5,839 (US$125)	370

The estimated long-term benefits per trainee are provided in Table 28 below. One should note that the long-run productivity difference between DTS trained worker and non-DTS trained worker is quite substantial at Php 1,675 (or US$36), representing about 19 percent of the average overall cost per person.

[23] The trimmed mean is used to compute for the average to minimize the effects of extreme values. The trimmed mean is the average (mean) after taking out the lowest and highest 5 percent of the data. The sum of the individual (trimmed) averages does not sum up to the total (aggregate) cost since these are trimmed averages.

Table 28. Long-Term Benefits per Trainee for the Firm in Region 3 (Central Luzon)

Long-Term Benefits	Mean (in Php)	Standard Error
Cost of Ads	590	338
Cost of Manpower (Internal) in Hiring	8,261	2,062
Cost of Manpower (External) Services	691	99
Cost of Orientation Materials	0	0
Cost of Manpower in Orientation	2,568	879
Productivity Difference	1,675	202

SIMULATION COMBINING THE SHORT-TERM AND LONG-TERM BENEFITS VIS-À-VIS TOTAL COST

To determine the full benefits of DTS to the firms in Region 3 (Central Luzon), a simulation is made to calculate both the short-term and long-term benefits of the DTS program under the assumption that a trainee stays in the firm for three (3) months. Using the numbers in Tables 26 to 28, we have the following:

Scenario: Firms provide a three month training program.

(1) Overall cost for the three month period: Php 9,006 x 3 months = Php 27,018
(2) Short-term benefits for the three month period: Php 5,859 x 3 months = Php 17,577
(3) Long-term benefits (e.g. saving in recruitment)[24]: = Php 12,110
(4) Net Benefits = (Php 17,577 + Php 12,111) – Php 27,018 = Php 2,699
Plus: additional benefit due to the long run productivity difference: = Php 1,675

The simulation exercise for firms in Region 3 (Central Luzon) shows that it is beneficial for firms to undertake DTS, considering that the overall benefits (short-term and long-term) clearly outweigh the costs of the training. Using the resulting figures in the simulation, the net benefits can be at least Php 2,699.00 (US$ 57) per trainee for a three-month program. The firms in Region 3 are mostly from the Manufacturing industry, and the positive net benefit result is expected for this group of companies.

The net benefits exclude the substantial contribution of DTS trainees in terms of the long-run productivity difference between a DTS-trained from a non-DTS-trained worker, estimated at about Php 1675.00 per month. It should be emphasized that long-run benefits can only be achieved if the trainee stays with the firm after the training program.

[24] The long-term benefits includes the saving in advertising expenses, manpower hiring (external and internal), costs of orientation manpower and materials.

6.3.3 REGION 4A (CALABARZON)

The figures in table 29 show the overall cost of training per trainee per month in Region 4A (CALABARZON) is about Php 9,444 (or about US$ 201.00), and is relatively lower compared to the national average. The composition of the average cost per trainee for the firm in Region 4A (CALABARZON) shows a large percentage of the cost going to allowances and other benefits given to the trainees (cost of trainees), representing about 87 percent of the aggregate average costs.

Table 29. Average Cost per Trainee per Month in Running the DTS for the Firm in Region 4A

Cost Category	Mean in Php (in US$)[25]	Standard Error
Cost of Trainees (e.g. allowance)	8,234 (US$175)	438
Cost for Trainers	158 (US$3)	655
Physical Costs	890 (US$19)	231
Total Costs	9,444 (US$201)	488

The results from Table 30 show that overall short-term benefits for firms derived from the DTS program in Region 4A (CALABARZON) are about Php 5,755.00 or US$ 122 per trainee per month, representing about 61 percent of the average costs of training. The average net cost of training, or the difference between the total costs and the short-term benefits, in Region 3 (Central Luzon) is about Php 3,689 (or US$ 78) per trainee per month.

Table 30. Average Short-Term Benefits per Trainee per Month in Region 4A (CALABARZON)

Short-Term Benefits	Mean in Php (in US$)[26]	Standard Error
Productivity	5,146 (US$109)	407
Seasonal Benefits	520 (US$11)	150
Total Benefits	5,755 (US$122)	424

The estimated long-term benefits per trainee are provided in Table 31 below. One should note that the long-run productivity difference between DTS trained worker and non-DTS trained worker is quite substantial at Php 2513 (or US$53), representing about 27 percent of the average overall cost per person.

[26] The trimmed mean is used to compute for the average to minimize the effects of extreme values. The trimmed mean is the average (mean) after taking out the lowest and highest 5 percent of the data. The sum of the individual (trimmed) averages does not sum up to the total (aggregate) cost since these are trimmed averages.

Table 31. Long-Term Benefits per Trainee for the Firm in Region 4A (CALABARZON)

Long-Term Benefits	Mean (in Php)	Standard Error
Cost of Ads	4,410	2,041
Cost of Manpower (Internal) in Hiring	8,609	4,272
Cost of Manpower (External) Services	1,186	259
Cost of Orientation Materials	508	503
Cost of Manpower in Orientation	1,648	717
Productivity Difference	2,513	341

SIMULATION COMBINING THE SHORT-TERM AND LONG-TERM BENEFITS VIS-À-VIS TOTAL COST

To determine the full benefits of the DTS to the firms in Region 3 (Central Luzon), a simulation is made to calculate both the short-term and long-term benefits of the DTS program under the assumption that a trainee stays in the firm for three (3) months. Using the numbers in Tables 26 to 28, resulted the following:

Scenario: Firms provide a three month training program.

(1) Overall cost for the three month period: Php 9,444 x 3 months = Php 28,332
(2) Short-term benefits for the three month period: Php 5,755 x 3 months = Php 17,265
(3) Long-term benefits (e.g. saving in recruitment)[27]: = Php 16,360
(4) Net Benefits = (Php 17,265 + Php 16,360) – Php 27,018 = Php 5,293
Plus: additional benefit due to the long run productivity difference: = Php 2,513

The simulation exercise for firms in Region 4A (CALABARZON) shows that it is beneficial for firms to undertake DTS, considering that the overall benefits (short-term and long-term) clearly outweigh the costs of the training. Using the resulting figures in the simulation, the net benefits can be at least Php 5,293.00 (US$ 113) per trainee for a three-month program. Bulk of the firms in Region 4A belong to either the Manufacturing or Hospitality industry, and the large net benefits result is expected in this group. The net benefits exclude the substantial contribution of the DTS trainees in terms of the long-run productivity difference between a DTS-trained from a non-DTS-trained worker, estimated at about Php 2,513.00 per month.

[27] The long-term benefits includes the saving in advertising expenses, manpower hiring (external and internal), costs of orientation manpower and materials.

6.3.4 REGION 10 (NORTHERN MINDANAO)

The figures in Table 32 show the overall cost of training per trainee per month in Region 10 (Northern Mindanao) is about Php 15,500 (or about US$ 330.00) and is highest in the four (4) regions studied. The composition of the average cost per trainee for the firms in Region 10 (Northern Mindanao) shows a large percentage of the cost going to physical cost (e.g. cost of materials used in the training). During the validation workshop done in Cagayan de Oro City to verify if the accuracy of the figures, both the representatives of the firms and the training institutions who attended the workshop verified the cost figures and stated that the costs of training materials in the Mindanao area (e.g. welding rod) are more expensive than in the National Capital Region (NCR) primarily because of the shipping costs of transporting the products from Mindanao.

Table 32. Average Cost per Trainee per Month in Running the DTS for the Firm in Region 10

Cost Category	Mean in Php (in US$)[28]	Standard Error
Cost of Trainees (e.g. allowance)	2,127 (US$45)	342
Cost for Trainers	5,585 (US$119)	984
Physical Costs	11,747 (US$250)	2,226
Total Costs	15,500 (US$330)	2,701

The results from Table 33 show that overall short-terms benefits for firms derived from the DTS program in Region 10 (Northern Mindanao) are about Php 4,991.00 or US$ 106 per trainee per month, representing only 32 percent of the average costs of training. The average short-term benefit is the lowest in the four regions included in the study. Moreover, the average net costs of training, or the difference between the total costs and the short-term benefits, in Region 10 (Northern Mindanao) is about Php 10559 (or US$ 225) per trainee per month.

Table 33. Average Short-Term Benefits per Trainee per Month in Region 10

Short-Term Benefits	Mean in Php (in US$)[29]	Standard Error
Productivity	4,906 (US$104)	340
Seasonal Benefits	239 (US$5)	66
Total Benefits	4,991 (US$106)	357

[28] [29] The trimmed mean is used to compute for the average to minimize the effects of extreme values. The trimmed mean is the average (mean) after taking out the lowest and highest 5 percent of the data. The sum of the individual (trimmed) averages does not sum up to the total (aggregate) cost since these are trimmed averages.

The estimated long-term benefits per trainee are provided in Table 34 below. One should note that the long-run productivity difference between DTS trained worker and non-DTS trained worker is also the lowest among the regions in the study at Php 1,689 (or US$36), representing only 11 percent of the average overall cost per person.

Table 34. Long-Term Benefits per Trainee for the Firm in Region 10

Long-Term Benefits	Mean (in Php)	Standard Error
Cost of Ads	55	43
Cost of Manpower (Internal) in Hiring	16,754	3,405
Cost of Manpower (External) Services	611	453
Cost of Orientation Materials	0	0
Cost of Manpower in Orientation	5,028	1,719
Productivity Difference	1,689	175

SIMULATION COMBINING THE SHORT-TERM AND LONG-TERM BENEFITS VIS-À-VIS TOTAL COST

To determine the full benefits of the DTS program for firms in Region 10 (Northern Mindanao), a simulation is made to calculate both the short-term and long-term benefits of the DTS program under the assumption that a trainee stays in the firm for three (3) months. Using the numbers in Tables 32 to 34, we have the following:

Scenario: Firms provide a three month training program.

(1) Overall cost for the three month period: Php 15,500 x 3 months = Php 46,560
(2) Short-term benefits for the three month period: Php 4,991 x 3 months = Php 14,973
(3) Long-term benefits (e.g. saving in recruitment)[30]: = Php 22,446
(4) Net Benefits = (Php 14,973 + Php 22,446) – Php 46,650 = Php 9,231
Plus: additional benefit due to the long run productivity difference: = Php 1,689

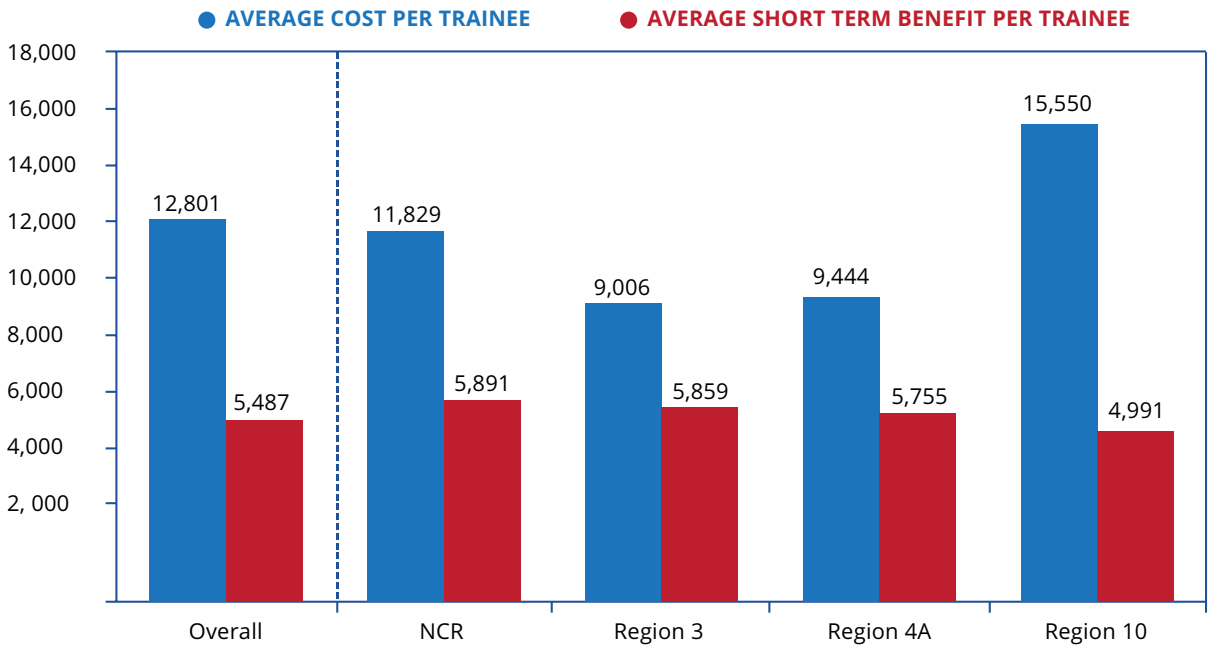
The simulation exercise for firms in Region 10 (Northern Mindanao) shows negative net benefits. Using the resulting figures in the simulation, the total net benefits is about negative Php 9231.00 per trainee for a three-month program, primarily due to the relatively high cost of production materials in the area. The net benefits exclude the contribution of the DTS trainees in terms of the long-run productivity difference between a DTS-trained from a Non-DTS-trained worker, estimated at about Php 1689.00 per month.

