

# IMPROVEMENT ALTERNATIVES FOR PRODUCTIVITY COURSES

A REVIEW OF TRAINING COURSES  
IN APO MEMBER COUNTRIES



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The Asian Productivity Organization (APO) is an intergovernmental organization committed to improving productivity in the Asia-Pacific region. Established in 1961, the APO contributes to the sustainable socioeconomic development of the region through policy advisory services, acting as a think tank, and undertaking smart initiatives in the industry, agriculture, service, and public sectors. The APO is shaping the future of the region by assisting member economies in formulating national strategies for enhanced productivity and through a range of institutional capacity building efforts, including research and centers of excellence in member countries.

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### **Improvement Alternatives for Productivity Courses**

A review of training courses in APO member countries

Dr. Pradip Kumar Ray served as the volume editor.

First edition published in Japan  
by the Asian Productivity Organization  
1-24-1 Hongo, Bunkyo-ku  
Tokyo 113-0033, Japan  
[www.apo-tokyo.org](http://www.apo-tokyo.org)

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# FOREWORD

There is no question that investment in human capital is more necessary than ever in this era of globalization, demographic change, and continuing rapid advances in technology. One recommendation of a 2014 APO workshop examining productivity courses offered in the region was to conduct extensive research to assess those courses and propose ways to improve them for maximizing their results. This volume is the result of the year-long research project undertaken in response.

Under the leadership of Chief Expert Professor Pradip Kumar Ray of the Indian Institute of Technology Kharagpur, national experts from seven APO members conducted extensive studies of public and private training institutions, programs offered to meet national needs for the development of productivity specialists, and how improvements could be made to ensure that workers in the future would be able to innovate existing knowledge and processes for continuing progress. The first chapter in this compilation defines major issues in human capital development and the research guidelines and framework, followed by detailed case studies of productivity courses offered in the seven participating countries. The concluding chapter discusses the roles and responsibilities of various entities in building human capital through productivity training and recommend steps to improve current institutional offerings which could be extrapolated to other APO members as well as outside the Asia-Pacific region.

The APO thanks National Experts Dr. Md. Nazrul Islam of Bangladesh, Dr. Zahir Javed Paracha of Pakistan, Erwinson B. Atanacio of the Philippines, Kularatne Gamage of Sri Lanka, Nantaphorn Aungatichart of Thailand, and Do Thi Dong of Vietnam for conducting the case studies and enthusiastic involvement in the research. The guidance and coordination of Chief Expert Professor Ray were invaluable contributions that made this publication possible. Finally, the knowledge, support, and motivation offered by APO Secretariat Program Officer Dr. Jose Elvinia were appreciated throughout the research process.



***Dr. Santhi Kanoktanaporn***

Secretary-General

Tokyo

December 2018



# PREFACE

Over the past five decades, the Asian Productivity Organization (APO) has been actively engaged, with the support of national productivity organizations (NPOs), governments, and various other organizations of member countries, in the conduct of productivity management-related studies and research as well as training programs and courses on issues relevant for increased productivity, quality, and profitability of organizations, public or private. The APO has been playing critical roles and taking responsibilities for creating adequate human resources and facilities for the establishment of productivity management systems in organizations of member countries. The engagement of the NPOs in such a massive scale has resulted in the development of several kinds of training programs and courses being designed and offered by institutions of member countries for working personnel, managers, executives, and academics of industry and educational institutions.

In today's fast-changing business and global scenarios, the APO, in its constant endeavor to upgrade and enhance the quality of its programs and courses, looks to designing improvement plans and corresponding action steps for institutions that offer productivity courses in member countries; all member countries have their own institutions of different types offering such courses and programs.

Initiated by the APO, a one-year research project was carried out from October 2015 to September 2016 in six Asian countries - Pakistan, Sri Lanka, Thailand, Bangladesh, the Philippines, and Vietnam - with three-fold objectives: to assess the curriculum designs and training programs of institutions that offer productivity courses, to expand the productivity courses and programs of institutions to increase the number of specialists in the region, and to make specific recommendations to strengthen and improve the delivery and quality of productivity courses and training programs.

Highlighting the background in the given context such as the major issues involved, the main challenges faced, the need for research with its purpose and guidelines as well as the research framework used, this report presents the following in the form of case studies:

(i) Details of the study carried out for institutions in the respective countries in terms of the existing scenario, (ii) evolution process, (iii) evaluation of existing courses and programs, (iv) improvement plan, (v)

action plan for implementation, (vi) critical success factors and national implications.

Also included in the report is the existing national scenario as well as government- and industry-supported programs of India, one of the founding member countries of the APO, to help the six countries benchmark their institutions. The roles and responsibilities of implementing organizations like the APO, NPOs, governments, and industries of respective countries are also specifically stated.

It is hoped that the implementation plan will serve as a generic approach and a guideline for the institutions offering productivity courses in a member country, for identification of new and relevant courses and programs in the field of productivity management, and for identification of problems to be addressed and overcome at different phases of implementation.

I express my sincere thanks and gratitude to the national experts, Erwinson B. Atanacio of the Philippines, Dr. Zahir Javed Paracha of Pakistan, Do Thi Dong of Vietnam, Dr. Md Nazrul Islam of Bangladesh, Nantaphorn Aungatichart of Thailand, and Kularatne Gamage of Sri Lanka for their wholehearted support, involvement, and significant contribution to this important research. Without their unstinted support and cooperation, this project would not have seen the light of the day. Last but not the least, I express my sincere thanks and gratitude to Dr. Jose Elvinia, Program Officer of the APO, whose unceasing support, knowledge, and leadership have motivated all of us to work for the success of the project.

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## CHAPTER 1

# INTRODUCTION

Since the time when human civilization took shape, and particularly with the growth of agricultural and production systems in a national economy, all its systems have been judged by the productivity of various input resources such as humans, materials, capital, power, etc. The production of goods and services using different input resources led to the analysis and monitoring of their performance over time. The performance of human factors and the utilization of raw materials, energy, machines and equipment in manufacturing and service systems are the main issues affecting productivity management systems in a national economy.

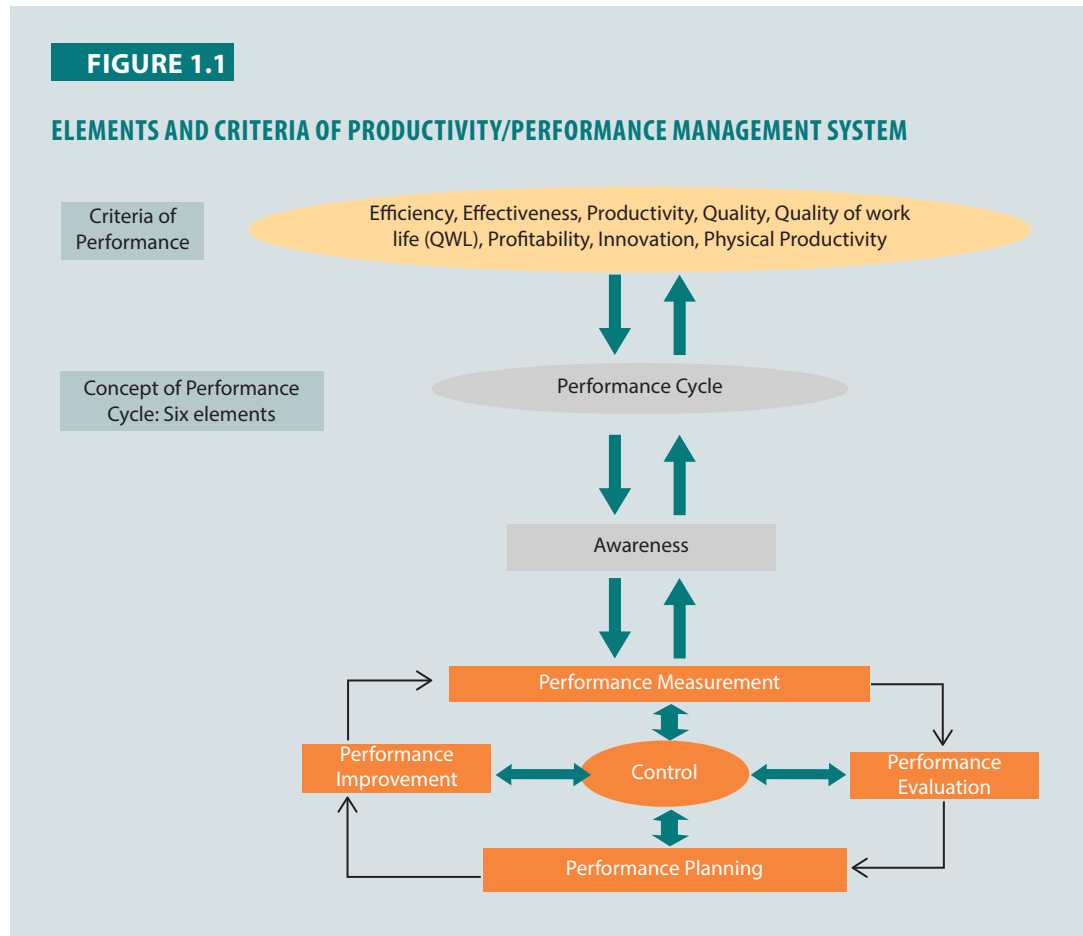
Although researchers and practitioners are engaged in designing and implementing different aspects of productivity management systems, the completeness of productivity management in any national economy depends mainly on the consideration of two aspects: (i) the types of units of analysis for which productivity management systems are to be developed, such as individuals, departments, plants, companies, industries, and the nation as a whole, and (ii) the criteria of performance that a productivity management system addresses.

In the present-day industrial climate, almost all factors related to productivity of any national economy of Asia such as methods of manufacturing and organizational activities, growth of technological innovation, organizational structures, number of specializations, sizes of organizations, and work ethics have undergone a sea of change. In recent times, productivity improvement programs have become critically important in the context of achieving the optimal level of performance in an organizational system. This calls for strategic planning and a focus on ongoing process and implementation procedures.

With large-scale investment in humans and capital in the national economy for both short-term and long-term improvement in the standard of living and enhanced economic power of a country, the elements of the productivity cycle (awareness, measurement, evaluation, planning, improvement, and control) as well as the dimensions of performance (efficiency, effectiveness, quality, quality of work life, innovation, productivity, and profitability) need to be considered in any comprehensive productivity management programs. The kinds of instruments or methods used for establishing and sustaining productivity or performance improvement over time, and the human performance at all levels in organizations, have to be ensured. This is carried out by continually assessing and upgrading productivity management-related teaching or training curricula and programs offered in educational institutes and industrial training centers.

While the roles and responsibilities of the educational and industrial training institutes should be effectively earmarked, it is essential that the existing national policies and strategies for productivity improvement as well as government- and industry-supported programs be continually identified and critically appraised. These must be carried out before an integrated and holistic framework for productivity management, through introducing and implementing required training programs on all the elements of the productivity cycle and dimensions of performance, are in place.

In many instances, the terms “productivity” and “performance” are used interchangeably. The elements and criteria of the productivity/performance management system are shown in Figure 1.1.