[30] The long-term benefits includes the saving in advertising expenses, manpower hiring (external and internal), costs of orientation manpower and materials.

Firms in Region 10 are composed mostly of micro-enterprises and small-sized companies, in terms of number of employees. In the simulation exercise using the variable firm size (in terms of the number of employees), the results show that overall costs outweigh the combined short and long-term benefits from the DTS program. Moreover, the regional validation exercise confirms the fact that physical costs are relatively higher in Northern Mindanao compared to the other regions included in the study. The firm representatives from this region point to the high shipping cost from Manila to Mindanao as one of the major contributors to the high cost of materials used in the DTS training, particularly in the automobile repair sector. The results highlight the need for government intervention/ policy to make the DTS program in Northern Mindanao attractive to firm partners, similar to the case in the NCR, Region 3 and Region 4A.

The information in Figure 13 presents the overall average cost and short-term benefit, as well as the regional averages, per trainee per month of the DTS program for the firms. The bar charts show that short-term benefits of the DTS, relative to overall cost, is highest for firms in Region 3 (Central Luzon) and Region 4A (CALABARZON).

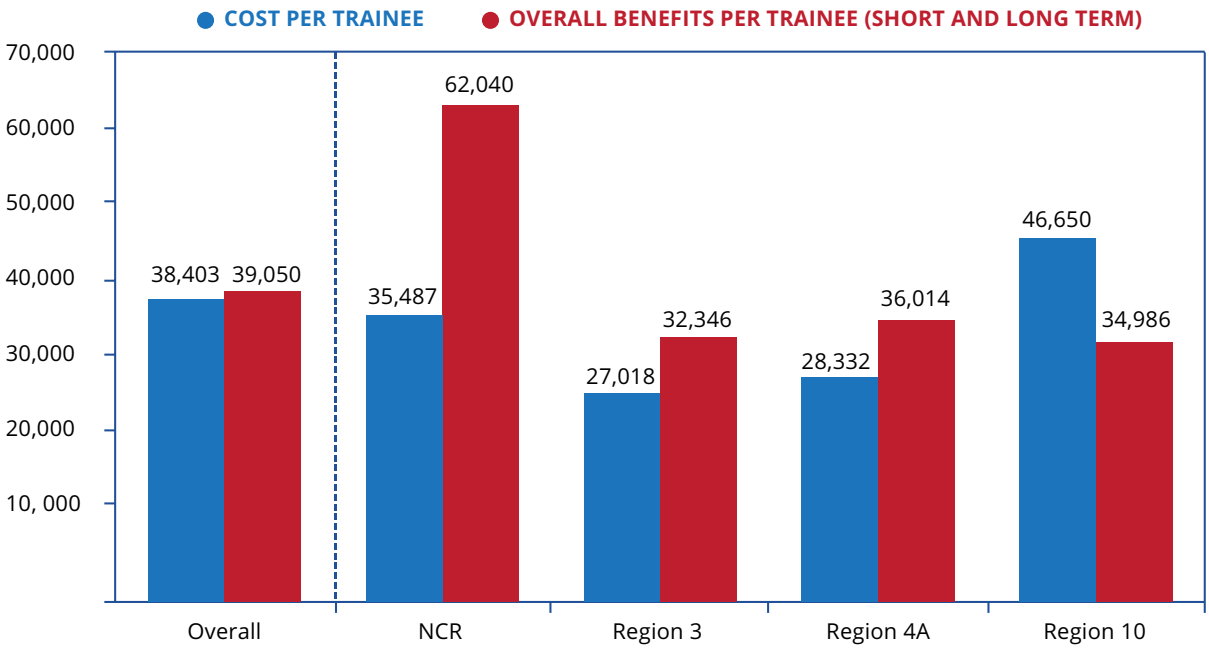
Figure 14. Average Cost and Short-Term Benefits per Trainee per Month



While the average short-term benefits derived from DTS for the firms is smaller than the overall costs, adding the long-term benefits (e.g. savings in recruitment) to generate the overall benefits clearly outweigh the aggregate costs. The information in Figure 14 shows the results of the simulation made to estimate the long-term benefits, together with the short-term benefits, for a firm under the assumption that DTS trainees stay for three (3) months. The long-term benefits include the savings in advertisement (for new recruits) and cost of training new recruits, among others. Clearly, the combined short-term and long-term benefits are greater than the aggregate costs for the aggregate number of firms, as well as for firms in NCR, Region 3 and Region 4A. It is only in Region 10 (Northern Mindanao) where the overall benefits are lower than the costs, primarily due to the high cost of training materials.

The representatives of the firms in Regions 3 and 4A validated this result, where the combined short-term and long-term benefits outweigh the overall cost of running the DTS during two separate workshops conducted in the San Fernando City (Region 3) and Tagaytay City (Region 4A). The firms' representatives (mostly from Human Resources and Operations Departments) observed that the advantage of the DTS program to their companies lies primarily on the savings in recruitment since the DTS trainees have high skill sets, and this reduces the turn-over rate of employees in their companies.

Figure 15. Simulated Overall Costs and Benefits (Short and Long-Terms) per Trainee



6.4 NON-MONETARY BENEFITS OF THE DTS TO THE FIRMS

In addition to the financial gain for the firms, through the short-term and long-term benefits, there are other non-monetary benefits derived from participation in the DTS program. The non-monetary benefits include the positive image derived by the firm, of being a socially responsible company helping the youth become productive through training, and the potential increase in the welfare of the trainees (e.g. higher salary in the future, higher probability of being employed). This positive image can improve the firms' standing with its shareholders, clients, customers, suppliers and future applicants in the DTS program.

The information in Table 35 below reports the satisfaction rating, via self-rating or self-evaluation, of the firms on how participation in the DTS improved their company image. The firms reported that participation in the DTS program improved the image of the firm among its shareholders, clients or customers, with a high positive net agreement of 87 percent.[31] Moreover, the firms also reported a high net agreement when asked

[31] Net agreement is the sum of those who Strongly-Agreed and Agreed with the Statement less the sum of those who Strongly-Disagreed and Disagreed with the Statement.

if participation in DTS improved their image to other DTS applicants, resulting in a net agreement of 86 percent. In terms of improving the firms' image with its supplier, the respondents had an average net agreement of 75 percent. Overall, the firms reported high net agreement with its overall satisfaction in terms of its participation in the DTS program, getting the highest net agreement of 88 percent.

Table 35. Satisfaction Ratings of the Firms in the Conduct of the DTS

Satisfaction		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Net Agreement
DTS improves the image of our company among:	Clients	0%	2%	10%	72%	17%	87%
	Suppliers	2%	3%	15%	68%	12%	75%
	Other Applicants	1%	2%	9%	76%	13%	86%
The company is satisfied with its participation in the DTS		1%	3%	6%	65%	26%	88%

DAIKIN AIRCONDITIONING PHILIPPINES INCORPORATED: DTS PARTNER FOR ALMOST 20 YEARS

Daikin Airconditioning Philippines Incorporated is the country branch of Daikin Industries Ltd., which a Japanese company established in 1924 in Osaka, Japan. The Daikin Group is a manufacturer of airconditioning equipment and systems for residential, commercial and industrial applications. Their products range from residential use air conditioners to commercial use split-type airconditioning systems as well as applied systems. With about 158 employees in the Philippines at present, Daikin maintains its operations (such as distribution, sales and servicing) in the different areas in the country from Luzon, Visayas and Mindanao, where there are local distributors of their products.

DUAL TRAINING SYSTEM (DTS) TRAINEES AND THE COMPANY

Daikin Airconditioning Philippines Inc. first started to accept DTS trainees in 1998. Daiken's partner institution, Don Bosco School, enlists students who are taking up vocational courses in airconditioning services, between ages 17 to 20 years old to be part of the company's DTS trainees. At present, the company has 6 DTS trainees while the most number of DTS students they had in a batch is 15 trainees. On the average, about four batches of trainees are accommodated by the company per year. The training schedule is usually conducted Monday to Friday from 8AM to 5PM. However, since their work is airconditioning repair, there are occasions when their technicians need to work outside office hours, even on evenings and holidays. The company gives its trainees opportunities to work any day of the week when an important repair needs to be done immediately. Their main priority after all is customer satisfaction and quality service.

The training course for the trainees begins with a classroom lecture for about 2 to 3 sessions, which is usually held in the Daikin head office in Ortigas, Pasig City. In addition, at two trainings monthly are being conducted in Luzon, Visayas and Mindanao. Usually, there are 20 students enlisted for the Basic Training Course and 12 for the VRV Course. The VRV course is a higher level course for Daikin's high-end air conditioning units. If the trainee passes the Basic Training Course, then he/she can proceed to the units called VRV. The DTS trainee receives an official certificate of completion from Daikin after successfully completing all necessary requirements.

The primary factor why Daikin Airconditioning Philippines Inc. trains DTS students is for absorption of highly skilled and company-oriented workers from their batch of trainees. Another factor is their social responsibility to impart knowledge and skills to the students. Daikin Philippines expects their trainees to possess the openness and dedication to learn new concepts and techniques related to the work that they are pursuing. Trainees are encouraged to speak in Filipino at the workplace. This kind of practice eliminates communication misunderstanding at work which could lead to technical mistakes on the part of the DTS trainees.

The management assessment is that DTS trainees perform according to Daikin Philippine's expectations. They are known to give their best during the training. As proof of the DTS trainees' excellent performance, they said that one of their former DTS trainee, now an employee, who has been given an Excellence Award by the company. In all the 18 years since they started accepting trainees, they have never encountered any problem with any DTS trainee. They believe that DTS trainees are grateful to be given the opportunity to learn and for possible job employment, which make them more driven to give their best at work. While training in the company, a DTS trainee becomes more confident because he already knows what

he is doing. The management can attest to the knowledge and skills learned by the trainee because they receive good feedback from some of their Daikin authorized dealers. In fact, the dealers are concerned that their trainees would leave the company once they finish the course, due to better job offers by other companies (local and abroad).

Daikin Philippines uses Training Analysis to determine the performance of its trainees. The trainees follow a structured course step by step. In each process, they are evaluated on how well they are able to finish the task based on their speed (Speed Test) and quality of work (Quality Control). Each trainee goes through each task by rotation until everybody in the batch is able to go through all the processes. In the Basic Training Course (both in lecture and hands-on application), the overall passing grade is 70%.

The company also uses their own model to predict the possible performance of the trainee if he or she is hired to become a Daikin employee. A trainee, who shows great potential, is offered a job in the company upon the approval of senior management. Each trainee is made aware of his or her performance rating so that whenever there is a need for improvement in certain areas, the student can easily address the problem with the help of the trainers. The training design is proven effective in the transfer of learning to the workplace due to several factors: (1) Clear communication of trainees and Daikin trainers by using Filipino as the primary medium of instruction; (2) Dedication on the part of the trainers in making the students learn as much as possible; (3) Relevant and updated instructional materials (e.g. pictures, videos, actual airconditioning units); and (4) Well-equipped training center that is highly conducive for learning.

In order to help the trainees with employment, the company recommendations the trainees and refer them to their partner dealers and service centers. Most often these trainees get hired easily. As part of their corporate social responsibility, Daikin Airconditioning Philippines Inc. in 2015 sponsored and conducted training for the TESDA instructors. The company wanted to impart their knowledge and skills about new innovations in air conditioning services. The company also donated several airconditioning units to TESDA in order to help upgrade their instructional equipment. Daikin believes that knowledge and skill should not be stagnant. It must keep up with the changing times. Daikin Philippines also donated airconditioning units and the venue for the Skills Olympic, which is a competition for technicians from different fields of expertise such as air condition servicing, auto repair, electronics, etc.

BENEFITS FROM THE DTS PROGRAM

During the course of the training, DTS trainees are given written and hands-on examinations by their supervisors in order to assess the extent of what they have learned. Hands on examinations are graded based on the trainee's speed in finishing the task and the quality of his or her work. A minimum grade requirement of 70% must be achieved by the student in order to pass the training. Human Resources management measures productivity of the DTS trainees through their attendance, punctuality and their performance in the workplace. As for the employees, there is an annual performance appraisal in order to determine the standing of the employee for possible work promotion. When it comes to productivity, the DTS trainee and the average worker are considered the same because they are both following the standards of Daikin in the workplace.

In order to ensure that the trainings given to the DTS trainees will give a positive and equitable return to the organization, Daikin Philippines applies the following methods: (1) Performance-based awards; (2) Possible employment for the trainees upon training completion; (3) Competitive salary and unique benefits package given to Daikin employees

(Example of benefits: Marriage Leave, Singles Leave, Cash gift, Rice allowance of P2,000 monthly); and (4) Merit-based promotions for its employees.

One the average, the company's level of satisfaction with the DTS trainees' performance is 8.5. Daikin believes in "Kaizen", which is continuous improvement. Management wants their trainees to continue improving their knowledge and skills. According to them, nobody is perfect. In practice, the company also gets feedback from the trainees to identify their level of satisfaction towards the training. The trainees are asked to accomplish a survey form at the end of the course.

Having DTS trainees in the company has certain advantages and disadvantages. The major advantage is that DTS trainees already have basic knowledge and skills about the vocation that they would like to pursue, which consequently makes them easier to train. However, DTS trainees are at a disadvantage when it comes to the modern concepts and skills available in the industry. They still taught in the "old fashioned" techniques when it comes to airconditioning services. Looking at the bigger picture, Daikin Philippines has incurred short-term and long-term benefits by having DTS trainees. Some notable short-term benefits are the following: (1) Employment of highly skilled workers, (2) Increased productivity, efficiency and effectivity in the company; (3) Increased customer satisfaction; and (4) Overall good company performance. Meanwhile, there are two major long-term benefits from the DTS trainees: (1) Savings on recruitment cost; and (2) Increased productivity.

RECOMMENDATION TO STRENGTHEN THE DTS PROGRAM

Daikin Airconditioning Philippines Inc. gave the several recommendations in order to further improve the Dual Training System so that their company, and other firms would accommodate more DTS trainees. First, the existing partnership between TESDA and their partner institution, Don Bosco School, must be strengthened. Second, TESDA and the partner school(s) should modernize their curriculum in order to keep up with the demand of the industries locally and internationally. Third, TESDA and the partner school(s) should update their lectures and instructional materials/ equipment for the benefit of the students. Lastly, Increase the number of TESDA schools in the provinces, if possible in the barangays.

BUKIDNON PROVINCIAL ENGINEERING OFFICE MOTOR POOL DEPARTMENT: DTS PARTNER FOR SKILLS ENHANCEMENT IN THE PROVINCE OF BUKIDNON

DUAL TRAINING SYSTEM (DTS) TRAINEES AND THE COMPANY

The Motor Pool Department of the Provincial Engineering Office (PEO) of the Province of Bukidnon has 23 employees in charge of the maintenance and repair of vehicles of the Provincial Government. The motor pool has been accepting trainees from various institutions in the Province for over 20 years already. Institutions, such as the TESDA Provincial Training Center in Valencia City and Bukidnon State University, have been sending trainees to the motor pool to learn the skills in automotive, welding and electrical works. The department is motivated to train students to enhance their skills in automotive which are deemed useful for employment after the training program.

In November 2014, 15 DTS trainees were assigned at the Motor Pool for a six (6) months training program in welding. This batch of trainees is composed of five (5) females and ten (10) males trained to become future welders. The trainees were sponsored by a private company in the Province of Bukidnon and were assigned to the Motor Pool through an agreement between the Provincial Government and TESDA Valencia City.

Instructors were assigned to the group to make sure that they learn the different skills in welding aimed that strengthening their learning for future employment. The instructors were also in-charge of giving assessment on the overall performance of the trainees. Numerical grades from 1 to 5 were assigned to the trainees. If the trainee performs well, he or she is given recommendation for employment, either in the Provincial Government Engineering Office (whenever there is an available job) or in various companies, particularly in the construction sector, within the province.

The head of the motor pool believed that exposure to the training program changed the attitude of the trainees for the better. The trainees were aware that the skills they learned from the six months training program will be useful when they apply for work. The training program also helped the students developed proper work attitude, they become hard workers and learnt to become team players and able to communicate with other members of the department. Right after the training program, two of the trainees were able to work in a construction company in the province as welders.

BENEFITS FROM THE DTS PROGRAM

The outright benefit for the Motor Pool in the DTS program is the additional manpower in the office to help out with the tasks assigned to the regular employees. The department also believed that the partnership between TESDA Valencia City and the Province of Bukidnon, particularly with the Motor Pool, produced excellent results and should be encouraged. The exposure of the DTS trainees in training program as welders also helped in providing skilled workers, not necessarily to the Motor Pool, but to the construction companies in the province. This increases the pool of skilled workers that are properly trained in the task of welding.

RESULTS OF THE SURVEY FROM PARTICIPATING TVIS AND DTS-TRAINEES

7.1 TECHNICAL VOCATIONAL INSTITUTES (TVIS)

The Cost and Benefit Study of DTS also covered the TVIs who are participating in the program. As of December 2015, TESDA identified 108 TVIs with a DTS program in the entire country. Out of these 108 TVIs, 82 are located in the survey areas of the NCR, Region 3, Region 4A and Region 10. Unfortunately, only 21 TVIs participated in the DTS survey or a response rate of just 26 percent. The TVIs that participated in the DTS survey, categorized by location/region, are reported in Table 36.

Table 36. Number of TVIs that participated in the DTS-Survey by Location

Region	Count	Percent
NCR	3	14.3
Region 3 (Central Luzon)	6	28.6
Region 4A (CALABARZON)	8	38.1
Region 10 (Northern Mindanao)	4	19.1
TOTAL	**21**	**100**

The observation of the research team is that TVIs are very protective of their data and operations. They are also suspicious with the purpose of the survey, even with corresponding endorsement letters from TESDA, PCCI-HRDF and the University of the Philippines School of Statistics. One important lesson from this survey is for TESDA to create a relatively simple instrument and regularly collect data from the TVIs. The instrument used in the survey (found in Annex 4) can serve as sample instrument for future undertakings of TESDA.

The 21 TVIs reported 50 different programs being offered in their institutions. Out of the 50 programs, the TVIs provide scholarship or assistance in 34 of these programs. The average tuition fee per student is about Php 14,468.00 (of US$ 308), reported in Table 37, while the average scholarship or assistance is about Php 13,679.00 per student (or US$ 291), representing 95 percent of the average tuition per student. The TVIs report that scholarships are usually provided by TESDA through the Training for Work and Scholarship Program (TWSP). It should be noted, however, that the DTS program is not included in the TWSP. In some cases, the TVIs report that TESDA provides vouchers for the trainees. The TVIs also identified the programs listed in Table 38 as those without a scholarship for students or trainees.

Table 37. Average Tuition Fee and Scholarship per Student

Tuition Fee and Scholarship	Number of Programs	Mean in Php (in US$)	Standard Error
Average Tuition Fee per Student	50	14,468 (US$308)	11,901
Average Assistance/Scholarship per Student	34	13,679 (US$291)	13,788

Table 38. List of Programs Reported by TVIs without Scholarship

- Automotive Servicing NC II
- Bartending NC II
- Bookkeepping NC II
- Bread and Pastry Production
- Cookery NC II
- Food and Beverage NC II
- Food and Beverage Services NC II
- Food Processing NC II
- Front Office Services NC II
- Housekeeping NC II
- Housekeeping NC III
- Gas Metal Arc Welding
- MSES NC II
- Mechatronics NC II
- Shielded Metal Arc Welding NC II

7.2 PROBLEMS ENCOUNTERED BY TVIS WITH THE DTS PROGRAM

When asked whether DTS is an effective mode of training, almost all, except one TVI answered in the affirmative, that DTS is indeed an effective mode to deliver the training to the students. Only one (1) TVI raised apprehension on the DTS program, reasoning out that their industry firm-partner demands the type of training for their students at which the TVI is not yet ready to provide, due to lack of qualified training personnel or instructors.

The same type of uneasiness was raised by TVIs during the regional consultative meeting in San Fernando City, Province of Pampanga (for firms and TVIs in Region 3). The TVI informant mentioned that changes, particularly in the use of technology, are getting fast for the firms and the TVIs training is having a hard time catching up with the changes. The TVI informant suggests the possibility of firms' training personnel providing training to instructors of the TVIs on the use of the latest technology. Such coordination between the firms and TVIs need assistance and guidance from TESDA to properly materialize.

7.3 DIFFICULTY OF TVIS IN REGISTERING PROGRAMS UNDER THE DTS

When asked whether TVIs encountered difficulty in registering their programs under the DTS program, almost half of the TVIs answered that they encountered difficulty in the number of documents required by TESDA before the TVI programs get accredited. The informants from the TVIs feel that too many redundant papers are required for submission by TESDA, with one TVI representative mentioning that the template used by TESDA should only serve as a guide and not require them to complete. One TVI also complained about the long waiting time before the accreditation certificate is released by TESDA.

The TVIs recommend that TESDA should revisit and possibly revise the accreditation process for programs under DTS and that TESDA should consult with the industry partners (TVIs and firms) on how to improve

the procedure for accreditation of TVIs under the DTS program. The TVIs also suggest that TESDA comes up with a set of an incentive package for firms to adopt the DTS, mentioning the practice of the Government of Singapore (no specific detail was provided by the informant). Finally, the TVIs also recommend that TESDA should prioritize the DTS program by strengthening the capacity of the DTS focal persons.

When asked whether the TVIs encountered a problem in finding firm-partners for their trainees in the DTS program, about 39 percent of the TVI answered positively that they encounter difficulty in finding a suitable firm for their trainees. One common problem for the TVIs is that firms with existing TVI-partner no longer accept other TVIs that are also DTS providers. There is some arrangement between the firm and the TVI, where the firm will only accept trainees from a specific TVI and will no longer entertain other TVIs. One possible reason is the limit in the number of trainees that are accepted by the firm in a given cycle (e.g. 6 months or 12 months cycle).

One specific problem for firms in Region 3, particularly in the Province of Zambales, is that firms require nightshift assignment, overtime, and work during holidays. This type of deployment of DTS trainees is not allowed under the Implementing Rules and Regulations (IRR) of the DTS Law.[32]

For TVIs located in the Province of Bukidnon in Northern Mindanao, a common problem is the limited number of firms they can partner with for the DTS program. In addition, firms in the Province of Bukidnon, composed mostly of micro-enterprise and small-sized companies, have a problem providing the full training subsidy amounting to 75 percent of the minimum wage as required by the DTS Law.

7.4 TRAINEES EVALUATION OF THE DTS PROGRAM

The survey has another rider instrument, given in Annex 5, this time for the DTS trainees assigned in the firms covered by the study. As part of the survey protocol, the researcher assigned to collect information from the firm asked the respondent or informant if there are DTS trainees available for interview during the visit. If there are DTS trainees in the firm at the time of the visit, the rider instrument is then distributed to the available DTS trainees. A total of 112 DTS trainees participated in the survey. The distribution of DTS trainees by location is given in table 39 below.