To improve productivity/performance of an individual or a system, there are many kinds of tools and techniques already being developed and used by organizations in their respective countries at different levels of its national economy. These may be classified under seven categories: (i) technology based, (ii) employee based, (iii) product based, (iv) task/job based, (v) material based, (vi) quality based, and (vii) cross-functional/interdisciplinary. The important tools and techniques under each category are:

- (i) Technology based: CIM (CAD, CAE, CAPP, CAM), FMS, transfer line, material handling systems (AGVs, conveyors, PIT, etc.), energy conservation, and remanufacturing
- (ii) Employee based: Financial incentives (individual/group), job rotation, job enlargement, job enrichment, and small group activities (quality circles/work improvement/achievement)
- (iii) Product based: Value engineering, concurrent engineering, QFD, market research, and new product development
- (iv) Task/Job based: Job design, job evaluation, job safety design, human factors engineering (ergonomics), and production scheduling.
- (v) Material based: Inventory control, MRP-I/MRP-II, ERP, and SCM (3PL/4PL)



- (vi) Quality based: Zero Defects, process control, acceptance sampling/continuous sampling plan, robust design (Taguchi method), and automated noncontact inspection/quality control
- (vii) Cross-functional/Interdisciplinary: Benchmarking, environmental management system, sustainability modeling, knowledge management, hazard analysis and risk assessment, continuous improvement (Kaizen)/R&D, and total performance assurance modeling

A number of factors may affect the development of a productivity management program:

- (i) The scope of the course/program to be developed (company-wide, plant-wide, within a given function or department, and so forth)
- (ii) The personalities or persons associated with the course/program and key people involved and affected
- (iii) The skills of the people attempting to develop the course/program
- (iv) The actual desired outcomes for the course/program
- (v) Peripherally related programs and efforts
- (vi) The maturity of the leadership and followers with respect to participative approaches to innovation

The following strategies may be adopted for designing, developing, and managing productivity management programs at different stages. These strategies are essentially related to the consideration of the basics in productivity-related courses and the development of an excellent performing system in an organization with respect to productivity/performance improvement. The strategies may be explained based on the stages of development of a performance/productivity management system:

**Stage 1: The basics**

Basic management, product and service engineering, facilities management, quality management, vital function interface, industrial engineering, product and process innovation, and productivity basics training

**Stage 2: Organizational systems performance measurement**

Strategic planning for measurement system design, performance appraisal systems, group performance appraisal systems, Management by Objectives, Managing Productivity By Objectives, performance assurance, work measurement systems, and productivity measurement systems

**Stage 3: Integration of productivity planning with business planning**

Productivity planning; integration with behavioral, financial, production, and quality control systems; improved strategic planning; improved effectiveness at linking planning to action and follow-through; and specific productivity improvement strategies, programs, techniques

- Stage 4: Employee involvement  
Participation in problem solving; top management commitment and legitimization; design perspectives; team building; structured group processes; supervisor/subordinate relationship focus; supervisor development; problem solving and effective implementation; effective and efficient techniques; and PAT (Productivity Action Teams) process design, development and implementation
- Stage 5: Productivity measurement system refinements  
Multifactor measurement models; normative productivity measurement models; partial-factor productivity measurement models; and integration with other performance systems such as environmental performance and sustainability
- Stage 6: “In Search of Excellence” maintenance and growth  
Linking productivity improvement to measurement; goal congruency (labor/management relations, knowledge of what is expected); performance/productivity gain sharing (making rewards contingent on performance); continued evolution of PAT (Productivity Action Teams) at all levels of the organization; continued measurement, evaluation, and development of the control system; and management development

All these aspects must be considered in relation to a variety of issues pertaining to productivity/performance management in totality.

## Major Issues

In a country, productivity improvement in any sector of its national economy entails a concerted and comprehensive approach for implementing required tools, techniques, and approaches by knowledgeable and competent personnel. In this context, the kinds of policies as suggested by government and industries on different aspects of productivity management play a crucial role as they directly or indirectly influence decisions regarding technology upgrade, product quality improvement, process selection, and capital investment so vital for the introduction of any implementation programs for productivity or performance improvement.

Policies regarding productivity improvement are mainly geared toward building and maintaining organizations as “centers of excellence”. These policies raise the level of work in select areas to the highest international standards, apart from highlighting other conditions to create such as integration of science and technology in all spheres of national activity. Ensuring resource-optimized, cost-effective innovations across science and technology domains and development of a robust national innovation system are two important areas that have direct relevance in productivity management.

In order to get the maximum benefit at the national level in terms of increased GDP and improved standard of living, policies and corresponding strategic actions are to be focused to meet the special requirements of industries and service sectors prioritizing critical areas where performance improvement in totality has to be assured. Associated issues such as capacity enhancement of the industries in general, effective collaboration among stakeholders, investment schemes meeting the interests of different industries, and performance and quality monitoring mechanisms are important considerations for designing and implementing an integrated and optimized productivity/performance management system in any sector of a national economy.

## Main Challenges

The institutes and training centers of any country may be aware of the pertinent issues and problems while they design and execute productivity management-related programs most effectively. The performance of these institutes and centers vis-à-vis the training and educational programs needs to be assessed on a continuous basis. In recent times, the adoption of a globalized economy and the pressure on all sectors of a country's national economy have resulted in several kinds of challenges that are related to the use of technology, in improving the quality of work life, and in achieving sustainability in economic and environmental performance. In this context, the roles and responsibilities of trade unions, corporate management, government and regulating authorities, national productivity councils/centers, institutes of technology, and financial institutions have become very critical in making productivity-related programs effective and result oriented. All these challenges are to be handled systematically and concurrently.

When designing and executing training programs on any aspect of productivity/performance management, it is highly desirable that the challenges faced in a country are to be overcome, in general, identifying industry-specific requirements before training programs are offered.

## Need for Research on Institutions Offering Productivity Courses

In view of emerging complex scenarios in manufacturing and service systems in Asian countries, institutions offering productivity courses need to address the challenges on a priority basis so that these courses remain relevant in serving the interests of stakeholders. As the conditions and the constraints experienced by a country are unique in nature, a thorough understanding and in-depth knowledge are prerequisites to designing and implementing policies, strategies, and actions for addressing these issues.

The APO, being the prime mover for initiating such effort, has proposed a research project on institutions offering productivity courses. At present, in each of the Asian countries, a number of institutions are offering productivity courses. In this context, the background for such research work is formed based on studies carried out by the APO. These studies indicate that the formation of human capital not only leads to higher worker productivity but also contributes to economic development, where workers are absorbed into the economy and move into higher productivity sectors and occupations. In addition to economic development and productivity growth, investment in human capital also has positive effects on fostering entrepreneurial activity and technological innovation through workers' enhanced ability to apply and adapt existing knowledge and processes to make new discoveries.

In 2014, the APO implemented a workshop that looked into the productivity courses being offered by national institutes of technology and other training institutions in member countries so that mutual cooperation could be established among them, the NPOs, and the APO at large. One of the recommendations made in the workshop to expand the number of productivity specialists in the region was a study to assess the different productivity courses being offered. Such a study would not only compile these productivity-related courses but also make proposals for strengthening and expanding them to meet the growing demand of local industries.

This study is, therefore, an attempt to assess the various productivity courses and programs being offered and to make recommendations to improve them in collaboration with concerned NPOs. The institutions referred to in this project are technical and vocational schools, national institutes

of technology, and other training institutions that offer courses and training programs on productivity in member economies excluding NPOs.

## **Purpose and Guidelines for Research**

The research has the following objectives:

- (i) To assess the curriculum designs and training programs of institutions that offer productivity courses
- (ii) To expand the productivity courses and programs of institutions to increase the number of productivity specialists in the region
- (iii) To make recommendations that will strengthen the delivery and quality of productivity courses and training programs

As any such research framework entails a systematic approach, with the involvement of researchers' (in this case, participating national experts' expertise) and knowledge, and experience, assurance of an intensive and extensive exchange of views and opinions through group discussions on a number of pertinent research issues as considered for studying institutions offering productivity courses from several perspectives is to be guaranteed. The perspectives refer to the goals of the productivity courses, the problems and challenges to overcome for their achievement, and improvement plans to be established in a given national setting within a time frame.

In order to ensure maximum effectiveness of the discussion among the participating national experts, which would result in the understanding and adoption of a research framework, it is essential that these experts are involved in preliminary understanding and assessment of their respective institutions and productivity courses and programs, with respect to a number of factors and issues that follow a set of guidelines. It is assumed that once understanding as per these guidelines is reached, the necessary condition for application of the research framework and methodology will be fulfilled.

The guidelines as prepared would help the national experts identify, plan, and execute different activities of the research plan in a systematic manner. These activities may be grouped into three interrelated phases:

Phase I: Preliminary understanding of the existing system

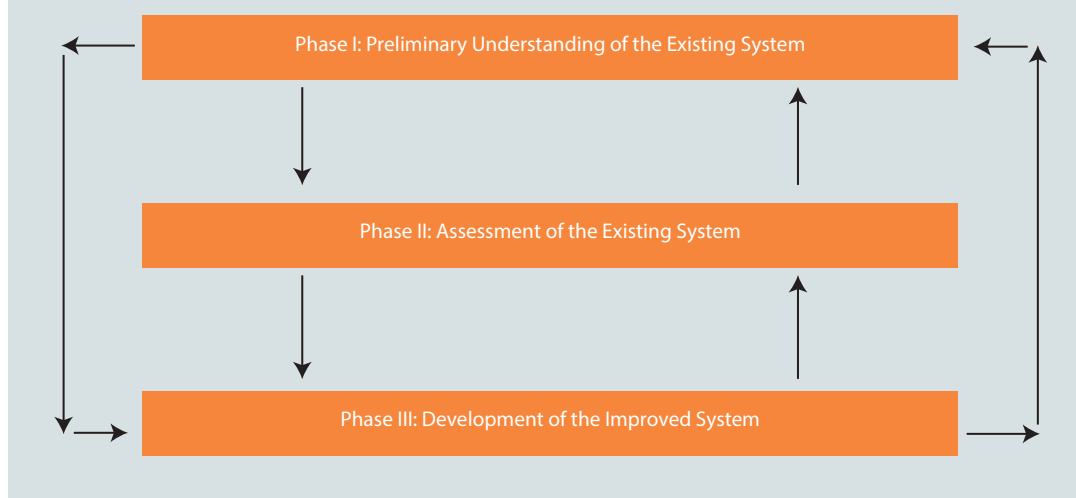
Phase II: Assessment of the existing system

Phase III: Development of the improved system

These phases may be represented by a generic flowchart in closed loop as shown in Figure 1.2. The guidelines are to be prepared for all the three phases of the research plan.

Currently, six participating countries, represented by their national experts, may have a number of institutions offering productivity courses to enhance the potential of their personnel at different social levels in general and/or to enhance different categories of personnel engaged in a variety of

**FIGURE 1.2**  
**A GENERIC FLOWCHART FOR RESEARCH PLAN**



jobs (skill-based, rule-based, knowledge-based, and their combinations) in different sectors of its national economy. The main purpose of such courses is to develop human resources (referred to as ‘human capital’) in general and to improve the quality and productivity of working personnel in particular, ensuring improved and sustained national productivity.

In any research undertaken for the existing productivity courses as offered by the institutions in any country, it is essential that they are evaluated on a number of issues or criteria that are based on present-day fast-changing industrial and social climates across nations and their impact on the institutions in an individual country. In this context, it may be most reasonable to assume that all the six countries have been encountering the impact of globalization in their industrial and social environments. As such, the effectiveness of productivity-related courses and programs is to be measured and assessed before a comprehensive research methodology is employed to prepare improvement paths and models for implementation through an action plan for resource mobilization and human capital deployment.

In specific terms, the objectives of setting guidelines, with respect to research on existing productivity courses in institutions in a country, are as follows:

- (i) To collect relevant data and information regarding their types, varieties, focus, and characteristics (identification and recognition)
- (ii) To assess the effectiveness of these courses from the viewpoint of the national policies and strategies for productivity improvement (national perspective)
- (iii) To collect and analyze relevant data to evaluate current level of quality and effectiveness of productivity courses and programs (assessment of existing system)
- (iv) To prepare a plan to improve in meeting the interests of different stakeholders in the present context (planning for improvement)

- (v) To prepare an action plan for new and improved productivity courses and programs under an implementable phase-wise integrated framework (action plan for implementation)

To meet the objectives of the research as stated, collection and analysis of specific and relevant data as well as exploring and selecting improved alternatives under changing scenarios in a systematic manner must be ensured. A set of guidelines for carrying out such an exercise, pointing out the types of data to be collected and the types of analyses to be carried out, are to be suggested. The guidelines for each of the five objectives are as follows:

#### **Guidelines for Identification and Recognition (Objective 1)**

- (i) List the types of institutions that are imparting education and training in one or more aspects of productivity management.
- (ii) List the types of courses and training programs being offered by different types of institutions (short, medium, or long duration; executive, management, supervisors, worker levels; on-site and distance mode; sponsored, self-financed support; awareness, intensive, workshop type; regular, on-demand execution).
- (iii) List the jobs or tasks (for government, manufacturing, and service organizations) for which productivity courses and programs are usually designed and offered.
- (iv) State the purpose(s) of each type of course or programs (skill enhancement, knowledge development, and empowerment).
- (v) State other characteristics of the courses, if designed and offered for specific social groups or communities, for self-help or self-employment, for service personnel quality improvement, etc.
- (vi) List three main merits and three main problems, if any, associated with the design and the running of each type of course or program (with respect to issues such as income generation, quality of management, level of participation, availability of resource persons, and facilities required).