Table 39. Number of TVIs that participated in the DTS-Survey by Location

Region	Count	Percent
NCR	17	15.2
Region 3 (Central Luzon)	13	11.6
Region 4A (CALABARZON)	35	31.3
Region 10 (Northern Mindanao)	47	42.0
TOTAL	**112**	**100**

The DTS trainees are asked on their perception with the DTS training given by the firms, and the results are reported in Table 40. All of the trainees interviewed emphasized that the DTS training given by the firms developed a greater sense of responsibility on them to be self-reliant, to be independent and disciplined. This, in turn, encourages the trainees' development. All trainees interviewed have the opinion that DTS training made a good use of their skills and abilities, through the new knowledge and skills trainees' gained from the DTS program. The trainees have a very positive perception on their trainers whom they feel care for them as a person. Overall, the DTS training seems to have created some positive spillover effects on the trainees through the development of their skills and knowledge and self-confidence that such skills will be useful in the future when the trainees enter the labor market.

Table 40. Evaluation of the Trainees of the Training Provided by the Firm

	Percent			
Evaluation of the Firms' Training	**Very Much**	**Much**	**Little**	**Not at all**
The training stimulates me to study beyond the lessons given.	55%	45%	0%	0%
This training has developed in me a greater sense of responsibility. (i.e., self-reliance, self-discipline, independent study)	78%	22%	0%	0%
It is worthwhile to take the training.	66%	33%	0%	1%
The pacing of the training is too fast.	17%	46%	31%	6%
I gained new skills and knowledge in this training.	81%	1%	0%	0%
I received recognition or praise for doing good work	46%	46%	5%	2%
My trainer seems to care about me as a person.	76%	24%	0%	0%
My trainer encourages my development.	75%	25%	0%	0%
My work as a trainee gives me a feeling of personal accomplishment.	72%	26%	2%	0%
My work as a trainee makes good use of my skills and abilities.	78%	22%	0%	0%
The training period is too long.	17%	2%	47%	7%
The training area is conducive to learning.	53%	45%	2%	0%
I am fully satisfied with the way this training was handled conducted.	66%	32%	2%	0%

[32] Nightshift and work schedule even during holidays are common practice for firms operating 24/7 at the Subic Freeport area of Zambales. One particular example is for firms engaged in ship repair.

The trainees were also asked to evaluate the host firms and its training personnel. The responses of the trainees are given in Table 41. Similar to the assessment of the trainees of the DTS training, the DTS trainees rated high on the skills and ideas they learned through the interaction with their trainers and supervisors with 100 percent responding "very much" and "much." The trainees also rated themselves high in terms of how actively they participated in the training (99 percent), working diligently during training (98 percent) and provided efforts to the tasks and requirements of the training (97 percent). The overall assessment of the trainees is that they performed well during the duration of the DTS training with the firms (100 percent).

The common problem raised by the trainees has something to do with the duration of the training. The trainees feel that training period of 320 hours (equivalent to almost three months) is quite short for them to master the skills required by the program. One trainee even mentioned that given a chance, he would continue with the training program even without the corresponding allowance, because he realized that extending the training period will make him well adept in motorcycle troubleshooting.

The short training period, in this case the three-month period, is also the concern of firms interviewed, particularly those in the manufacturing/ industry sector. The firms' trainers and human resources representatives feel that the first three months of the training program is good enough to learn the basics. The firms' representatives prefer a longer training program in the range of at least 6 to 9 months, depending on the skills required from the trainees.

Table 41. Evaluation of the Trainees of the Training Provided by the Firm

	Percent			
Evaluation of the Firm	**Very Much**	**Much**	**Little**	**Not at all**
How actively did you participate in the training?	81%	18%	1%	0%
Did you learn new skills/ideas from your interactions with your trainer and supervisor?	82%	18%	0%	0%
How receptive were you to new ideas presented by your trainer and supervisor?	58%	38%	4%	1%
How much effort did you give to meeting the requirements of the training? (ex. Reports, Tasks, etc.)	72%	25%	4%	0%
I have worked diligently in this training?	72%	26%	1%	1%
Do you feel that you have performed well in the training?	67%	33%	0%	0%
Have your expectation of this training been met?	58%	34%	8%	0%
How many times have you been late in the training?	6%	10%	32%	52%
How many training days have you missed?	7%	16%	27%	49%

FINDINGS AND RECOMMENDATIONS

FINDINGS AND RECOMMENDATIONS

The Cost and Benefit Study (CBS) of the Dual Training System (DTS) program of TESDA revealed interesting results that will surely play critical inputs in the strengthening of the DTS program in the country. For one, contrary to the popular belief, the study showed that the combined short-term and long-term benefits derived by the firms from the DTS program clearly outweigh the overall costs. The simulations made for firms in the Manufacturing and Hospitality sectors on the combined short and long-term benefits of the DTS program showed such could be higher than overall costs by at least 30 percent. The results are similar for large and medium size firms. Moreover, across geographical areas calculations made showed that combined benefits can be 20 to 75 percent higher than average costs (for firms in the NCR, Region 3 and Region 4A) and thus, it will be worthwhile for the firms to participate in the DTS program. While there are firms reporting higher average costs of running the DTS program (such as those in Region 10, consisting mostly of micro-enterprises), the empirical evidence leads the study to conclude that the DTS program is generally beneficial for the firms.

Moreover, the DTS program produces substantial positive spillover effects on DTS trained workers – they become more productive, as shown by the substantial long-run productivity difference between a DTS-trained and Non DTS-trained workers. In addition, one-in-three DTS trainee is employed by the firm that trained them. Higher probability of being employed is the trademark of the enterprise-based program such as the DTS, over other modes of training.

While there is a clear advantage for firms to participate in the DTS program, the success of the program will depend on the individual actions and cooperation among the three key players in running the DTS: TESDA, TVIs, and the Firms. The Technical Vocational Institutions (TVIs) have important roles to play to make sure the practice of DTS is successful. One common problem experienced by firms taking in DTS trainees is that TVIs have difficulty in catching up with the latest technology and new skill sets expected by the firms from the DTS trainees. There seems to be a gap between the skills learned by the trainees in school (TVIs) and the practice at the workplace (firms). **A recommendation for the TVI is for:**

- The TVIs should be flexible enough to catch up with the changes in technology through capacity building of the TVI trainers. Partnering with the firms where the firms' training personnel to actually train the instructors of the TVIs on the use of the latest technology may be an area that TVIs should look into.

There is a need to entice more firms to participate and expand the involvement of the firms that are already participating in the DTS program. TESDA, as the country's regulator of DTS, needs to intensify its monitoring and engagement efforts with the firms already participating and firms in the pipeline so it can propose appropriate policy handles to polish and sharpen the DTS program.

Some of the recommendations for TESDA are the following:

- Need to have an update or census of the TVIs, to identify which TVIs are doing DTS, how many students doing DTS and who are the TVIs' firm-partners. The current list of TVIs and firms under TESDA's monitoring office should be evaluated regularly since the research team noted that a number of firms on the list have either closed shop or are no longer involved in the DTS program.

- To properly monitor the employment rate of the DTS trainees in TESDA and to validate if the employment is in the formal sector or informal sector (type of industry or services)

- For TESDA to help firms, particularly micro-enterprises where the average cost of doing DTS is relatively high, on how to avail of the government incentives, such as tax incentives, related to the DTS program. The procedures on how to apply for the incentives for the firms should be clarified and simplified.

- For TESDA to engage the companies in these (Construction and Motor Vehicle Repair) to find out how the costs of running the DTS program can be reduced. At the current state, given the high overall costs per trainee, this may create a disincentive for other firms in the same sector to participate in the DTS program.

- For TESDA to find ways on how MSMEs can be provided with training assistance for the DTS trainees through the Training for Work and Scholarship Program TWSP.

- Review the DTS Law for possible amendments in Congress. The DTS Law was approved more than 20 years ago and the structure of the economy, as well as how the firms operate, changed substantially. For one, a large percentage of the firms' contribution to economic activity is via Business Processing Offices (BPO) which operates round-the-clock. Firms from the BPO and other similar activities require employees to report on the midnight shift, and these firms are also requesting if DTS trainees can follow the same schedule for their training.

- To review the current DTS training duration. The empirical evidence suggests that average combined short-term and long-term benefits are higher when firms have training duration between 3 months to 12 months and for more than 12 months. The same data also showed that average benefits, as a percentage of costs, is lowest for firms with training duration of less than 3 months. Most of the firms that participated in the study favor longer training duration: at least 6 to 9 months.

- For TESDA to communicate the results of the study to firms as major part of its advocacy.

- For TESDA to continue its cooperation agreement with the BIBB of Germany to enhance the capability of the technical staff of TESDA through the transfer of knowledge from the experts of the BIBB.

The Philippine Chamber of Commerce and Industry (PCCI), being the leading organization of enterprises, local chambers and industry association representing various sectors of business has an important role to play in encouraging firms to participate in the DTS program, as well as in the promotion of DTS. **Some of the recommendations for the PCCI are the following:**

- The Cost and Benefit Study shows higher benefits for firms in the Manufacturing and Hospitality sectors, as well as large and medium-sized firms. The PCCI should strongly encourage its members, at the national and local levels, to participate in the DTS program. The empirical evidence shows that the DTS program will be beneficial for PCCI members. PCCI should promote the DTS program to its members via one of its standing committees.

- To track accomplishment, PCCI can set its own indicator performance related to the DTS, such as targeting a number of new PCCI members who will join the DTS program on a yearly basis.

- For TESDA and PCCI to work together and review the Apprenticeship Bill (HB 1594) and the DTS Law (RA7686), harmonize the features of the two legislative initiatives and come up with a common proposal on the needed amendments to the DTS Law.

ANNEXES

Annex 1. Budget, Covered Enrollment and Number of Graduates under the PESFA and TWSP (2006-2015)

Private Education Students Financial Assistance (PESFA)

Program	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Budget	200M	200M	200M	200M	200M	200M	200M	200M	200M	200M
Enrolled	13,869	16,856	15,929	23,229	26,400	27,561	25,586	26,745	28,077*	26,800**
Graduate	13,869	16,856	15,929	16,886	22,732	26,090	23,815	26,294	27,692*	20,330**

Training for Work Scholarship Program (TWSP)

Program	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Budget	500M	510M	1.45B	5.66B	700M	1.8B	1.2B	700M	1.4B	2B
Enrolled	222,698	222,698	156,931	772,466	107,314	258,472	178,119	107,990	205,870*	275,138**
Graduate	215,419	215,419	141,203	759,244	98,752	257,594	177,217	107,596	196,948*	223,102**

Annex 2. Number of TVIs offering DTP / DTS and Number of Partner Companies (as of December 2015)

			Number of Qualifications per Sector									
Region	**School**	**No. of Partner Companies**	**Agri**	**Auto**	**Const**	**Elec**	**Garms**	**Health**	**HVA C/R**	**ICT**	**Metals**	**Processed**
Caraga	1	1				1						
I	1	1				1						
II	4	129	3	22		13	2	3	28		41	
III	56	114	2	7	9	67	7	14		2	20	
IV-A	20	75	5	1	1	51	2		1		7	
NCR	4	146		15		50			2	1	6	
V	9	4				13						
VI	3	48		10		10		7			5	
VII	3	10				2				1		
VIII	1	26		9	3	4			7	1	4	
IX	3	30								19		
X	2	116	32	1	7	1		1			5	1
XII	1	6									6	
TOTAL	**108**	**706**	**42**	**65**	**20**	**213**	**12**	**25**	**38**	**24**	**94**	**1**

AGRI: Agriculture and Fishery;
AUTO: Automotive and Land Transportation;
CONST: Construction;
ELEC: Electronics;
GARMS: Garments;
HEALTH: Human Health/Health Care;
ICT: Information and Communication Technology;
METAL: Metal and Engineering;
PROCESSED: Processes Food and Beverages;
TOURISM: Hotel and Restaurant;
OTHERS: Qualifications without Training Regulations

ANNEX 3. FIRM QUESTIONNAIRE - DTS

Respondent ID No.: _____

SURVEY ON THE COSTS AND BENEFITS OF DUAL TRAINING SYSTEM (DTS) IN THE PHILIPPINES

Good morning/afternoon Sir/Ma'am. I am (name of interviewer) from UP Diliman.