#### **Guidelines for National Perspective (Objective 2)**

- (i) State the existing policies related to these factors that have been planned for adoption in different sectors of the national economy, including small and medium enterprises (SMEs): technology upgrade, capacity augmentation, human skills enhancement, knowledge development, cost-effective innovation, resource availability, environmental management, and sustainability.
- (ii) List the strategic actions that are being planned or executed for each of the policies listed in (i) above.
- (iii) List the existing government- and industry-supported courses and programs in new, upcoming, or thrust areas of study and research (related to technology, materials, and humans) specifically in use for productivity improvement in manufacturing and service organizations.

### Guidelines for Assessment of Existing System (Objective 3)

- (i) Define the “quality” of a course or a program with respect to the institutions offering it. The main factor to be considered is the curriculum for the course or program.
- (ii) Define the “effectiveness” of a course or a program with respect to participants. The main factor to be considered is the level of participation and involvement.
- (iii) Name the specific dimension(s) of performance that the courses or programs are focused on: efficiency, effectiveness, quality, quality of work life, innovation, profitability, and physical productivity.
- (iv) List the possible factors that may affect the quality of institutions positively.
- (v) List the possible factors that may affect the quality of institutions negatively.
- (vi) Name three main factors on which the effectiveness of each type of course and program is to be judged.
- (vii) List a maximum of three measures that may be recommended to improve quality and effectiveness of each type of course or program.

### Guidelines for Planning for Improvement (Objective 4)

- (i) List the industries where productivity courses and programs are a priority in the next five to ten years.
- (ii) List the areas of productivity management (awareness, measurement and evaluation, and productivity improvement tools and techniques) in which courses and programs need to be offered for each industry named in (i) above.
- (iii) List the types of institutions that may plan to offer these courses and programs.
- (iv) List the types of institutional support required to design and run these courses and programs.
- (v) Estimate the required number of productivity specialists to run each new course and program.
- (vi) List the major bottlenecks, barriers or problems, if any, to overcome in order to implement new courses and programs.
- (vii) List additional resource requirements for system components, operations, and maintenance (lecture materials, training aids) with respect to each institution and industry.

### Guidelines for Action Plan for Implementation (Objective 5)

- (i) List the types of actions required to improve the quality of courses and programs in each of these factors: policy formulation, facility development, new courses, curricula development, educational programs, and training methods.
- (ii) List the major steps needed to remove bottlenecks, barriers, and problems as identified in (i).

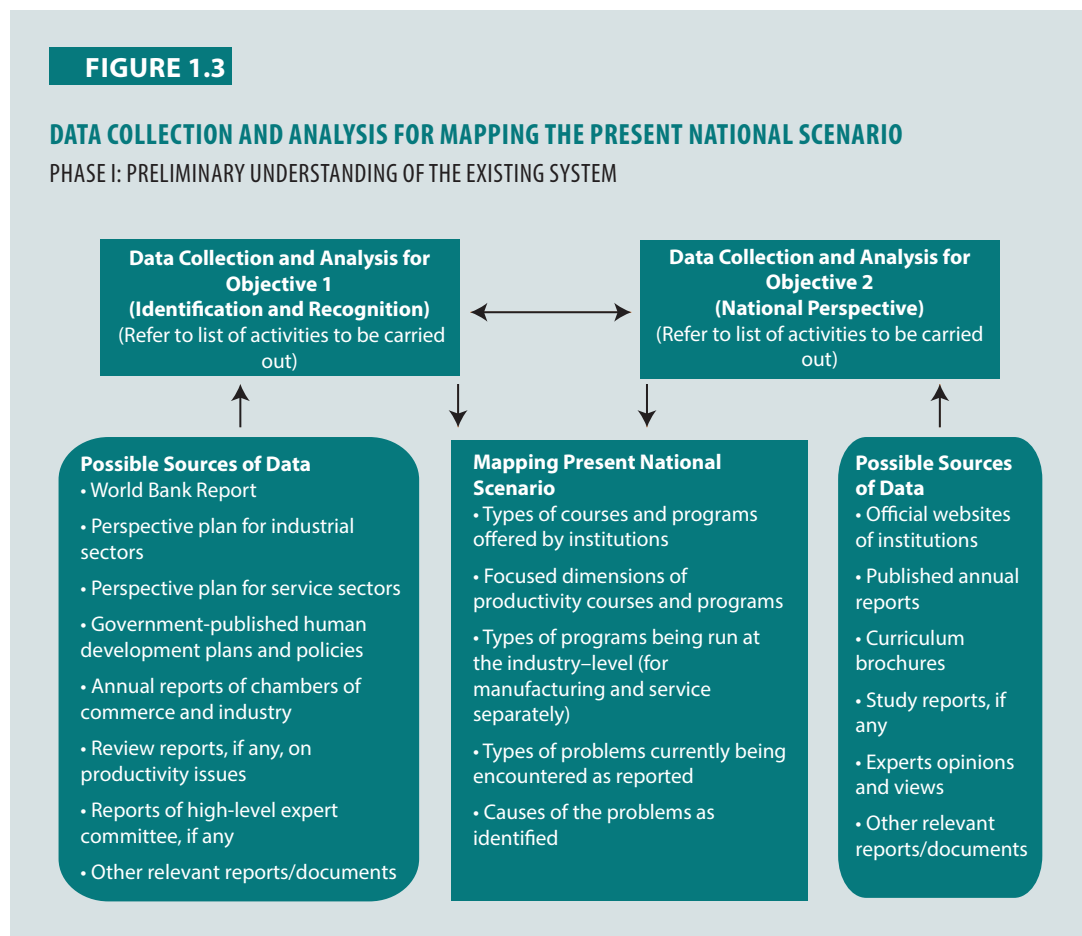
- (iii) Determine time schedules to implement new courses and programs (design of curriculum).
- (iv) Prepare contingency plans to cope with changing and adverse situations or requirements.

The activities as mentioned are generic in nature. It is expected that for a given country, the national expert is free to interpret them in terms of their equivalent identities as practiced or used.

## Research Framework

As all of these objectives are to be fulfilled with a phase-wise approach, the research framework as proposed identifies in detail the types of data to be collected, the kinds of analyses to be carried out, the tools and techniques to be used, and the specific outcomes and deliverables to be expected on completion of the research. The details of the research framework for all the three phases are presented, with the help of flowcharts, in Figures 1.3 to 1.5.

In order to maximize the effectiveness of such a research endeavor, all the experts have to play a vital role to ensure their preparedness, interaction, and participation in activities as stated for all the phases of the research plan. It is presumed that by following the guidelines as set, the experts will be fully prepared for active interaction through effective communication and brainstorming during coordination meetings and subsequent participation in research through data analysis, interpretation of results, and suggestions for improvement. Networks may be in the form of various educational and training programs/courses.

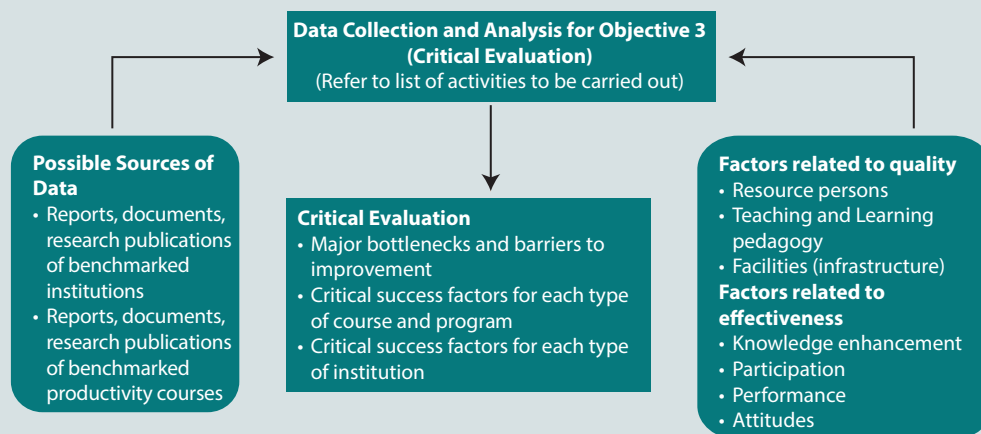




**FIGURE 1.4**

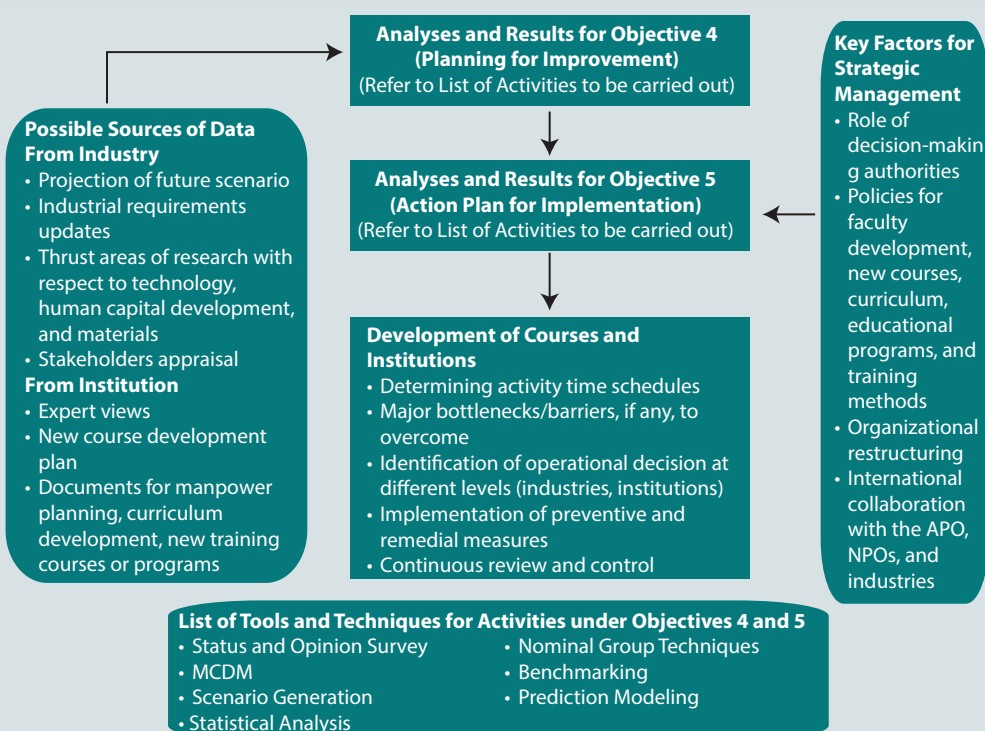
### DATA COLLECTION AND ANALYSIS FOR CRITICAL EVALUATION AND ASSESSMENT OF THE EXISTING SYSTEM

PHASE II: ASSESSMENT OF THE EXISTING SYSTEM

**FIGURE 1.5**

### DATA COLLECTION AND ANALYSIS FOR DEVELOPMENT OF THE IMPROVED SYSTEM

PHASE III: DEVELOPMENT OF THE IMPROVED SYSTEM





# CASE STUDY

There are seven Asian countries participating in this research endeavor. As stated in the research framework, data collection and analysis pertaining to the five objectives (for which guidelines are set) were carried out by the national experts for their respective countries. The details of data collection and analysis, assessment of the existing system related to the courses/programs and institutions, improvement alternatives, and implementation plans are discussed as case studies.