We are conducting a survey to generate statistical information on the costs and benefits of the Dual Training System (DTS) Program in the Philippines.

This survey is part of the research being conducted by TESDA and the PCCI in partnership with BIBB and the K-12 Plus Project.

Rest assured that all data and information shall be held with utmost confidentiality.

It shall not be used in assessing an individual company but for comprehensive analysis and policy formulation towards improving the implementation of the DTS in the country.

Directions to Enumerators: Make sure to complete all fields of the questionnaire. If given a choice, encircle the appropriate code. All text in bold type is directions for the enumerator. If 'Others' is selected, make sure to specify.

NOTE: Please fill-up beforehand the Company Identification, Company General Information, Interview Details, and for UP Diliman Office Use. Validate the information during the interview.

Company Identification

		Code
1. Region:	_____	_____
2. Province:	_____	_____
3. City/Municipality:	_____	_____
4. Barangay:	_____	_____
5. Complete Address:	_____	_____
6. Landline Number:	_____	_____

Company General Information

7. Name of Company: _____
8. Type of Company: 1 – Local Company 2 – Multinational Company
9. Name of President: _____
10. Name of Respondent: _____
11. Position of Respodent: _____
12. Mobile No. of Respondent: _____
13. Email Address of Respondent: _____
14. Date Company was Established (MM/DD/YY): _____
15. No. of Years of Existence: _____

TESDA – Technical Education and Skills Development Authority
BIBB - Federal Institute for Vocational Education and Training
PCCI – Philippine Chamber of Commerce and Industry

Interview Details **Code**

16. Name of Interviewer: _____ _____

17. Date of Interview (MM/DD/YY): _____ _____

For UP Diliman Office Use: **Code**

18. Name of Field Coordinator: _____ _____

19. Date Questionnaire was Checked (MM/DD/YY): _____ _____

20. Name of Data Encoder: _____ _____

21. Date Encoded (MM/DD/YY): _____ _____

PART 1: GENERAL INFORMATION (ENCIRCLE THE APPROPRIATE CODES)

Q1. For the period July 1, 2014 to June 30, 2015, what was the Type or Legal organization of your company?

A. Government
- **1** – National
- **2** – Provincial/Local
- **3** – Government Owned and Controlled Corporation (GOCC)
- **4** – Others, please specify:

_____

_____

B. Private
- **5** – Single Proprietorship
- **6** – Partnership
- **7** – Stock Corporation
- **8** – Non-Stock, Non-Profit Corporation
- **9** – Cooperative
- **10** – Others, please specify:

_____

Q2. For the period July 1, 2014 to June 30, 2015, what was the Industry Code of your company? (refer to PSIC codes below)

- **A** – Agriculture, forestry and fishing
- **B** – Mining and Quarrying
- **C** – Manufacturing
- **D** – Electricity, gas, steam and air-conditioning supply
- **E** – Water supply, sewerage, waste management and remediation activities
- **F** – Construction
- **G** – Wholesale and retail trade; repair of motor vehicles and motorcycles
- **H** – Transportation and Storage
- **I** – Accommodation and food service activities
- **J** – Information and Communication
- **K** – Financial and insurance activities
- **L** – Real estate activities
- **M** – Professional, scientific and technical services
- **N** – Administrative and support service activities
- **O** – Public administrative and defense; compulsory social security
- **P** – Education
- **Q** – Human health and social work activities
- **R** – Arts, entertainment and recreation
- **S** – Other service activities
- **T** – Activities of private households as employers and undifferentiated goods and services and producing activities of households for own use
- **U** – Activities of extraterritorial organizations and bodies

Q2A. What is your industry's specific classification? **Write the 2 numeric digit code.**

Listing is found in the enumerator's manual. _____

Q3. What is the size of your company in terms of capitalization for the years 2012, 2013, 2014?
Write the code on the space provided for each year.

	2012	2013	2014
1 – less than PhP 50 M	_____	_____	_____
2 – PhP 50 to less than 100 M	_____	_____	_____
3 – PhP 101 – 300 M	_____	_____	_____
4 - PhP 301 – 500 M	_____	_____	_____
5 – PhP 501 – 700 M	_____	_____	_____
6 – PhP 701 – 1B	_____	_____	_____
7 – PhP 1B and above	_____	_____	_____

Q4. For the period July 1, 2014 to June 30, 2015, how many employees did you have in your company? (Please include all types of employees whether regular permanent, job order and contractual.)

_____

Q5. For the period July 1, 2014 to June 30, 2015, how many (state type of employee) did your company have?

Type of Employee	**Number**
Full time/Permanent employees[1]	
Part-time employees	
Daily wage workers	
Freelance workers	
Contractual/Temporary employees	
Total number of employees	

[1] Exclude contractuals, trainees, and freelance employees

NOTE: Q4 answer should be the same as the Total number of Employees in Q5.

PART 2. TRAINING ACTIVITIES OF THE COMPANY

Q6. Did your company undergo DTS for the year?

Q6A. 2012? 1 – Yes 0 – No

Q6B. 2013? 1 – Yes 0 – No

Q6C. 2014? 1 – Yes 0 – No

Q6D. How about for the period July 1, 2014 to June 30, 2015? 1 – Yes 0 – No

Q7. How many trainees did you have under the DTS for the year?

Q7A. 2012? _____

Q7B. 2013? _____

Q7C. 2014? _____

Q7D. How about for the period July 1, 2014 to June 30, 2015? _____

Q8. Did your company conduct other training programs (ex. Apprenticeship, OJT) for trainees for the year?

Q8A. 2012? 1 – Yes If Yes, please specify _____ 0 – No

Q8B. 2013? 1 – Yes If Yes, please specify _____ 0 – No

Q8C. 2014? 1 – Yes If Yes, please specify _____ 0 – No

Q8D. How about for the period July 1, 2014 to June 30, 2015? 1 – Yes 0 – No (=> Q10)

If Yes, please specify _____

Q9. How many trainees did you have under other training programs for the year (If none, write 0.)

Q9A. 2012? _____

Q9B. 2013? _____

Q7C. 2014? _____

Q9D. How about for the period July 1, 2014 to June 30, 2015? _____

INTRO: The next section are questions regarding the DTS. Our reference period is July 1, 2014 to June 30, 2015.

SCREENER: Q10A. Did your company underwent DTS from July 1, 2014 to June 30, 2015?
(Encircle the code)

1 – Yes **(=> Q10)**

0 – No Please give the inclusive dates that your company underwent DTS?

_____ **(=> Q10)**

NOTE: For companies who gave inclusive dates in undergoing DTS, the reference period for the succeeding questions will be the given inclusive dates in the SCREENER question.

DTS: Q10 to Q19 (Reference Period: July 1, 2014 to June 30, 2015)

Q10	Q11	Q12	Q13
What are the three most common occupations or qualifications that your company conducted training under the DTS? These refer to trainings under DTS with highest number of trainees. Answers may be 1 to 3 trainings. List the trainings under DTS from highest to lowest number of trainees. Most Common Occupations or Qualifications Training	How many batches of (read each common occupations training) training did your company conduct under the DTS for the period July 1, 2014 to June 30, 2015?	How many trainees were trained for (read each common occupations training) under the DTS for the period July 1, 2014 to June 30, 2015?	After June 30, 2015, how many DTS trainees were employed as workers in the company after their training in (read each common occupations training)?
a)			
b)			
c)			

Directions to Enumerators: (Reference Period - July 1, 2014 to June 30, 2015)

1. Write the most common occupations or qualifications training given in Q10 in the first column.
2. Q14 to Q20a will be asked for each of the most COMMON OCCUPATIONS or QUALIFICATIONS TRAINING in COLUMN 1.
3. Data to be collected is PER TRAINEE and PER MONTH. If answer is PER YEAR, then divide it by 12. If the company does not have such expense, write 0. One Month = 22 days or 26 days, 1 week = 5 days or 6 days, 1 day = 8 hours. Ask the respondent the number of days in one month. 1 month = _____

DTS: I will now ask questions regarding costs incurred per trainee per month for DTS.

DTS	**DTS - Personal Costs of Trainee** (estimated average cost per trainee per month)			
	Q14	**Q15**	**Q16**	**Q17**
Most Common Occupations or Qualifications Training	How much is the monthly training allowance in pesos per trainee in (read each common occupations training)?	For insurance like health or accident, how much is the monthly expense in pesos per trainee for (read each common occupations training)?	For protective clothing, safety equipment, & other gears, how much is the monthly expense in pesos per trainee in (read each common occupations training)?	For lodging costs, how much is the monthly expense in pesos per trainee in (read each common occupations training)?
a)				
b)				
c)				

DTS	DTS - Personal Costs of Trainee (estimated average cost per trainee per month)			
	Q18	**Q19**	**Q20**	**Q20A**
Most Common Occupations or Qualifications Training	For transportation, how much is the monthly expense in pesos per trainee in (read each common occupations training)?	For meals/food, How much is the monthly expense per trainee in (read each common occupations training)?	For one month, what is the estimated total cost in pesos per trainee for (read each common occupations training)?	How long in months is the total duration of the training in the company for (read each common occupations training)?
a)				
b)				
c)				

The next set of questions is about ORIENTATION TRAINING given to Non-DTS new workers.
These are new workers who did not undergo DTS. The reference period is July 1, 2014 to June 30, 2015.

Q21A to Q25A - Orientation Training of Non-DTS New Workers

FULL-TIME TRAINERS:
Personnel who give trainings regularly

Q21A	Q22A	Q23A	Q24A	Q25A
Did your company give an orientation training to non-DTS new workers for the period July 1, 2014 to June 30, 2015? 1 – Yes 0 – No **(=> Q21B)**	Who conducted the orientation training to non-DTS new workers for the period July 1, 2014 to June 30, 2015? (Read the types of trainer given below. Q22A may have more than one answer.)	How many (read the selected type of trainer in Q22A) gave the orientation training to non-DTS new workers?	In (1) one month, give the average number of days do (read the selected type of trainer in Q22A) conduct the orientation training to non-DTS new workers?	Refer to answers given in Q22A. If answer is 1: On the average, how much is the daily wage rate of an external trainer to conduct the training? If answer is any of the internal trainers: How much is the average monthly salary of (state type of internal trainer)?
	Types of Trainer	**No. of Trainers**	**No. of Days/Month**	**Rate**
	1. External Trainers			per day
	Internal Trainers 2. Managers 3. Supervisors 4. HRD Staff 5. Skilled Workers 6. Others, specify _____	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____	Salary/month _____ _____ _____ _____ _____

Q26A. On the average, how many days is the training orientation to Non-DTS workers? _____

Q26A1. For new employees (Non-DTS) who have previous work experience, does your company give (1) shorter, (2) longer, or (3) the same duration of Orientation Training? _____
(Write the code)

The next set of questions is about IN-HOUSE TRAINING given to DTS workers and Non-DTS workers. These are new workers who did not undergo DTS. The reference period is July 1, 2014 to June 30, 2015.