Each case study looks into the existing national scenario, current problems, research issues, types of institutions offering courses and programs on productivity management systems, evaluation of existing courses and programs, improvement plans and action plans that emphasize critical success factors and national implications for a country.



## CHAPTER 2

# CASE STUDY: BANGLADESH

### Existing National Scenario

In Bangladesh, economic growth in the fiscal year 2014 (ending June 2014) was provisionally estimated at 6.1%, marginally improved from 6% in the fiscal year 2013 with agriculture expanded by 3.3%, aided by good weather and continued government support. However, industry growth slumped to 8.4% from 9.6% a year earlier because of political unrest in January 2014 that disrupted the supply of materials and undermined consumer confidence. Services advanced by 5.8%, up slightly from 5.5% the year before, mainly on stronger trade in the second half of the year (Ministry of Finance, Government of Bangladesh, 2013).

On the demand side, net exports added to growth, as garment exports grew briskly. A decline in remittances and weak consumer confidence reduced growth in consumer spending. Investment rose slightly to 28.7% of the GDP in FY2014 from 28.4% in the previous year, as private investment slipped to 21.4% of the GDP from 21.8% in FY2013, while public investment rose from 6.6% to 7.3%. Private investment was constrained by the unsettled political environment, difficulties with infrastructure and skills deficits, and procedural problems that inhibit investment (Ministry of Finance, Government of Bangladesh, 2013). Rising public investment came as the government stepped up its implementation of election pledges. However, foreign direct investment remained low.

The GDP growth in FY2015 was projected at 6.1%. Before the political unrest began in January 2015 - the anniversary of the national elections that the opposition boycotted - the economy had been expanding briskly for six months, indicating good growth prospects for FY2015 (Ministry of Finance, Government of Bangladesh, 2013). Strong remittance inflows boosted consumption and private investment rose, as indicated by higher capital equipment imports. Although exports remained subdued, they gradually improved, as export orders picked up. However, political unrest and action to shut down transportation began to undermine growth prospects by affecting private investment and export activity. Despite this, continued healthy remittance inflows are expected to support consumer spending and sustain economic momentum.

Growth in FY2016 was projected to accelerate to 6.4%, aided by higher remittances and export growth, which is underpinned by the continued economic recovery in the USA and the EU (Ministry of Finance, Government of Bangladesh, 2013). Consumer and investor confidence are expected to pick up as the political situation stabilizes, strengthening growth momentum. In addition, infrastructure constraints will likely ease somewhat with the completion of ongoing projects, particularly the opening of new power plants.

It is a fact that productivity is the key to success for the socioeconomic development of any society. Bangladesh, being one of the least developed countries, has been striving hard to ensure economic development through rapid industrialization as well as employment generation. Higher productivity reduces cost of production, enabling effective competitive pricing of goods and services, and thus providing opportunities for making more profit. A country with higher productivity and profitability,

having sound economic and social infrastructural facilities and political stability, attract more foreign investors.

Development of skilled workforce is essential for social and economic wellbeing of a nation. Countries at all levels of development find that adequate education and skills increase the ability to innovate and adapt to new technologies. A workforce that has been appropriately trained and is able to continue learning boosts investor confidence, and thus job growth.

One of the effective ways to break the cycle of poverty involves full employment and decent work. Since independence, the formation of human capital to sustain economic growth and alleviate poverty has been a pivotal developmental instrument in Bangladesh. The 7th Five-Year Plan, approved by the government for the period of 2016–20, aims at accelerating growth, which is inclusive in the sense that the benefits of growth are both sustainable and broad-based in terms of employment opportunities. The plan recognizes that the ultimate goal of an effective human development strategy is to instill in people the ability to realize their full potential while ensuring a safe, healthy, and nurturing environment, all leading to sustained economic growth and poverty alleviation.

As per the latest census, 18.85% of the country's population now belong to an age group of 15 to 24 years and 37.6% to an age group of 25 to 54 years. With a population of 160 million and an average median age of 25 years, Bangladesh may enjoy the benefits of demographic dividend probably for next 30–40 years (Statistical Year of Bangladesh 2014, Bangladesh Bureau of Statistics, Dhaka). The economy of Bangladesh is growing steadily, benefiting from various reforms and increasing openness. However, to accelerate economic growth to a higher trajectory, Bangladesh needs to convert its large working-age population to productive human resources by enhancing their skill levels. To this effect, the government has been implementing various types of programs.

## **Current Problems**

There are a number of institutions in the country that carry out training courses for social and economic development through human resource development. However, training and research on productivity management, keeping in view the national perspective of industrial development and human resource development, have not yet been done adequately. NPO Bangladesh has been conducting training courses for productivity improvement for the various sectors, but there is a lack of research on the trends and benefits achieved through productivity management by enterprises, sectors, and the nation as a whole. A review of the literature on productivity indicates that several studies on different aspects of productivity management have been conducted, both in the planned economy and market economics (Bhattacharjee, 1984). In the existing scenario, there has been strong emphasis on the usefulness of training programs on several dimensions and issues of productivity management at all levels of the national economy through effective training.

## **Research Issues and Objectives**

With the onset of globalization, the international environment has become more competitive and demanding. Greater globalization, combined with more liberalization of markets and products, means more global competition. With capital markets mobilizing capital to the economy where higher risk-adjusted returns are expected, it implies a relocation of international capital to markets that show potential, which includes a dissemination of knowledge economy.

The nature of competitiveness has been changing. Depending on economics and business environment, it was traditionally based on lower capital, labor costs, or other local inputs such as infrastructure services. Although these fundamentals continue to play a key role, it is imperative that opportunities are explored for dissemination of new knowledge globally and are used for the development of the national economy. The institutions offering training programs and courses have to continually assess and improve their performance to ensure that manpower is skilled and of high quality. In this context, the research undertaken has the following specific objectives and scope:

- (i) To assess the curriculum design and training programs of institutions that offer productivity courses
- (ii) To expand the productivity courses and programs of institutions to increase the number of productivity specialists in the region
- (iii) To make recommendations that will strengthen the delivery and quality of productivity courses and training programs

## **Types of Institutions offering Productivity Courses and Programs**

There are three types of institutions conducting training and research on productivity management in the country. These institutions are: government-run, autonomous and semi- government, and private enterprises. The list of government and autonomous training institutes of Bangladesh is given in Appendix D. The duration of these courses may be long, medium, or short term, intensive or extensive, and either education or training type designed and offered to all levels of organization - executive, management, supervisor, and worker.

## **Evaluation of Productivity Management System**

The 7th Five-Year Plan aims to empower people by creating employment and skill development opportunities with a target of attaining average real GDP growth of 7.4% per year over the planned period and about 13.2 million jobs. The skill development policy as part of this plan sets the stage for planning and investing resources to increase productivity, employability, and mobility of the workforce to reap the benefits of demographic dividend, supporting the economic transformation in the future.

In order to achieve these goals, a number of strategic actions have been contemplated such as upgrading physical resources and professional competence of the NPO and other training organizations, training for skill enhancement of the workforce, and developing productivity practitioners and the department of structured training courses.

The yearly statement of the allocated budget, manpower, and the number of participants at nine government, autonomous, and private training institutes of Bangladesh is shown in Appendix A. It is observed that the annual budget trends for all the organizations increased, but the budgets for the BPATC and IART increased sharply for the last two years under the study. This is because of the funds that were donated under the development projects. It appears that the manpower trends for all the institutions under the study are similar, slightly increased in the last two years compared to other years under the study. It appears that the participant trend for all the organizations were on the upward swing except for the BPATC.

## Courses and Programs and their Characteristics

Various training courses were conducted by different training departments under the study, but the aim and objective of the courses are almost the same. The intension of the courses is to develop the economy of Bangladesh through enhancing productivity.

## Evaluation of the Existing Courses and Programs

The various training courses conducted by the training departments and institutions under the study have almost the same aims and objectives. The main purpose of running the courses is to develop the economy of Bangladesh by enhancing the productivity of the workforce, a key factor that contributes to the system/organizational as well as industrial productivity. The productivity of the nine training institutions is computed for 2010–11 and 2014–15, as shown in Appendix A.

Employee productivity of the BPATC has been declining throughout the entire period under the study. While the productivity trends of the NPO, NSDC, and APD are upward, fluctuating trends are reported by the BIBM, BIM, and IART. The training institute SCITI shows upward trend for the first three years and declining for next two years. The trend recorded by BITAC also fluctuates, but the figure is very high.

The allocated budget per employee for each of the selected nine training institutes is shown in Appendix A. Except for the NPO, all other institutes have recorded fluctuating trends.

## Action Plan for Implementation

In Bangladesh, the majority of the workforce is unskilled or semi-skilled. The country needs to convert its huge population into human resource so that the unused available human potential can be utilized effectively to accelerate the economic growth through productivity enhancement. To reach the goal, a plan needs to be prepared wherein the following activities are to be carried out:

- (i) Skills development system to be responsive to the present and future industry needs, and should implement competency-based training.
- (ii) The skill needs in the labor market are to be clearly and precisely defined so that the delivery and assessment arrangements can emphasize demonstrable practical skills for different and new kinds of jobs.
- (iii) The government and its industry partners need to implement a new system of industry competency standards and qualifications.
- (iv) Training organizations, both public and private, should be able to formulate the new curricula of the courses and programs independently without the help of the government.
- (v) All instructors and trainers are to be provided with adequate training and they can run the courses and programs whenever demand occurs.
- (vi) Maintaining the quality of training courses and programs as well as training providers is of crucial importance.



## Critical Success Factors

During the early phases of an employee's career with an organization, the emphasis is on exploration and developing work independence. An organization, working with employees to assimilate them and to develop their skills, builds the employees to a point where they have individual goals and can work independently. This contributes to high performance in the organization and may, in all likelihood, lead employees to develop their loyalty to the organization.

A connection between effective training of employees and employee satisfaction with work has long been established. It was noted earlier that huge anecdotal evidence exists in successful companies that points to a link between employee training and confidence. This confidence leads to better production, more loyalty to the employer, and better overall satisfaction from the job. Training also works as an incentive to them and it enhances job satisfaction. All the institutions offering productivity or performance-related courses and programs in Bangladesh should work toward these goals.

## National Implications

Regardless of the type of training course or program, it may have a measureable impact on performance at all levels of an organization. Research shows that productivity may increase while training is taking place. The employees who receive formal training become more productive than their untrained colleagues who may be working in the same position and have identical roles to play.

A training course or program that meets the needs of both the employees and employers can increase the quality and flexibility of a business's services by fostering accuracy and efficiency, good work safety practices, and better customer service.

Ongoing training almost always shows a positive return on investment. Moreover, the benefits of training in one area can flow through to all levels of an organization. Over time, training boosts the bottom line and reduces costs by decreasing wastage of time and materials, maintenance cost of machinery and equipment, workplace accidents, recruitment costs through internal promotion of skilled staff, and absenteeism. These effects have a far-reaching positive implication on the overall health of the national economy and its sustenance.

## CHAPTER 3

# CASE STUDY: PAKISTAN

### Introduction

Pakistan is located in South-Central Asia and has important strategic endowments and development potential. The country's strategic location at the crossroads of South Asia, Central Asia, China, and the Middle East, with large and diverse resources, a vast population, and untapped potential for trade, make it the hub of regional market. The rising ratio of working-age population of Pakistan is a challenge for the state to improve productivity across all sectors and create ample job opportunities because of a lack of quality education and training at all levels.

Pakistan faces major security, economic, and governance challenges to take advantage of its youth's potential and strategic location in Southeast Asia. Security challenges throughout the country and the continued conflict in the border areas are realities that not only impede development but also affect all aspects of life in Pakistan. At the national level, Pakistan needs political stability to ensure continued economic development with a greater sense of security to attract foreign investments and improved systems and procedures for transparency.

Pakistan has taken advantage of diminished international oil prices, which has given a boost to its industry, but poor implementation of its power sector has not freed the country from energy shortage and power crises. The comparatively younger democratic system in the country needs a lot of improvements for flawless governance in the country. Despite political uncertainty, weak governance, and the September 2014 floods in Punjab that affected agricultural crops, macroeconomic indicators have improved Fiscal Year (FY) 2015. Supported by the stellar implementation of IMF reform programs and the favorable slump in international oil prices, growth recovery remains underway, with projected GDP growth now at 4.3%–4.6%.

Pakistan's economic growth has been showing signs of sustained recovery despite its energy crises since 2005. The energy crises have been a great obstacle for industrial development. However, preliminary data FY 2015 show that growth is picking up in the agriculture and service sectors. The country has also seen natural disasters in the form of floods in Punjab in 2014, but the growth of wheat, cotton, and rice crops was better in 2015 than in previous years. The service sector has also been boosted by the telecom industry and insurance, finance, and road transportation sectors.

Although few sectors of Pakistan's economy have shown gains, Pakistan's low human development indicators undermine economic growth and labor force productivity. In the 2014 Human Development Index (HDI), Pakistan ranked 146 out of 187 countries, with most of its indicators lower than most countries in South Asia. Access to education and training remains low and the completion rate for primary education is among the lowest in the world. The low spending on education and training reflects on the poor teaching and learning outcomes, and the poor quality and inadequate infrastructure.

Productivity is the most important indicator of the economic growth of a country. Productivity entails socio-economic development, competitiveness, innovation through R&D, better governance,

resource conservation (green productivity), and productive organizations through business excellence and efficient operations management. The other two important parameters that enhance economic growth are human capital and physical capital.

The new growth strategy of Pakistan's Vision 2025 aims at setting up new targets for economic growth as well as sustaining it for years ahead. The growth strategy is based on the premise of implementing effective measures to enhance economic growth, incentives to mobilize more savings, and a private sector-led investment drive complemented by public investment. The framework also considers risks to the projections from challenges posed by the resistance to change, domestic security challenge, and volatile economic situations in the international arena.

Pakistan's economic history has witnessed many episodes of high growth, but these could not be sustained due to the lack of comprehensive mechanism for sustained economic growth. In the New Growth Strategy 2011, productivity takes center stage, generated through entrepreneurial, innovative, and competitive practices. Creative ideas translate into innovations while entrepreneurship blends innovative ideas and risk-taking streak to increase productivity, and in turn, the growth of an economy. Creative ideas and innovations are the springboards to growth; growth is not merely due to investments in infrastructure development.

Productive geographies, market systems, and youth communities contribute towards overall productivity, which in turn, ensure prosperity and growth in a resource-constrained economy of Pakistan (Romer, 1994; Grossman and Helpman, 1994; Lucas, 1998). Despite its huge market size, Pakistan has very weak market efficiency indicators that reflect a very low level of innovation. Three factors - innovation, entrepreneurship, and technical skill - play the most significant role in improving and sustaining the productivity of a system.

At all levels of education today, the need for professional development is of prime importance for the successful delivery of knowledge to students. A successful education system may lead to the development of an educational center of excellence and teachers' training centers for professional development at all levels.

Each level is significant, but in the context of this study, productivity courses, particularly in technical institutes and in engineering colleges and universities, are of paramount importance. Education sector reforms in general and technical education require teachers to change their role and accept new responsibilities.

The National Skills Strategy, a five-year TVET Reform Support Programme, launched in April 2011 with the active collaboration of public and private sector stakeholders across Pakistan, has resulted in a number of benefits such as (i) improvement in the teaching-learning process, (ii) implementation of competency-based curricula, (iii) enhancement of knowledge and research endeavor, and (iv) innovative techniques in professional development and apprenticeship training.

In Pakistan, innovation is at its infancy. In the last few years, the contribution of productivity through innovation in the growth of Pakistan's GDP has not been very significant. In such a situation, it has been difficult to gain the advantage of new growth opportunities. However, in the recent past, increased emphasis on technical education in Pakistan has generated opportunities to take full advantage of technology and innovation to boost knowledge economy. Agriculture,

construction, and commerce sectors need lot of attention to be innovative and productive. To counter low growth rate, it is important to take every possible step to enhance productivity and efficiency through innovation and development.

## **Existing National Scenario**

In studying the existing national scenario, issues such as education and training system, specific problems currently being faced, and research need to be highlighted. These are briefly discussed as follows:

### **Education and training system**

The education system of Pakistan up to grade 8 (middle level) does not offer any subject that covers productivity. The compulsory subjects taught up to middle level are Urdu, English, Mathematics, Sciences, Social Studies, and Islamic Studies/Ethics. In high school, students have the opportunity to study two technical subjects with sciences to get their secondary school certificate in the technical stream. After earning their secondary school certificate, only vocational and technical stream students get to study courses up to degree level to enhance their skills and work as technicians or supervisors. Professional programs such as engineering, medicine, and general stream also include a few subjects on productivity as part of their degree programs.

### **Current problems**

Historically, Pakistan's economic growth record, especially that of the industrial sector (textile, agriculture, livestock, etc.), has been quite satisfactory. However, since the late 1980s, Pakistan has been facing slow growth in the manufacturing industries, particularly the large-scale manufacturing units. This has led some economists to express apprehension that perhaps deindustrialization is taking place in the country. A careful analysis of the causes of this sluggish growth suggests that one of the main contributory factors is the slow growth in total factor productivity (TFP) - the best overall measure of competitiveness.

What has caused this productivity slowdown? For Pakistan, there is clear evidence of a relationship between education and economic growth. Education is universally acknowledged as a primary tool to promote economic development. It plays a fundamental part in developing human capital and escalating economic growth by improving skills and increasing competency and productivity. For a developing country like Pakistan, education plays a key role in reducing poverty and removing both social and income inequalities.

### **Research issues**

As identified by researchers and practitioners, there are a number of factors affecting productivity growth: lack of R&D, lack of modern equipment, increasing cost of production, energy crisis, lack of new investment, and effect of inflation and poor supply chain management.

The objectives and scope of the study are:

- (i) To identify the impact of Pakistan's education system on the country's economic growth
- (ii) To explore the relationship between education and productivity
- (iii) To recommend the ways through which productivity can be enhanced at national level
- (iv) To emphasize structural redesign (industrial, academics) for the country's economic growth

The first step is to explore the institutions offering productivity courses in Pakistan. Next is to evaluate the existing offered programs. Improvement plans, national action plans, and national implications are discussed at the end of the report.

## Evolution of Productivity Management System

The contribution of productivity in the growth of Pakistan's GDP has been less than impressive. From 1960 to 2005, 80% of the GDP growth rate in Pakistan was explained by capital accumulation and labor expansion and only 20% by TFP. Labor productivity in Pakistan is growing at a comparatively lower rate compared to neighboring countries. Research suggests several reasons, including market quality, poor governance, limited urban development, inadequate education, lack of competitive goods and factor markets, inadequate foreign competition, and limited research and development capacity. Systems need to be designed for monitoring and measuring productivity to motivate reforms for sustained efficiency increases.

## National Policies

Pakistan has struggled with a chronic fiscal problem, often sacrificing growth for short-term stabilization. For a nation to progress, it must have a clear idea of its destination. Without this, it will be unable to prepare a roadmap to implement policies that would lead it there. A national vision is meant to provide clarity to a shared and aspirational destination. Pakistan was founded on such a vision. Nevertheless, over the years, the clarity of that destination became blurred.

Based on the process of putting together national policies, Vision 2025 has identified five key enablers and seven pillars of development. The key enablers are: a shared vision, political stability and continuity of policies, peace and security, rule of law, and social justice. The pillars of development are: putting people first; achieving sustained growth; governance reforms; energy, water, and food security; private sector- and entrepreneurship-led growth; and developing a competitive knowledge economy through value addition.

## Strategic Actions

Strategies were identified at a time when Pakistan was facing several external and internal challenges, leading to a focus on key ingredients for economic growth. With respect to Pakistan's priority, the specific strategic actions are:

- (i) Placing emphasis on productivity and efficiency beyond brick-and-mortar perspective
- (ii) Building a better government and market, taking the view that good government complements efficient, competitive, and connected markets
- (iii) Recognizing that economic well-being is the result of a variety of and frequency of economic transactions. Policy, law, and regulation must seek to minimize transaction costs and allow speedy and frequent transactions
- (iv) Focusing on urban development as a crucible for the nurturing of innovation entrepreneurship and productivity

- (v) Embracing the youth through community development and the provision of market opportunities while continuing to impart skills and education

In short, the growth strategy seeks to increase the return on investment through measures to improve the investment climate, to reduce the cost of doing business, and to dissolve the impediments to entrepreneurship.

### **Institutions Offering Productivity Courses**

The various types of institutions conducting training and research in the field of productivity/performance management may be grouped under (i) public-sector universities and organizations, (ii) private-sector universities and organizations, (iii) non-government organizations (NGOs), and (iv) technical and vocational training institutes. The list of productivity courses and programs being offered in the selected categories are given in Appendix B.

The institutions in (i) and (ii) generally offer productivity courses at university level, whereas categories (iii) and (iv) offer certificate courses after Year 8 and diploma courses after high school (10 years of education). Overall, the educational institutions offer 67% of such courses and business organizations offer 33%.

### **Institutions and their Contributions**

Training of various skills in Pakistan is imparted through polytechnics, vocational training centers, apprenticeship schemes, various training and vocational institutions under different ministries and departments, commercial training institutions, and the “Ustad Shagird” system in the informal sector. The formal institutions produce a very small proportion of the total skilled workforce and not necessarily in accordance with the demand or of the requisite quality. Skill Development Councils, employer-led bodies, the Higher Education Commission, and NGOs are working in each province to identify and fulfill needs through training arrangements with public- and private-sector training providers. These contributions are expected to produce results in terms of improved productivity.

### **Evaluation of the Existing Courses and Programs**

The most important measure in evaluation is “Does it make a difference?” The evaluation of productivity courses and programs not only measures the short-term benefits of training, it also tracks the long-term benefits to organizations that result in their success for years ahead.

The comprehensive evaluation of productivity courses results in:

Ensuring the quality of offered training/courses with:

- (a) Job placements
- (b) Relevance (market-based courses)
- (c) Skills improvement
- (d) Further focus on productivity courses for 2–3 years

Motivating staff to provide outstanding performance with:

- (a) Incentives
- (b) Training

- (c) Career development
- (d) Financial reward (pay raise)
- (e) Future growth opportunities

Continuously improving all aspects of offered courses with:

- (a) Technology change
- (b) Curriculum change
- (c) Teacher training
- (d) Software development
- (e) Hands-on experience

Recognizing and addressing problems and opportunities immediately with:

- (a) Rapid technology change
- (b) Training and workshops
- (c) New curriculum development
- (d) Market-based courses

Driving instructor and participant rewards and recognition most effectively with:

- (a) Stipends
- (b) Free courses
- (c) Project-based incentives
- (d) Free certifications

Streamlining operations and reducing costs by:

- (a) Dropping courses that are not market based
- (b) Upgrading faculty for retention

Investing in the drivers of greater attendee satisfaction and productivity with:

- (a) Free training
- (b) Free certification
- (c) Master trainers
- (d) Stipends
- (e) Precision in practical work
- (f) Job placements
- (g) Highly skilled workers
- (h) Master craftsman

## Action Plan for Implementation

The creation of job opportunities signifies the strength and steadiness of the overall productivity and economic performance. For this reason, a sound understanding of the critical relationship between employment and economic growth helps to formulate a well-connected policy among the sectors with a common objective. A country's capacity to generate employment depends upon its available resources, technological base/advancement, and institutional strategies. Similarly, human resources, skills, and technical competencies determine the type of employment, which contributes to achieving sustained economic growth. With poor women and men participating directly as both agents and beneficiaries, sustained economic growth plays a vital role in employment generation and poverty reduction



Pakistan has the ninth largest labor force in the world. According to the Labor Force Survey 2012–13, the total labor force in the country was 59.74 million people. Out of this labor force, 3.73 million are unemployed and 56.01 million are employed. However, the unemployment rate increased from 6 % in 2010–11 to 6.2 % in 2012–13.