Q21B to Q25B - In-House Training of DTS and Non-DTS Regular Workers

Q21B	Q22B	Q23B	Q24B	Q25B
Did your company conduct a regular in-house training to your workers (DTS and non-DTS)? 1 – Yes 0 – No **(=> Q27B)**	Who conducts the regular in-house training to the workers (DTS and non-DTS)? (Read the types of trainer given below. Q22B may have more than one answer.)	How many (read the selected type of trainer in Q22B) give the in-house training to your workers (DTS and non-DTS)?	In (1) one month, give the average number of days do (read the selected type of trainer in Q22B) conduct the in-house training? Refer to answers given in Q22V.	Refer to answers given in Q22B. If answer is 1: On the average, how much is the daily wage rate of an external trainer to conduct the training? If answer is any of the internal trainers: How much is the average monthly salary/wage of (read the type of internal trainer)?
	Types of Trainer	**No. of Trainers**	**No. of Days/Month**	**Rate**
	1. External Trainers			per day
	Internal Trainers			Salary/month
	2. Managers	_____	_____	_____
	3. Supervisors	_____	_____	_____
	4. HRD Staff	_____	_____	_____
	5. Skilled Workers	_____	_____	_____
	6. Others, specify _____	_____	_____	_____

Q26B. On the average, how many days is the in-house training given to DTS workers and non-DTS workers? _____

Next questions will be about Personnel of the Company who served as Part-Time Trainers under the DTS for the period July 1, 2014 to June 30, 2015. (1 month = 22 days or 26 days, if no. of days is given per year, divide the no. of days by 22 or 26 to get the no. of months)

For DTS: Personell who served as Part-time Trainers (Reference period: July 1, 2014 to June 30, 2015)

PART-TIME TRAINERS					
Q27	**Q28**	**Q29**	**Q30**	**Q31**	**Q32**
What are the positions of personnel who served as part-time trainers under the DTS? (Read the positions of personnel given below. Q27 may have more than one answer.)	How many (read the position of personnel selected in Q27) served as part-time trainers under the DTS?	In ONE MONTH, how many days (or fraction of) did the (read the position of personnel selected in Q27) serve as part-time trainers under the DTS? **Q29 + Q30 =22 days or 26 days**	When the training under the DTS was being conducted, how many days did the (read the position of the personnel selected in Q27) do their actual work in one month.	What is the estimated percentage decrease in productivity from 0 to 100% of (read the position of the personnel selected in Q27) in relation to those personnel of the same position who were not involved in the training?	How much is the monthly salary/ wage of (read the position of the personnel selected in Q27)?
Positions of Personnel	**No. of Part-time Personnel involved in DTS/ DTP**	**No. of training days per month in DTS/DTP**	**No. of days worked per month during DTS/DTP**	**Percentage decrease in Productivity**	**Monthly Salary**
External					per day
Managers					
Supervisors					
HRD Staff					
Skilled Workers					
Other personnel (specify)					

PART 3: PHYSICAL COSTS/MONTH (Reference period: July 1, 2014 to June 30, 2015)

Write down the most common occupations training from Q10 in the columns provided. Q33 lists down the different types of expenses incurred in giving training to trainees under the DTS. For each common occupations training, ask the average cost per month in pesos for the different types of expenses listed in Q33.

I will now ask questions about the different types of expenses incurred in giving training to trainees under the DTS. Reference period: July 1, 2014 to June 30, 2015

Q33. Type of Expense/Cost in DTS	**Q34.** How much is the average cost per month for (read the type of expense) in (read the most common occupations) training under DTS?		
	Most Common Occupations Training (from Q10)		
	Q22A	**Q23A**	**Q24A**
Learning Materials (textbooks, manuals, workbooks, learning software, videos, etc)			
Consumables (raw materials for training)			
Use of Machines* and Tools (Ex. Estimated cost for use of machine x number of days used)			
Use of Rooms and Facilities (No. of hours used per month x rate of room/ hour)			
Fees (Assessment, Registration, Exams, etc.)			
Administration Costs (training coordinators, utilities used in the training)			
Other costs per month, please specify			

***For c)**, ask the cost of the machine then divide this by 365 days to get the cost/day.

PART 4: BENEFITS (SHORT-TERM) (Reference Period: July 1, 2014 to June 30, 2015)

List down the most common types of occupation training given in Q10 in the first column. Refer to first column to answer Q35 to Q38.

I will now ask questions regarding training performance of trainee under the DTS.

DTS	Q35	Q36	Q37	Q38
Most Common Occupations or Qualifications Training	During the duration of the DTS, on an average month, how much time in percent was spent by trainees for orientation training in (read each of the most common occupations training)? Note: Q35 + Q36 = 100%	During the duration of the DTS, on an average month, how much time in percent was spent by trainees in the company in doing (read each of the most common occupations training)?	Let's say an average worker of your company has a performance rating of 100% in doing (read each of the common occupations). Please give the performance rating (0 to 100%) of a DTS trainee relative to an average worker?	How much is the average monthly gross wage/salary of an average worker in doing (read each of the most common occupations training)?
a)				
b)				
c)				

REVENUES:

Q39. Did your company receive tax incentive for DTS for the year

Q39A. 2012? 1 – Yes 0 – No

If Yes, please specify the type of tax incentive for DTS received by the company

Q40A: _____

Q39B. 2013? 1 – Yes 0 – No

If Yes, please specify the type of tax incentive for DTS received by the company

Q40B: _____

Q39C. 2014? 1 – Yes 0 – No **(=> Q41)**

If Yes, please specify the type of tax incentive for DTS received by the company

Q40C: _____

Q41. For the period July 1, 2014 to June 30, 2015, what was the total amount of subsidies/assistance did your company receive for DTS from the government?

_____

BENEFITS FOR SEASONAL DEMAND:

List down the most common types of occupation or qualifications given in Q10 in the first column. Provide answers to Q42 to Q44 for each of the most common occupations or qualifications training.

	Q42	Q43	Q44
Most Common Occupations or Qualifications Training	Do you have seasonal demand for workers in (read each of the most common occupations)? 1 – Yes 0 – No **(=> Q45)**	How many peak season months do you have for (read each of the most common occupations)? Peak season months are months wherein the company needs many workers.	If there is no DTS, For an average peak season month, how many workers will you employ for (read each of the most common occupations)?
a)			
b)			
c)			

LONG TERM BENEFITS:

Q45 to Q51: The following questions refer to the situation wherein the Company was the one who recruited Skilled Workers (Reference period: July 1, 2014 to June 30, 2015)

Q45. Besides the DTS trainees, did your company recruit skilled workers for the period July 1, 2014 to June 30, 2015?

1 – Yes 0 – No **(=> Part 5)**

Q46. How much is the estimated total cost of advertisement to recruit skilled workers?

_____

Q47. How many skilled workers were employed through the advertisements for (read each of the most common occupations training)?

Most Common Occupations Training	No. of Skilled Workers Employed
a)	
b)	
c)	

Q48 to Q51: Ask the Questions per type of position given in Q48.

Q48	Q49	Q50	Q51
What types of positions were involved in the selection or recruitment process of skilled workers? (Read the positions given below. Q48 may have more than one answer.)	How many (read the type of position given in Q48) were involved in the selection or recruitment process of skilled workers?	On an average month, how many days were utilized by the (read the type of position given in Q48) in the selection or recruitment process of skilled workers?	How much is the monthly salary of (read the type of position given in Q48)?
Managers			
Supervisors			
HRD Staff			
Skilled Workers			
Owner/President			
Others, specify			

Q52 to Q54: The next set of questions is about getting the services of manpower agencies to hire skilled workers.

Q52. For the period July 1, 2014 to June 30, 2015, did the company hire the services of manpower agencies to process the application of the skilled workers?

1 – Yes 0 – No **(=> Part 5)**

Q53. For the period July 1, 2014 to June 30, 2015), how many skilled workers were hired through the manpower agencies?

_____

Q53. For the period July 1, 2014 to June 30, 2015), how much is the estimated total cost charged by the manpower agencies?

_____

PART 5: EXPENSES INCURRED IN GIVING ORIENTATION TRAINING PER SKILLED WORKER (NOT UNDER DTS)

Directions:

1. Write the most common types of occupations training given in Q10b in the columns below.
2. Q55 gives the different types of expenses incurred in giving the orientation training per skilled worker.
3. For each of the most common occupations, provide answers to Q56 for the different types of expenses given in Q55. Write 0 if there is no cost incurred.

I will now be asking about expenses incurred in giving Orientation Training per Skilled Worker that is NOT under DTS. The reference period is July 1, 2014 to June 30, 2015.

Q55. Type of Expense/Cost in DTS	**Q56.** How much is the average monthly cost in pesos incurred for (read each type of expense) in giving the orientation training per skilled worker in (read each of the most common occupations)?		
	Most Common Occupations Training (from Q10)		
	A	**B**	**C**
Course Fees			
Travel Expenses			
Accommodations			
Others, please specify			

Q57: (Use FLASHCARD) Let's say a regular employed worker has a performance rating of 100%. If the company hires a newly employed worker (NOT UNDER DTS), what performance rating (from 0 to 100%) can you give the newly employed worker compared to the regular employed worker of the company with performance rating of 100%?

_____

Q58. How did you pay the newly-employed skilled worker relative to an in-house employed DTS skilled worker? Is the newly-employed skilled worker paid higher, lower, or just the same compared to an in-house employed DTS skilled worker?

1 – higher **(=> Q59)** 2 – lower **(=> Q60)** 3 – the same **(=> Q61)**

Q59. If answer in Q58 is higher, by how much higher in percentage (0 to 100%) are the salaries of newly-employed skilled worker?

_____ **(=> Q61)**

Q60. If answer in Q58 is lower, by how much lower in percentage (0 to 100%) are the salaries of newly-employed skilled worker?

_____

Q61. On the average, how many newly employed skilled workers left the company for the year

Q61A. 2012? _____

Q61B. 2013? _____

Q61C. 2014? _____

Q61D. How about for the period July 1, 2014 to June 30, 2015? _____

PART 6: QUESTIONS ON LONG TERM BENEFITS

For each statement that I am going to read, please tell me whether you strongly agree, agree, either agree or disagree, disagree, or strongly disagree with the statement. SHOW THE FLASH CARD.

Q62. DTS improves the image of your company (read each type given in the first column below).

Check the appropriate box.

Type	5 - Strongly Agree	4 - Agree	3 - Either Agree or Disagree	2 - Disagree	1 - Strongly Disagree
Among clients					
Among suppliers					
Among other applicants					

Q63. The company is satisfied with its participation in the DTS. (SHOW FLASHCARD, Encircle the code.)

5 - Strongly Agree	4 - Agree	3 - Either Agree or Disagree	2 - Disagree	1 - Strongly Disagree

Q64. How did your DTS workers influence the other workers in terms of productivity? (Read the options given below)

1 - positively influence other workers **(=> Q65)**

2 - negatively influence other workers **(=> Q66)**

3 - no influence at all **(=> Q66)**

Q65. If the DTS workers have positive influence on other workers, was there an increase in the overall productivity of the workers?

1 – Yes 0 – No

Q66. Are workers trained under DTS stay longer in the company compared to externally hired workers? (Externally hired workers are worked hired through advertisements or manpower agencies)

1 – Yes 0 – No

Q67. How long is the average tenure in months of a DTS worker? _____

Q68. How long is the average tenure in months of externally hired workers? (Externally hired workers are worked hired through advertisements or manpower agencies)

_____

Q69. Did your company experience lost opportunities in terms of production or revenues due to skills shortage?

1 - Yes 0 - No **(=> Q71)**

Q70. (If yes), Please estimate the amount of lost opportunity in terms of production or revenues in pesos per month due to skills shortage (If none, write 0.)

_____

Q71. For the period July 1, 2014 to June 30, 2015, how many non-DTS workers did you have whose skills did not fit their job description? (If none, write 0.)

_____

Q72. What would the company normally do with non-DTS workers whose skills do not fit their job description?

1 - They are re-trained **(=> Q73)**

2 - They are fired **(=> Q74)**

3 - Others, please specify _____ **(=> Q75)**

Q73. On the average, how much per month in pesos does the company spend for retraining a worker? (If no cost incurred, write 0.)

_____

Q74. On the average, how much per month in pesos does the company spend in recruiting a new worker? (If no cost incurred, write 0.)

_____

Q75. On the average, how much per month does the company spend (Read what was specified under Others)? (If no cost incurred, write 0.)

_____

ACCIDENTS IN THE COMPANY: (Reference period: July 1, 2014 to June 30, 2015)

Q76. SCREENER: From July 1, 2014 to June 30, 2015, have accidents occurred in your company?