The demand for a higher education sector depends on the labor requirements associated with the knowledge economy. In this context, higher education is prerequisite for knowledge-led economic development. Globally, while universities have developed new and more flexible programs to reflect societal demands, the contemporary student body brings a far greater diversity of experiences, knowledge, cultural and social backgrounds, mobility, and motivations than before. The goal for expansion of this sector, while establishing improvements in quality, will rely heavily on extending the use and sophistication of online technologies.

The promise of educational technology to underpin and drive a transformative learning experience will require educators to revisit and break the historical pedagogical, socio-cultural, and economic assumptions that can stifle education. This requires new ways of thinking, new ways of doing, and new ways of evaluating and demonstrating impact. Quality higher education develops leadership traits in people of different professions and creates awareness in them to protect the independence, sovereignty, and integrity of the country. A high-quality assurance in higher education is not only imperative for internal human resource management but also to survive, compete, and succeed in the globally competitive educational environment.

In order to attain sustained economic development, Pakistan needs to focus on: creating a team of world-class researchers; cultivating a competitive research environment; promoting science education; encouraging innovation; and removing systematic or operational obstacles to return R&D benefits back to society. The effective implementation of science and technology policies is possible only when they are understood and supported by the people. This can only be achieved by: making R&D investments more effective and strategic; tirelessly promoting the sciences, thereby creating intellectual and cultural values; making further efforts to return R&D results to society and the public through the creation of innovation; and clearly explaining science and technology policies and their results to the people, thereby enhancing accountability.

## **Critical Success Factors**

Critical success factors in this context are related to four principle issues: entrepreneurship, knowledge and skills with respect to the resources being used, governance, and stability/security.

- (i) Currently, entrepreneurship and innovation in Pakistan is hindered by multiple factors. First, the misuse of government incentives has concentrated the country's industries to a few narrow product lines. The current model of entrepreneurship has an inherent capacity for misuse of incentives, which are aligned with vested interests, resulting in an overall welfare impact that is detrimental. For example, the automobile industry of Pakistan was provided protection under the deletion programs for around 30 years but has not yet been able to export its output. The focus needs to shift from deals towards rules.
- (ii) Subsequent governments in Pakistan have wrongly perceived investment as synonymous with entrepreneurship. As a result, Pakistan has been unable to promote real and innovative entrepreneurs, in turn giving rise to cartels and rent-seeking. The policy of



“sector picking” has resulted in discouraging innovation in other important spheres of the socio-economy.

- (iii) Only societies that have acquired advanced and futuristic knowledge and skills with adequate resources will be able to compete in the global market. Our education system is not contributing to generate the desired skills that have global demand. As a consequence, our youth are unable to conceive out-of-the-box solutions. Facilitating youth entrepreneurship remains a grey area and requires systematic thinking at public and private sector levels.
- (iv) Stability and security in the country is the most critical success factor to achieve long-term sustainable growth for productivity and economic performance in Pakistan.

## National Implications

For a nation to progress, it must have a clear idea of its long-term aspirations. Without this clarity, it will neither be able to prepare a coherent roadmap for action nor adopt and implement the policies that would lead towards the objectives. A national vision is meant to provide clarity to our shared vision of the future. Since 1947, Pakistan has made considerable progress on many fronts. However, on the eve of our 69th independence day, there was consensus that the pace of progress has not been commensurate with the promise and potential of our nation; we need to do better and faster.

Pakistan Vision 2025 is designed to represent an aspirational destination. It will serve as a critical guide-post for the development of an effective strategy and road map to reach our national goals and aspirations. Pakistan Vision 2025 seeks to elevate Pakistan’s position from a lower middle income to an upper middle income country. The economy is targeted to grow by over 8% between 2018 and 2025 with single-digit inflation. This will result in GDP per capita increasing from USD1,300 to USD4,200. An export-led growth strategy will be pursued to help achieve these ambitious targets.

The international community is now showing increased confidence in Pakistan’s economy. A robust inflow of foreign savings is estimated at 3%–4% of GDP in the medium term to long term, which would enable the country to finance an additional investment of up to 2.7% of GDP until 2025. The projects in the proposed Pak-China Economic Corridor and energy sector will be financed through substantial inflow of foreign investment and disbursement. The completion of the infrastructure and energy-sector projects will contribute to the national economy and provide a stimulus to attain sustained and indigenous growth.

## CHAPTER 4

# CASE STUDY: PHILIPPINES

### Introduction and Current Productivity Scenario

Filipinos are diligent learners. Prime universities in the country have gained their niche in the Top 100 Colleges and Universities in Asia. Over the years, despite the country's young and still stabilizing economic growth, its educational system has managed to cope with the rising international standard in professional education. The number of Overseas Filipino Workers (OFWs) leaving the country by the thousands each day could well be an indicator of how adequately the Philippine education system prepares its manpower for overseas work. Parallel to such pursuit, the shift of its basic education from 10 years (six years in elementary and four years in secondary) to 12 years (K to 12 programs) has now been fully implemented. This educational system modification is believed to affect the country's human resource effectiveness, efficiency, and skill competency.

However, while the workforce and the government marvel at the fact that overseas employers and companies continuously seek Filipino workers for their organizations, awareness and practice of productivity has been lacking. Except for the widely promoted ISO standard and the 5S campaign of the manufacturing industry, other productivity systems and tools seem to be unheard of, no matter how attainable and accessible they are. This fact remained until recent years despite the presence of two government-owned and controlled corporations: the Development Academy of the Philippines (DAP) and the Philippine Trade Training Center (PTTC). Both the corporations were mandated to implement development programs, directly affecting the business sector and the economy. Over the years, in their continued response to their mission-vision and the demands of economic reform, they included in their plantilla productivity courses to address such issues in various industries. Like all other institutions offering such courses, the DAP and PTTC provide them for a minimal fee to any individual or company willing to avail themselves of it.

Should the minimal training cost still hamper one's motivation to acquire productivity courses, the government has duly addressed such limitation through the Department of Labor and Employment's (DOLE) Productivity Toolbox programs. With such government programs, is it safe to say that the country's provision of training courses is sufficient enough to meet the demand for productivity awareness and practices?

Unlike prominent college and university courses and the most sought-after National Certification (NC) from the Technical Education and Skills Development Authority (TESDA) for Filipino skilled workers, productivity courses are not widely promoted. If an employee of a company is encouraged to study and is made aware of such courses, it is highly likely that various companies may be affiliated with Japanese firms, if not the Japanese government itself, or with European companies. For college and university students, who are about to enter the realm of labor and employment, the trainings' importance may have been stressed enough within the four corners of their classrooms, but only for those study areas that have the most apparent need and relation to productivity such as manufacturing, business management, accountancy, engineering, and architecture. What most people fail to see is that productivity involves all areas of work and labor, encompassing national policies and the future of a country's economy.

Succinctly put, productivity courses need to be widely offered, not only by government agencies but also by private institutions, with ample participation from the academy.

## Existing Productivity Courses and Types of Institutions

Both the government and the private sector of the country take the issues of productivity management very seriously and work hand-in-hand in providing Filipino workers with adequate productivity enhancement training that they can use every day in performing their tasks.

The Republic Act 6971 or the Productivity Incentive Act aims to encourage both labor and management to improve productivity at the firm level by providing fiscal incentives to establishments that voluntarily undertake productivity improvement programs and provide motivation for workers, as shown in Appendix E.

In an article written by Zinnia dela Peña in the Philippine Star (18 May 2015), she mentioned that the government has set aside PHP30.6 billion for its productivity enhancement programs, which rewards qualified government employees who exceed their financial and operational targets.

Many government agencies such as the PTTC hold productivity enhancement training programs and seminars on a regular basis. These programs, which include topics/issues such as Introduction to Six Sigma, Total Quality Management, Stress Management, 5S, Hazard Analysis, and Control Point Documentation, are scheduled throughout the year.

Another government agency that focuses on productivity enhancement is the DOLE. According to Santiago (2014), DOLE Secretary Rosalinda Dimapilis-Baldoz encourages the Micro, Small, and Medium Entrepreneurs (MSMEs) to avail themselves of the Productivity Toolbox being offered for free by the Labor Department. The Productivity Toolbox consists of five basic training courses, six intermediate training courses, and three advanced training courses, a total of fourteen training courses. In the first semester of 2014, a total of 6,441 MSMEs took advantage of DOLE's ladderized productivity toolbox.

DOLE's National Wages and Productivity Commission also have their own productivity strategies. They have the Learning Sessions on Wages and Productivity, Productivity Olympics, ISTIV (Industrious, Systematic, Time Conscious, Innovative, and strong Value for Work), Productivity Awareness and ISTIV Bayanihan, 5S, Service Quality for Key Employment Generators (KEGs), Technical Assistance Visits, and Productivity e-Learning.

The Commission on Higher Education (CHED) also includes quality assurance in their plans and programs intended for all higher education institutions. Colleges and universities in the Philippines offer certificate courses to students who are not financially ready for a four-year or five-year course. The majority of these institutions offer courses such as Teacher's Certificate Programs, Commercial Cooking NC II, Associate in Computer Technology, and Housekeeping Services NC II, as given in Appendix C.

The Department of Science and Technology conducts productivity training programs on request from its regional offices and targets a wide range of individuals, as shown in Appendix C.

The role of the TESDA and the DAP in productivity was already presented in the APO Workshop on Development of Courses for Productivity Practitioners in the Institute of Technology, held from 13–16 May 2014 in Taipei, the Republic of China.

Institutions that provide productivity courses in the country include: colleges, universities, institutes, technical-vocational education providers, government-owned and controlled corporations mandated for research and training on national development, and private training institutions or providers

The details on the types of productivity training courses and programs being offered (in terms of their duration, target, learning mode, financing, and execution) as well as the types of individual and office jobs for which they are offered are given in Appendix C. The main purpose and characteristics of each of these courses and programs are also given in Appendix C.

## **Merits of Productivity Courses**

As has been observed, the merits of these productivity courses are manifold. From the national prospective, a number of positive effects are worth mentioning:

### **Income generation**

As most government and private institutions offer productivity courses, these institutions are able to generate income in exchange for the training they provide to their prospective participants wherein they share their own or their resource person's expertise in the field of productivity. While there are other agencies that offer courses at a more affordable price range, the additional features of the training courses offered by these institutions may encourage attendees to invest a higher amount of money for the added value that they will acquire.

### **Quality of management**

Offering productivity courses ensures that quality management system is not only learned, but also, most importantly, applied across all departments of an institution or establishment toward a set goal. The institutions working toward such a goal may become more progressive, as they are able to identify the path that leads them to their objectives. Institutions with such courses are able to create a large number of capable and knowledgeable leaders, managers, and skilled workers.

### **Level of participation**

Private educational institutions encourage their employees, including management staff and officers, to participate in the productivity training programs and courses. However, in cases of independent training providers, the level of participation would depend on the amount of promotion they put in to advertise the course. Identifying and resolving target clients' constraints for such training programs and making favorable programs/course schedules for them would ensure a promising level of participation.

### **Availability of resource persons**

Resource persons are usually made available through a strong industry-academe partnership. In many cases, resource persons are individual experts offering their own training programs/courses and they are available through invitation, affiliation, and tie-up or through distance learning. Institutions that have contacts with experts and network with other institutions that offer similar or related courses are in an advantageous position.

### **Facilities required**

Inasmuch as the majority of the training merely requires conference types of discussions and strong technical capabilities for distance learning mode, basic conference facilities and computer rooms are enough to carry out most of them. On-site training would be less demanding in its facility requirement from the training provider's end, as the client-company or office will host the facilities at their own

venue or manufacturing plant. The most demanding, however, will be the accessibility of the venue for attendees in case of on-site training other than the ones done in the vicinity of their work place.

### Other factors

Training program scheduling may be done at the institution's discretion. Timing for the lean season of personal or corporate expenditures may be considered to target higher participation.