1 - Yes 0 - No **(=> Q85)**

Q77	Q78	Q79	Q80	Q81
Where did accidents in the workplace occur? (May have more than one answer. List down at most three.)	How many times per month did accidents occur in the (Read answer in Q77)?	What were the main reasons of the accident in the (Read answer in Q77)?	Who were involved in the accident in the (Read answer in Q77)? 1 – DTS worker 2– Non-DTS worker May have more than one answer. Write the codes separated by comma.	What were the types of work of the persons involved in the accident in the (Read answer in Q77)?
a)				
b)				
c)				

Q82	Q83	Q84
Please give the types of expenses incurred by the company when accidents occur. (Read the options given below. May have more than one answer. Write the codes separated by comma.) 1 - Hospitalization 2 - Death 3 - Medicines 4 - Others, please specify	Please give an estimated average cost per month in pesos incurred by accidents in the company.	On the average, how many man hours per month were lost due to accidents?

WASTAGE IN THE COMPANY: (Reference period: July 1, 2014 to June 30, 2015)

Wastage is loss resulting from breakage, leakage, decay, handling, shrinkage of goods or material.

Q85. For the period July 1, 2014 to June 30, 2015, did wastage occur in your company?

1 - Yes 0 - No

Q86. In what working areas did wastage occur? _____

_____

Write the answers in Q86 separated by comma.

Q87	Q88	Q89	Q90	Q91	Q92
Did you have the impression that wastage was caused by 1 – DTS worker 2 – Non-DTS worker May have more than one answer. Write the codes separated by comma. Note: Answer may be either DTS or Non-DTS worker.	What were the types of work of the (read the given answer in Q87) involved in the wastage? If the answer in Q87 is 1, 2. Write 1 – then list down the type/s of work. Then Write 2 – then list down the type/s of work.	How much is the average monthly loss due to wastage?	How many days were given by the supervisor to supervise the incurred wastage?	What was the average monthly salary of the supervisor?	What was the average wage per month of the worker being supervised?

END OF INTERVIEW

Ask respondent if they have Questions, Suggestions, or Comments. Then thank the respondent for their time and participation. Give a handshake.

COMMENTS/SUGGESTIONS/QUESTIONS: _____

_____

_____

_____

_____

ANNEX 4. TRAINING INSTITUTION QUESTIONNAIRE

Respondent ID No.: _____

SURVEY ON THE COSTS AND BENEFITS OF DUAL TRAINING SYSTEM (DTS) / DUALIZED TRAINING PROGRAMS (DTP) IN THE PHILIPPINES

Good morning/afternoon Sir/Ma'am. I am (name of interviewer) from UP Diliman.

We are conducting a survey to generate statistical information on the costs and benefits of the Dual Training System (DTS) Program in the Philippines.

This survey is part of the research being conducted by TESDA and the PCCI in partnership with BIBB and the K-12 Plus Project.

Rest assured that all data and information shall be held with utmost confidentiality.

It shall not be used in assessing an individual company but for comprehensive analysis and policy formulation towards improving the implementation of the DTS in the country.

Directions to Enumerators: Please answer completely and encircle the appropriate codes. Fill out beforehand PART 1 and PART 2 (up to no. 2) and just validate during the interview.

PART 1: Training Institution Identification **Codes**

1. Region: _____ _____
2. Province: _____ _____
3. City/Municipality: _____ _____
4. Barangay: _____ _____
5. Complete Address: _____ _____
6. Position: _____ _____
7. Telephone No. _____ _____
8. Email Address: _____ _____

PART 2: General Information on the Technical Vocational Education and Training (TVET) Institution or Provider

1. Name of TVET Institution or Provider: _____
2. Complete Address: _____

3. Type of TVET Institution or Provider

3.1 Public

1 – TESDA Technology Institution
2 – State Universities and Colleges
3 – Local Government Unit
4 – Higher Education Institution
5 – National Government Agency
6 – Others, please specify:

_____

3.2 Private

1 – Higher Education Institution
2 – TVET Institution

4. Legal Status of the TVET Institution (for Private institutions only)

1 – Sole proprietorship
2 – Partnership
3 – Corporation
4 – Managed by a religious group
5 – Managed by a company
6 – Others, please specify:

_____

Part 3. Education and Training Activities

Q5. Did you offer training programs under DTS/DTP for the year

Q5A. 2012? 1 – Yes 0 – No

Q5B. 2013? 1 – Yes 0 – No

Q5C. 2014? 1 – Yes 0 – No

Q5D. How about for the period July 1, 2014 to June 30, 2015? 1 – Yes 0 – No

Q6. How many trainees did you have under the DTS/DTP for the year

Q6A. 2012? 1 – Yes 0 – No

Q6B. 2013? 1 – Yes 0 – No

Q6C. 2014? 1 – Yes 0 – No

Q6D. How about for the period July 1, 2014 to June 30, 2015? 1 – Yes 0 – No

Q7. Did you offer non-DTS/DTP training programs?

Q7A. 2012? 1 – Yes If Yes, please specify _____ 0 – No

Q7B. 2013? 1 – Yes If Yes, please specify _____ 0 – No

Q7C. 2014? 1 – Yes If Yes, please specify _____ 0 – No

Q7D. How about for the period July 1, 2014 to June 30, 2015? 1 – Yes 0 – No

Q8. How many trainees did you have for the non-DTS/DTP for the year

Q8A. 2012? _____

Q8B. 2013? _____

Q8C. 2014? _____

Q8D. How about for the period July 1, 2014 to June 30, 2015? _____

Q9. Did your training institution offer Elementary for SY 2014-2015?

1 – Yes 0 – No **(=> Q11)**

Q10. How many were enrolled in Elementary for the SY 2014-2015? _____

Q11. Did your training institution offer High School for SY 2014-2015?

1 – Yes 0 – No **(=> Q13)**

Q12. How many were enrolled in High School for the SY 2014-2015? _____

Q13. Did your training institution offer degree programs?

1 – Yes 0 – No **(=> Q15A)**

Q14. How many were enrolled in degree programs for the SY 2014-2015? _____

Part 4A. Training Programs Conducted under DTS/DTP (Reference Period: July 1, 2014 to June 30, 2015)

Q15A	Q16A	Q17A	Q18A	Q19A
What were the different TVET Program Titles under DTS/DTP that you offered from July 1, 2014 to June 30, 2015 Write the complete program title. Do not use acronyms.	Write the Sector code given in the box below.	What was the implementation scheme for (Read the given answer in Q15) 1 – block Release scheme 2- day release scheme	How much was the total fees in pesos per enrollee? (Please include tuition fee, miscellaneous fee, cost of project, etc)	How much assistance in pesos was provided per scholar? If there are no scholars, write -77 for not applicable.
(Example 1) Carpentry NC II	3	1	100	10,000
(Example 2) SMAW NC II	13	2	120	15,000

Sector Code: Write in the Q16 the code corresponding to TVET Program Titles			
1. Agriculture and Fishery	6. Footwear	11. Information & Communication Technology	16. Tourism
2. Automotive and Land Transport	7. Furniture and Fixtures	12. Maritime	17. TVET
3. Construction	8. Garments	13. Metals and Engineering	18. Utilities
4. Decorative Crafts	9. Health, Social & Other Community Development Services	14. Processed Food and Beverage	19. Wholesale and Retail Trading
5. Electronics	10. Heating, Ventilation and Air Conditioning / Refrigeration (HVAC/R)	15. Pyrotechnics	

Part 4B. Other Training Programs Conducted (not under DTS/DTP)
(Reference Period: July 1, 2014 to June 30, 2015)

DEFINITIONS:

1. **Block Release Scheme** – refers to the schedule wherein the trainee spends full time in the TVI to finish the 40% of the training and then deployed full time in the establishment to complete the 60% in plant training.
2. **Day Release Scheme** – refers to the schedule where the trainee spends 2 days weekly in the school and the remaining working days of the week in the establishment.

Q15B	Q16B	Q17B	Q18B	Q19B
What were the OTHER TVET Program Titles conducted (NOT under DTS/DTP) that you offered from July 1, 2014 to June 30, 2015 Write the complete program title. Do not use acronyms.	Write the Sector code given in the box below.	What was the implementation scheme for (Read the given answer in Q15) 1 – block Release scheme 2- day release scheme	How much was the total fees in pesos per enrollee? (Please include tuition fee, miscellaneous fee, cost of project, etc)	How much assistance in pesos was provided per scholar? If there are no scholars, write -77 for not applicable.
(Example 1) Carpentry NC II	3	1	100	10,000
(Example 2) SMAW NC II	13	2	120	15,000

Sector Code: Write in the Q16 the code corresponding to TVET Program Titles			
1. Agriculture and Fishery	6. Footwear	11. Information & Communication Technology	16. Tourism
2. Automotive and Land Transport	7. Furniture and Fixtures	12. Maritime	17. TVET
3. Construction	8. Garments	13. Metals and Engineering	18. Utilities
4. Decorative Crafts	9. Health, Social & Other Community Development Services	14. Processed Food and Beverage	19. Wholesale and Retail Trading
5. Electronics	10. Heating, Ventilation and Air Conditioning / Refrigeration (HVAC/R)	15. Pyrotechnics	

Part 5. Expenditures and Resources (Reference Period: July 1, 2014 to June 30, 2015)

TYPES OF EXPENDITURES		Q20 What were the estimated monthly total expenditures in pesos of the training institution on the different types of expenditures?	Q21 How many percent was allotted for DTS/DTP on (read each of the types of expenditures)?
Personnel Services	Personnel Services		
	Honorarium of part time employees		
Maintenance and operating cost	Allowances given to DTS/DTP		
	Electricity		
	Rental of buildings		
	Staff development		
	Taxes		
	Royalties (for franchised TVET institution)		
	Other current expenditure		
Student Services	School meals, dormitories and medical		
	Guidance/placement		
	Library		
	Others		
Capital Outlays	Equipment for teaching purposes		
	Other equipment		
	Others		
Total Expenditures			

Part 6. Issues, Relationship and Linkages with Enterprises (Reference Period: July 1, 2014 to June 30, 2015)

SOURCES OF BUDGET		Q22	Q23
		What were the estimated monthly total resources in pesos of the training institution (read the different sources of budget)?	How many percent was allotted for DTS/DTP?
Tuition Fees			
Miscellaneous fees			
Scholarship from TESDA, NGOs, LGUs, other government agencies and other sources			
Dormitories and canteen			
Contributions of companies with DTS			
Other contributions of companies			
Resources from foundations or trust funds			
Donations			
Selling of books, learning materials and projects			
Selling of products and services			
Others, specify			
Total Expenditures			

Q24. For the period July 1, 2014 to June 30, 2015, Did your training institution include employer representatives in the management board (if private)? (if public), local government council/board of trustees)

1 – Yes 0 – No

Q25. Did private companies contribute to the curriculum development of the program under the DTS/DTP?

1 – Yes 0 – No

Q26. If yes, how? _____

_____

_____

Q27. Did you find DTS/DTP effective as a delivery mode of training?

1 – Yes **(=> Q15A)** 0 – No

Q28. If no, how? _____

_____

_____

Q29. Did you encounter problems in finding and partnering with possible employers for the trainees under the DTS/DTP program?

1 – Yes 0 – No **(=> Q11)**

Q30. If yes, please indicate the main reason/s _____

_____

_____

Q31. Have you established sustained linkages with partner companies?

1 – Yes 0 – No **(=> Q33)**

Q32. How many sustained linkages have you established with partner companies? _____

_____

Q33. What do you think should be done to encourage employers to accept more DTS/DTP trainees?

_____

_____

Linkages with TESDA

Q34. For the period July 1, 2014 to June 30, 2015, did you receive support from TESDA?

1 – Yes 0 – No **(=> Q36)**

Q35. If yes, specify _____

_____

_____

Q36. Did you find the TVET program registration system effective?

1 – Yes **(=> Q38)** 0 – No

Q37. If no, specify _____

_____

_____

Q38. Did you encounter any difficulty in registering your program under DTS/DTP?

1 – Yes 0 – No **(end of survey)**

Q35. If yes, specify _____

_____

_____

END OF SURVEY

Ask respondent if they have Questions, Suggestions, or Comments. Then thank the respondent for their time and participation. Give a handshake.