## Current Problems

While conducting training programs and courses, there may be a number of critical problems to address. These problems may be encountered while achieving the focused objectives of the courses and programs.

### Problems related to income generation

It may occur due to (a) competition (affecting the income generation of private institutions), (b) cost (if the training cost is too high for individuals or institutions to afford; other costs may include transportation, board, and lodging), (c) the availability of government-sponsored training programs and courses (offered at an affordable price), and (d) venue or mode of learning (making the training logistically available at different locations may potentially promise income generation. Availability of online training option is also an advantage for those who are constrained with factors such as distance).

### Problems related to quality of management

An inventory of the training institutions' own management methods and procedures would have to be in place. If all concepts being taught are practiced in the institution, there should be no problems with the quality of management. The lack of dynamism and vision in an organization, especially if the officers are tied to old systems or workflow, may pose potential problems.

### Problems related to level of participation

The unavailability of participants is one of the main problems. A productivity course requires participants to delegate or set aside their work while they finish the course. There may be times when participants are not able to attend the entire course, making the quality of learning insufficient.

### Problems related to availability of resource persons

There are no problems with resource persons because of the strong tie-up of the industries and the academe, including the availability of field experts, both locally and abroad.

### Problems related to timing/scheduling

Timing or scheduling of a program or a course is a factor to consider. Just like other education-related endeavors, prospective attendees have a higher possibility of availing themselves to such a course or program if it is scheduled during the lean months of a year with their basic expenditure for home and family already planned and settled.

## National Policies

### Technology upgrade

The aim of implementing e-Government is to enhance the productivity of government agencies by means of easy access to information and improved delivery to increase efficiency and effectiveness of service to the public.

**Capacity augmentation**

Bureaus and agencies must identify how much workload they can accommodate at a given time (per day basis as defined by the incumbent president of the republic, Rodrigo Duterte), identify redundant agencies as well as how to appropriately synchronize the different functions required.

**Human skills enhancement**

This is to be done by implementing for the widest participation in training among Filipino workers; tapping the appropriate participants for a particular productivity training, including concerned government agencies and departments; and encouraging tie-ups between the government, industries, and the academe in creating training that is beneficial for the workforce.

**Knowledge development**

This requires the benchmarking of government agencies and identifying the best performing branch and replicating its successful procedures across other branches.

**Cost-effective innovation**

With the advancement of the Internet, people may engage and complete their required transactions online. Offices and agencies responsible for the processing of said transactions can, in turn, assess the number of transactions they can complete in a day. This will result in less foot traffic in offices and road traffic on the streets, leading to more efficient and reliable employees. Offices and agencies may also cut down on operating expenses as less overtime will be required for work that can be done within the specified time of operation and the number of employees can be limited as necessary.

**Resource availability**

Increasing the efficiency of government agencies and available manpower, including OFWs will make it easier for investors to start business in the Philippines and generate higher tax collection to finance government projects.

**Environmental management**

Private agencies in the mining industry must be required to pass the strictest ISO certification and have miners go through regular audit. Mining agencies and corporations must also conceive and implement a poverty alleviation CSR (Corporate Social Responsibility) project in the community that hosts their mining operations. The LGUs (Local Government Units) must be accountable for all the permits they issue and for managing waste in their jurisdiction.

**Sustainability**

This is to be achieved through continuous research and forecasting, and identifying the best performing policies for execution in the best applicable scenario.

**Strategic Actions**

The following strategic actions are worth mentioning:

**Technology upgrade**

Many agencies are now upgrading since President Duterte stressed in his first State of the Nation Address that processing certificates or documents should have a maximum of only three days processing time. Recently, the Philippine Overseas Employment Agency (POEA) announced that the Seafarers' Registration Certificate (SRC) is to be replaced by the Seafarers' Online Registration

System. The Maritime Industry Authority (MARINA) is also doing the same. Many more agencies are following suit through the help of e-Government.

### Capacity Augmentation

By benchmarking, government agencies are adapting the most effective procedure in processing transactions, thereby forecasting how much transaction they can realistically finish in a given operating period. With the help of the online transaction scheme, they can maximize the efficiency of the different agencies.

### Human Skills Enhancement

The government is in full force in collaboration with the private sector to empower its people by providing skill-enhancing courses. The government has its own centers, institutes, polytechnic colleges, and universities that provide such courses. It also has Technical Education and Skills Development Authority (TESDA), which in turn owns centers and has established tie-ups with private training centers for technical and specialization courses. TESDA has been on top with its voucher system for private training centers in providing scholarships to interested students for free. Some local government units as well are sponsoring training for their constituents. Private companies, too, are tagged to participate in giving apprenticeships.

### Knowledge Development

Through benchmarking, reshuffling of government officials and employees, skills enhancing, and continued seminars and trainings, the government is optimistic of the knowledge development of its officials and constituents.

### Cost-effective Innovation

Synchronization of government agencies to cut down on transaction operating costs is being carried out. Multi-processing for different government agencies can now be settled online or through a payment center. This cuts down on an individual's travel cost and travel time, and minimizes foot traffic in offices, thereby cutting down on office expenses and creating less hassle for employees while making them function more productively.

### Resource Availability

Resources are effectively and readily available through funds issued by the Department of Budget, which is derived from efficient tax collection.

### Environmental Management

The Memorandum Of Agreement between the Department of Environment and Natural Resources, the Department of Interior and Local Government, the Department of National Defense, the Philippine National Police, and the Philippine Coast Guard has sealed the pact to implement environmental policies to the full extent of the law.

The government is in the process of auditing all the mining companies and has so far suspended 10 mining companies that have violated environmental laws. The government has also dismantled all fish pens in Laguna Lake and is taking comprehensive measures to revive the lake. The government is now requiring all mining companies to be certified with ISO.

### Sustainability

The government is pushing for a long-term approach on how to sustain the economic growth of the Philippines by promoting programs that will enhance the skills, capability, and knowledge of its leaders, managers, and people.



## Existing Government-supported and Industry-supported Courses and Programs

The courses offered in the Philippine Trade Training Center, the list of Basic, Intermediate and Advanced Training, and Recognition and Incentives, and courses under the Department of Science and Technology are highlighted in Appendix C. The National Wages and Productivity Commission (NWPC) productivity toolbox features different training programs and technical assistance to improve the capability and motivation of enterprises to adopt productivity technologies for continuous improvement toward enterprise development and growth.

The productivity toolbox makes use of the ladderized approach in learning and application, whereby the training program provided are based on the ability of the enterprises to adopt technology and system improvement.

- (i) Basic Training - Training on basic concepts on productivity, values, working conditions and basic business systems. Training programs are Productivity, 5S, ISTIV-PAP, ISTIV Bayanihan and Productivity Enhancement Program.
- (ii) Intermediate Training - Training on application of productivity technologies based on the need of enterprises for further improvement. Training programs are ISTIV Plus, Green Me, Service Quality and Work Improvement Measurement Study.
- (iii) Advanced Training - Training that requires enterprises to be deeply involved and innovative and to be transformed as productivity champion. It covers all aspects of a company's operation and its supply chain. Training programs are Gainsharing (GS) to encourage entrepreneurs' GS initiatives based on productivity.

Enterprises that have successfully implemented productivity improvement programs (PIPs) and have continuously adopted productivity technologies are qualified to join the Productivity Olympics.

## Assessment of Existing System

The existing system is assessed by (i) the quality of the curriculum of the productivity courses, (ii) effectiveness of these courses for their target participants, (iii) specific dimensions of performance that the programs focus on, (iv) possible factors affecting quality of institutions positively or negatively, and (v) factors with which the effectiveness of each type of course and program is to be judged.

### Quality of the curriculum of the productivity courses

Most of the productivity courses mentioned in this country paper, together with other productivity courses offered in the Philippines, provide a strong discussion of the theoretical background and how each is applied in the light of productivity. Given such content to discuss, the duration of the courses, which range from short to medium, is sufficient. These courses have offered distance training mode for subjects where experts were not available locally through the aid of Internet technology such as webinars and online conferences. For those that could be done on-site at the venues designated by the course providers, the suitability of the venue complements the course curricula. Each course has clearly identified its target participants.



### Effectiveness of the productivity courses for its target participants

Participation has either been predetermined by the sponsoring organization or company or is a career move advancement of the individual personally. Therefore, the target participants have been clearly identified as to the suitability of each course for their current tasks and professional functions. This has ensured that the productivity courses have influenced their participants in an effective way. Thus, this shall also influence a high level of implementation in the actual workplace.

### Specific dimensions of performance that the programs focus on

These distinct dimensions of performance are listed in Table 4.1.

**TABLE 4.1**

#### DIMENSIONS OF PERFORMANCE FOR VARIOUS PROGRAMS

Courses	Specific Dimensions
5S	Good housekeeping, control costs, greater safety, customer satisfaction, reduce staff turnover
Personal Productivity and Time Management	Use of routine and scheduling tools, efficiency in time management, project management techniques, organization and maximization of workplace
Benchmarking	Improvement of quality performance, adaptation of industry's best practices, improved communication skills, internal and external customer service, identifying strengths and areas for improvement
Quality Circles	Cause-effect analysis of organizational aspects
Quality Management System	Documentation requirements of the company's functions; goals and operations; planning, conducting and reporting findings; enhanced efficiency of internal process; employees' job satisfaction
Ergonomic Hazard Management	Reduction of injury, identification of ergonomic risk factors, potential injuries
Just-in-Time Production	Elimination of wastes, balanced flow of manufacturing and production process and workers' participation
Lean Management System	Reduction of process waste, operating time and cost while retaining product quality
Environmental Management System	Requirements to conform with environmental provisions, legislative framework relevant to an EMS, management of environmental aspects and impacts of the company and its operations
Six Sigma	Statistical discipline in management decisions
Basic Project Management and Development	Delivering quality results within specifications on time and within budget
Basic Monitoring and Evaluation	Supervision, management, planning and implementation; decision making and setting of priorities; reports of scarce resource allocation

Possible factors that may affect quality of institution positively or negatively

Factors that may influence the quality of institutions positively or negatively are listed in Table 4.2.

**TABLE 4.2**

#### FACTORS THAT MAY AFFECT THE QUALITY OF INSTITUTIONS

Positive	Negative
1. Maximization of technology for course accessibility	1. Training cost
2. Expert resource speakers from abroad and the Philippines	2. Lack of after-training support and consultation
3. Government agency participation in course offering and dissemination	3. Weak evaluative method as to the proficiency acquired by the participant
4. Curriculum design and training materials	4. Limitation and cost of access
5. Duration	5. Duration

#### Factors with which the effectiveness of each type of course and program is to be judged

The three main factors on which the effectiveness of each type of course and program are judged by are:

- (i) **Functionality** - Refers to the applicability of the course within the actual workplace and work flow
- (ii) **Sustainability** - Refers to the continuation of the implemented system against employees turnover, including resignation and retirement; this also refers to adaptation of any addendum or systems to update all existing systems
- (iii) **Employees' participation and performance** - Refers to employees' support, attitude and willingness for knowledge enhancement

### Planning for Improvement

Industries where productivity courses are a priority in the next five to ten years are manufacturing, business process outsourcing, tourism, healthcare, infrastructure, and transportation. The areas of productivity management in which courses and programs need to be offered for each industry are highlighted in Table 4.3.