COMMENTS/SUGGESTIONS/QUESTIONS: _____

_____

_____

_____

_____

ANNEX 5. EVALUATION OF DTS/DTP QUESTIONNAIRE

Respondent ID No.: _____

EVALUATION OF DTS/DTP: FOR DTS/DTP TRAINEES AND WORKERS

This survey is to generate statistical information on the level of satisfaction of DTS/DTP trainees or workers on their training institutions and partner companies taking part in the Dual Training System (DTS) or Dualized Training Program (DTP) in the Philippines. This survey is part of the research being conducted by TESDA and the PCCI in partnership with BIBB and the K-12 Plus Project. Rest assured that all data and information shall be held with utmost confidentiality and shall not be used in assessing a DTS/DTP Trainee or Worker but for comprehensive analysis and policy formulation towards improving the implementation of the DTS/DTP in the country.

Directions: Please completely fill up the questionnaire. Encircle the appropriate code for your answer.

Company General Information

1. Name of Company: _____

DTS/DTP Trainee Identification

2. Name of Trainee/Worker: _____
3. Age in years (as of last birthday): _____
4. Sex: 1 – Male 0 – Female
5. Landline Number: _____
6. Mobile Number: _____
7. Email Address: _____

TVET Institution

8. Name of TVET Institution: _____
9. Type of Training Acquired from TVET Institution: _____
10. Length of Training in TVET Institution (months): _____

Company Details

11. Department/Division Assigned in the Company: _____
12. No. of Months Trained in the Company: _____
13. Were you employed in the Company after the DTS Training: _____

For Office Use: (Please don't fill this up)

14. Name of Field Coordinator: _____

15. Date Questionnaire was Checked (MM/DD/YY): _____

16. Name of Data Checker/Editor: _____

17. Date Checked/Edited (MM/DD/YY): _____

18. Name of Data Encoder: _____

19. Date Encoded (MM/DD/YY): _____

PART 1: EVALUATION OF THE TRAINEE

Directions: Please evaluate your performance in the training institute and in this firm where you are undergoing DTS/DTP training or working.

Use the following scale: **4 – Very Much, 3 – Much, 2 – Little, 1 – Not at all, 0 – Not applicable**

Write the number that best represents your answer.

	Training Institution	Firm/Company
How actively did you participate in the training?		
Did you learn new skills/ideas from your interactions with your trainer and supervisor?		
How receptive were you to new ideas presented by your trainer and supervisor?		
How much effort did you give to meeting the requirements of the training? (ex. Reports, Tasks, etc.)		
I have worked diligently in this training.		
Do you feel that you have performed well in the training?		
Have your expectation of this training been met?		
How many times have you been late in the training?		
How many training days have you missed?		
What grade would you give yourself for this training? (Scale: 1 – lowest, 10 – highest)		

PART 2: EVALUATION OF THE TRAINING

Directions: Please evaluate the training institution and the industry using the following scale:

4 – Very Much, 3 – Much, 2 – Little, 1 – Not at all, 0 – Not applicable

Write the number that best represents your answer.

	Training Institution	Firm/Company
The training stimulates me to study beyond the lessons given.		
This training has developed in me a greater sense of responsibility. (i.e., self-reliance, self-discipline, independent study)		
It is worthwhile to take the training.		
The pacing of the training is too fast.		
I gained new skills and knowledge in this training.		
I received recognition or praise for doing good work.		
My trainer seems to care about me as a person.		
My trainer encourages my development.		
My work as a trainee gives me a feeling of personal accomplishment.		
My work as a trainee makes good use of my skills and abilities.		
The training hours is too long.		
The training area is conducive to learning.		
I am fully satisfied with the way this training was handled/conducted.		

COMMENTS/SUGGESTIONS: _____

_____

_____

Thank you for your participation.

ANNEX 6A. LONG-TERM BENEFITS DERIVED FROM THE DTS FOR MICRO-ENTERPRISES

Long-Term Benefits	Number of Firms	Mean (in Php)	Standard Error
Cost of Ads	5	100	100
Cost of Manpower (Internal) in Hiring	5	41,008	31,845
Cost of Manpower (External) Services	1	0	-
Cost of Orientation Materials	24	0	0
Cost of Manpower in Orientation	5	5,677	3,037
Productivity Difference (Monthly)	23	1,586	313

ANNEX 6B. LONG-TERM BENEFITS DERIVED FROM THE DTS FOR SMALL-SIZED FIRMS

Long-Term Benefits	Number of Firms[14]	Mean (in Php)	Standard Error
Cost of Ads	32	586	344
Cost of Manpower (Internal) in Hiring	36	16,233	3,327
Cost of Manpower (External) Services	17	2,486	1,573
Cost of Orientation Materials	68	0	0
Cost of Manpower in Orientation	36	5,590	1,865
Productivity Difference (Monthly)	66	1,908	210

ANNEX 6C. LONG-TERM BENEFITS DERIVED FROM THE DTS FOR MEDIUM-SIZED FIRMS

Long-Term Benefits	Number of Firms	Mean (in Php)	Standard Error
Cost of Ads	13	4,021	2,687
Cost of Manpower (Internal) in Hiring	17	19,134	5,908
Cost of Manpower (External) Services	8	789	247
Cost of Orientation Materials	25	81.6	87
Cost of Manpower in Orientation	17	7,759	4,248
Productivity Difference (Monthly)	22	2,143	325

ABBREVIATIONS

BIBB	Federal Institute for Vocational Education and Training
BIR	Bureau of Internal Revenue
CALABARZON	Cavite, Laguna, Batangas, Quezon
CBS	Cost-Benefit Study
CHED	Commission on Higher Education
COC	Certificate of Competency
DEPED	Department of Education
DOLE	Department of Labor and Employment
DTP	Dual Training Program
DTS	Dual Training System
KEG	Key Employment Generators
PESFA	Private Education Student Financial Assistance
PBED	Philippine Business for Education
PCCI	Philippine Chamber of Commerce and Industry
PCCI HRDF	PCCI Human Resources Development Foundation, Inc.
PQF	Philippine Qualifications Framework
LGU	Local Government Unit
MOA	Memorandum of Agreement
NC	National Certificate
NCR	National Capital Region
NIRC	National Internal Revenue Council
OJT	On the Job Training
SDC	Subic Drydock Corporation
TESDA	Technical Education and Skills Development Authority
TR	Training Regulation
TTIs	TESDA Technology Institutions
TVET	Technical and Vocational Education and Training
TVIs	Technical Vocational Institutes
TWSP	Training for Work Scholarship Program
UP	University of the Philippines

REFERENCES

Jansen, Anika, Harald Pfeifer, Gudrun Schonfeld and Felix Wenzelmann (2015), "Apprenticeship Training in Germany remains investment-focused: results of BIBB Cost-Benefit Survey 2012/13." Federal Institute for Vocational Education and Training (BIBB) Report 2015-01.

Nguyen Quang Viet, Nguyen Hoang Nguyen and Dang Thi Huyen (2015), "Report on Cost and Benefit Analysis of TVET Internship Programmes in Enterprises (Vietnam)." Vietnamese-German Development Cooperation Programme Reform of Technical and Vocational Education and Training in Viet Nam (TVET).

Orbeta, Aniceto, Jr. and Emmanuel Esguerra (2016), "The National System of Technical Vocational Education and Training in the Philippines: Review and Reform Ideas." Discussion Paper 2016-07, Philippine Institute for Development Studies.

TABLES

Table 1. Enrollment and Graduation by Mode of Delivery
Table 2. Comparison of the Structure of the Apprenticeship, Learnership and DTS Programs
Table 3. Number of TVIs and Firm-Partners in the DTS by Region Covered in the Survey
Table 4. Number of Firms that Participated in the Study by Region and Industry Type
Table 5. Number of Firms by Firm Size by Region
Table 6. Number of Firms by Training Duration and Regional Location
Table 7. Number and Percentage of Training Vocational Institutes (TVIs) in the Study
Table 8. Number and Percentage of Trainees by Regional Location
Table 9. Average Cost per Trainee per Month in Running the DTS for the Firm
Table 10. Average Short-Term Benefits per Trainee per Month in the DTS
Table 11. Long-Term Benefits per Trainee for the Firm
Table 12. Percentage of Trainees Hired (Retained) by the Firms after the Training
Table 13. Average Cost per Trainee per Month in Running the DTS by Firm Size
Table 14. Average Short-Term Benefits per Trainee per Month in Running the DTS by Firm Size
Table 15. Long-Term Benefits Derived from the DTS for Large Firms
Table 16. Average Cost per Trainee per Month in Running the DTS Classified by Industry Type
Table 17. Average Short-Term Benefits per Trainee per Month in Running the DTS Classified by Industry Type
Table 18. Long-Term Benefits Derived from the DTS for Firms in the Manufacturing Industry
Table 19. Long-Term Benefits Derived from the DTS for Firms in the Hospitality Industry
Table 20. Average Cost per Trainee per Month Classified by Training Duration
Table 21. Average Short-Term Benefits per Trainee per Month Classified Training Duration
Table 22. Long-Term Benefits Derived from the DTS for Firms with Training Duration of More than 3 Months to 12 Months
Table 23. Average Cost per Trainee per Month in Running the DTS for the Firm in the NCR
Table 24. Average Short-Term Benefits per Trainee per Month in the NCR
Table 25. Long-Term Benefits per Trainee for the Firm in the NCR
Table 26. Average Cost per Trainee per Month in Running the DTS for the Firm in Region 3
Table 27. Average Short-Term Benefits per Trainee per Month in Region 3 (Central Luzon)
Table 28. Long-Term Benefits per Trainee for the Firm in Region 3 (Central Luzon)
Table 29. Average Cost per Trainee per Month in Running the DTS for the Firm in Region 4A
Table 30. Average Short-Term Benefits per Trainee per Month in Region 4A (CALABARZON)

Table 31. Long-Term Benefits per Trainee for the Firm in Region 4A (CALABARZON)
Table 32. Average Cost per Trainee per Month in Running the DTS for the Firm in Region 10
Table 33. Average Short-Term Benefits per Trainee per Month in Region 10
Table 34. Long-Term Benefits per Trainee for the Firm in Region 10
Table 35. Satisfaction Ratings of the Firms in the Conduct of the DTS
Table 36. Number of TVIs that participated in the DTS-Survey by Location
Table 37. Average Tuition Fee and Scholarship per Student
Table 38. List of Programs Reported by TVIs without Scholarship
Table 39. Number of DTS Trainees that participated in the survey
Table 40. Evaluation of the Trainees of the Training Provided by the Firm
Table 41. Evaluation of the Trainees of the Firm and its Personnel

FIGURES

Figure 1. The Philippine Education System
Figure 2. Number of Enrollees, Graduates, Assessed and Certified Trainees
Figure 3. Employment Rates of TVET Graduates (2005-2014)
Figure 4. Dual Training System Learning Concept
Figure 5. Elements of the Dual Training System (DTS)
Figure 6. Mode of Implementation of the Dual Training System (DTS)
Figure 7. Philippine Qualifications Framework
Figure 8. Partnership in the K to 12 Project Plus
Figure 9. Cost Components of the Dual Training System
Figure 10. Benefit Components of the Dual Training System
Figure 11. Average Cost and Short-Term Benefits per Trainee per Month by Industry Type
Figure 13. Average Cost and Short-Term Benefits per Trainee per Month by Training Duration
Figure 14. Average Cost and Short-Term Benefits per Trainee per Month Simulated Overall Costs and Benefits (Short and Long-Terms) per Trainee

ANNEXES

Annex 1. Budget, Covered Enrollment and Number of Graduates under the PESFA and TWSP (2006-2015)
Annex 2. Number of TVIs offering DTP / DTS and Number of Partner Companies
Annex 3. Firms Questionnaire
Annex 4. TVI Questionnaire
Annex 5. Trainees Questionnaire
Annex 6A to 6C. Long-Term Benefits for Micro, Small and Medium-Sized Firms

Supported by:

Federal Institute for Vocational Education and Training

BIBB

- Researching
- Advising
- Shaping the future

University of the Philippines School of Statistics

Federal Ministry for Economic Cooperation and Development

K to 12 PLUS Project

german cooperation

AFOS

KFW DEG

giz

Finanzgruppe

sequa gGmbH Partner of German Business

ZDH Zentralverband des Deutschen Handwerks

GPCCI AHK