**TABLE 4.3**

#### AREAS OF PRODUCTIVITY MANAGEMENT IN WHICH COURSES AND PROGRAMS NEED TO BE OFFERED FOR EACH INDUSTRY

Industries	Areas of Productivity Management
1. Manufacturing	<ul style="list-style-type: none"> <li>• Productivity awareness</li> <li>• Improvement of productivity tools and techniques</li> <li>• Measurement and evaluation</li> <li>• Allocation of scarce resources</li> <li>• Identification and reduction of ergonomic hazards</li> <li>• Reduction of operation's environmental impact</li> </ul>

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2. Healthcare	<ul style="list-style-type: none"> <li>• Productivity awareness</li> <li>• Measurement and evaluation</li> <li>• Reduce staff turnover</li> <li>• Identification and reduction of ergonomic hazards</li> </ul>
3. Business Process Outsourcing	<ul style="list-style-type: none"> <li>• Personal productivity and general productivity awareness</li> <li>• Reduce staff turn-ver</li> <li>• Allocation of scarce resources</li> <li>• Identification and reduction of ergonomic hazards</li> </ul>
4. Tourism	<ul style="list-style-type: none"> <li>• Productivity awareness</li> <li>• Measurement and evaluation</li> <li>• Productivity measurement tools and techniques</li> <li>• Identification and reduction of ergonomic hazards</li> <li>• Reduction of operation's environmental impact</li> </ul>
5. Infrastructure	<ul style="list-style-type: none"> <li>• Productivity awareness</li> <li>• Measurement and evaluation</li> <li>• Productivity improvement tools and techniques</li> <li>• Allocation of scarce resources</li> <li>• Identification and reduction of ergonomic hazards</li> <li>• Reduction of operation's environmental impact</li> </ul>
6. Transportation	<ul style="list-style-type: none"> <li>• Productivity awareness</li> <li>• Measurement and evaluation</li> <li>• Productivity improvement tools and techniques</li> <li>• Reduce staff turnover</li> <li>• Allocation of scarce resources</li> <li>• Identification and reduction of ergonomic hazards</li> <li>• Reduction of operation's environmental impact</li> </ul>

**Types of institutions that may plan to offer productivity courses**

The following are various institutions that are able to provide productivity programs and courses.

- (i) Colleges and universities - Academic institutions registered under the Commission on Higher Education
- (ii) Technical-vocational course providers - Private training institutions offering technical and vocational courses that are mostly accredited by the Technical Education and Skills Development Authority
- (iii) Senior high schools - Grades 11 and 12 in the new Philippine educational system, both in private and public high schools
- (iv) Manning agencies - Recruitment agencies for Overseas Filipino Workers
- (v) Government agencies - Different sub-departments under the Executive Department such as DOLE

- (vi) Private consultancy firms - Private management firms whose expertise is management training for company personnel
- (vii) Government-owned and controlled corporation - Training and research centers owned and operated by the Philippine government
- (viii) Professional associations - Private associations organized under professional affiliations such as the Institute of Integrated Electrical Engineers of the Philippines
- (ix) Business Process Association - An organization established for and by call center companies

### **Institutional support required to design and run these courses**

The various support required to design and run these courses are (i) internal and external facilities, (ii) specific and in-depth curriculum developers, productivity specialists and training personnel, (iii) cost of training and operation/capitalization, and (iv) utilities.

- (a) Estimate the required number of productivity specialists to run each new course and programs - One specialist and one curriculum developer for each subtype of productivity course, excluding training personnel, or as the course may require
- (b) Major bottlenecks, barriers or problems to overcome in implementing new courses and programs - Budget, bureaucratic red tape and awareness from company and government leaders are the major bottlenecks and barriers that may significantly affect the institutionalization of new courses on productivity.
- (c) Other resource requirements for system components, operations and maintenance with respect to each institution and industry - Training materials and industry-specific training tools

### **Action Plan for Implementation**

The actions required to improve the courses are discussed in terms of the policy formulation, facility development, new courses and curricula development, educational program, and training methods.

#### **Policy formulation**

Policies and programs that would dictate the improvisation in both existing courses and any future courses must take into closer account the actual manufacturing and servicing flow in the business. This shall measure the functionality and applicability of each course principles to the given industry and identification of other productivity needs.

#### **Facility development**

Benchmarking with top course providers, in and out of the country, would ensure that the facility development is on top of trainees' requirements and up to international standards.

#### **New courses and curricula development**

With the numerous productivity courses being offered by established providers, a good curriculum innovation would reflect a difference with new courses, and their sub-programs can be made available. Forecasting of emerging industry needs would be a good starting point to make an innovative curriculum materialize.

### Educational program

Productivity courses are incorporated with CHED-, Department of Education (DEPED)-, and TESDA-registered programs across disciplines. Support to other training providers that are outside of the academic industry should also be strengthened.

### Training methods

There are dual training methodology, and research and application.

### Removing bottlenecks, barriers and problems

The major steps needed to remove bottlenecks, barriers and problems are based on the following factors:

- (i) Policy formulation  
Correlation and customization of policies with labor laws and actual labor practices are recommended to do away with bottlenecks as per policy formulation cited in Annex A of this country paper.
- (ii) Facility development  
At the macro-level, the major facility issue in the Philippines is the stability of Internet connection. Available stable connections would mean a fortune for any business engaged in training through webinars and video conferencing. As in other facility requirements, proper capitalization on the part of the course provider plays an important role, regardless if it is government- or privately-owned.
- (iii) New courses and curricula development  
To come up with new courses would mean creating a new perspective from the existing need of manufacturing, servicing, and all other forms of business demanding productivity orientation. Curriculum innovation, as suggested above, should come from a renewed awareness of the actual movers of the productivity training industry, namely the trainers, experts and curriculum designers.
- (iv) Educational program  
Budget requirement for the integration of these courses into the mainstream programs of the government educational agencies such as CHED, DEPED, and TESDA would depend on the annual budget of the government allocation for education. With the new administration spearheaded by incumbent President Duterte, a more efficient system of tax collection is expected to pave the way for increased government funds and the minimization, if not the complete eradication, of the bureaucratic red tape. International affiliations for budding programs that could be applicable to the Philippine business environment from other countries is hoped to establish these types of integration to mainstream programs, from elementary to tertiary.
- (v) Training methods  
Company tie-ups for the dual training system and in-house research tailors the trainees' studies to their current companies and measures the course applicability to their present duties.
- (vi) Time schedules to implement new courses and programs  
The year 2017 to 2019 could be a strategic time period to do pilot testing of new courses and their integration into the mainstream courses in the elementary, secondary, technical-

vocational, and tertiary levels. In 2018, all educational departments in the executive branch of the government would have finished their needed transition to accommodate a new set of courses concerning productivity. In 2018, it is expected that:

- (a) DEPED (for elementary and secondary levels) has tested the workability of the new K to 12 system, which was officially implemented only this year, including the spiral progression approach in key subject areas. It has already managed its first batch of graduates through the Senior High School's core curriculum as originally set by the experts of the K-12 system.
- (b) CHED (for tertiary courses) will be in a timely position to direct colleges and universities to redesign the curricular offering for the incoming batch of freshmen after a two-year respite for the Senior High School program transition.
- (c) TESDA has gathered enough experts in each technical and vocational field relative to productivity with the amount of practicing skilled workers in and out of the country; the agency's circle of experts could even come up with a tailored curriculum in productivity according to their years of experience in their respective technical-vocational jobs. It has a set of time-tested competency matrix that will serve as a framework for the new productivity courses to be introduced.
- (d) Other private or government productivity training institutions has a well-established curriculum for the productivity courses and therefore built to take on future offerings.
- (e) Manning agencies at this time are well on their way of adding value to their recruitment services and manpower supply to their principals. Productivity could just be the most in-demand add-on that they could provide to both their crew and their clientele.
- (f) Professional associations and business process associations have come up with their own industry-specific productivity courses or sub-programs.

#### **Prepare contingency plan to cope with changing and adverse situations or requirements**

- (i) Continuous research and documentation - Documentation at each step of curricular development, facilities set-up, and experts pooling vis-à-vis problems encountered, and conclusions in the set-up phase and implementation serve as a focal point for future researches.
- (ii) Establish a pivot curriculum - A proposition of a pivot curriculum is deemed strategic to address some foreseen adverse situations that may affect the different educational venues for the planned productivity courses. A pivot curriculum is something that would fit related study disciplines, thereby designing common and appropriate productivity courses, regardless of degree of education. For example, a specific sub-program of Ergonomic Hazard Management for Hotel and Restaurant professionals may be designed in a way that it would become beneficial when offered to Senior High School technical-vocational track, Cookery NC2, Bread and Pastry NC2, Commercial Cooking NC4, and similarly with Bachelor of Science in Hotel and Restaurant Management. In doing so, no

matter what educational degree the individual worker may decide to take, the core productivity knowledge and competency is acquired.

- (iii) Institutionalizing productivity courses - Another way to institutionalize productivity courses is to make it a requisite of the total curricular achievement of each graduate, especially in Bachelor's Degree. Going further and to ensure the breadth of its influence and efficiency, it may even be set as a requisite for professional board exams.
- (iv) Make a productivity course a requirement for promotion tailored to an employee's new functions and responsibilities - As part of the institutionalization, productivity proficiencies may also be a requirement for promotion in companies. To streamline new functions of a newly promoted officer or worker, productivity competency is a good place to start.
- (v) Establish company partners to provide concrete On-the-Job training - This is for graduates of Senior High School, technical-vocational, and baccalaureate courses where productivity courses are significant components.

## Synthesis

With the existing policies of government relating to training provisions, productivity training providers are participating in the education and academic industry in a somewhat specialized approach. Aside from the fact that only selected disciplines are given such exposure, information dissemination and advertising campaign are very limited. This spells a self-declared limitation on their part, as they are equally given liberty as any other businesses and institutions by the current set of opportunities and merits, threats, training standards, and national policies in the land. In the commencement of the incumbent president's leadership, these productivity training providers and the trainings they provide must exponentially make themselves evident if they want to grow together with the national initiatives at hand.

A closer look at this field of productivity training encourages a wide potential of participation and institutional implementation among participating professionals and companies. No matter how small the sampling that tracks the courses' actual functionality, it has proven a high-quality outcome that has a healthy balance between the positive and negative factors affecting the quality of training and institution.

To set the balance between the number of productivity course providers and the targeted demand of the service, various prospective providers have been identified. The population ranges from government educational agencies to manning and professional agencies. Also identified were the major bottlenecks and barriers affecting the planned course offering as well as the needed support to ultimately achieve high quality, improved curriculum, and total training profile.

The proposed time schedule for new courses and programs is set within the 2017–19 timeframe as examined against the readiness of the coordinating agencies in the level of national and private sectors. It is ideally proposed that courses not only be made requisites for the six identified industries that will be needing such course awareness and proficiency but to all fields of profession, forming part of the contingency plan for training provision.

## CHAPTER 5

# CASE STUDY: SRI LANKA

### Present National Scenario

The Democratic Socialist Republic of Sri Lanka is a South Asian island nation located in the Indian Ocean, 31 km off India's southern coast. The 2015 mid-year population was 21 million<sup>1</sup>, the literacy rate was 92.5%, and per capita GDP (at market prices) was USD3,625. The country's HDI was 0.757 and it was ranked 73 (the highest in South Asia). There are several specific issues experienced by Sri Lanka such as aging population and significant disparities among productivity standards in different sectors.

A number of issues/aspects related to national scenario such as demographics, trends, productivity standards, important sectors, government priorities, and SMEs play a crucial role, and one needs to be aware of them before analyzing the existing training programs and courses on productivity management. These issues/aspects are briefly discussed below.

### Demographic trends

As has been observed and predicted, the aging population of Sri Lanka has been growing over the years (Figures 5.1 to 5.4). These may lead to the shrinking of the working-age population.

Enhancing human productivity in all sectors would be an essential strategy to face this problem. Modernization of production facilities and introduction of newer technologies, including automation as well as application of productivity tools and techniques, are needed to achieve this goal. Productivity training institutions have a crucial role to play in this context.

### Productivity standards by sectors

The labor productivity and productivity growth in the agriculture sector are substantially lower than those of other sectors. Although the agriculture sector's contribution to GDP is around 10%, special attention should be paid to productivity enhancements in this sector. The majority of productivity training institutions at present are in manufacturing and service sectors. These institutions used to offer training programs exclusively for agriculture sector.

### Important sectors for productivity enhancement

Manufacturing, transportation and storage, wholesale and retail trade, repair of motor vehicles, and service activities contribute significantly to GDP (more than 5% as shown in Figure 5.5). Therefore, productivity enhancement in these sectors would significantly improve the overall economic growth of the country.

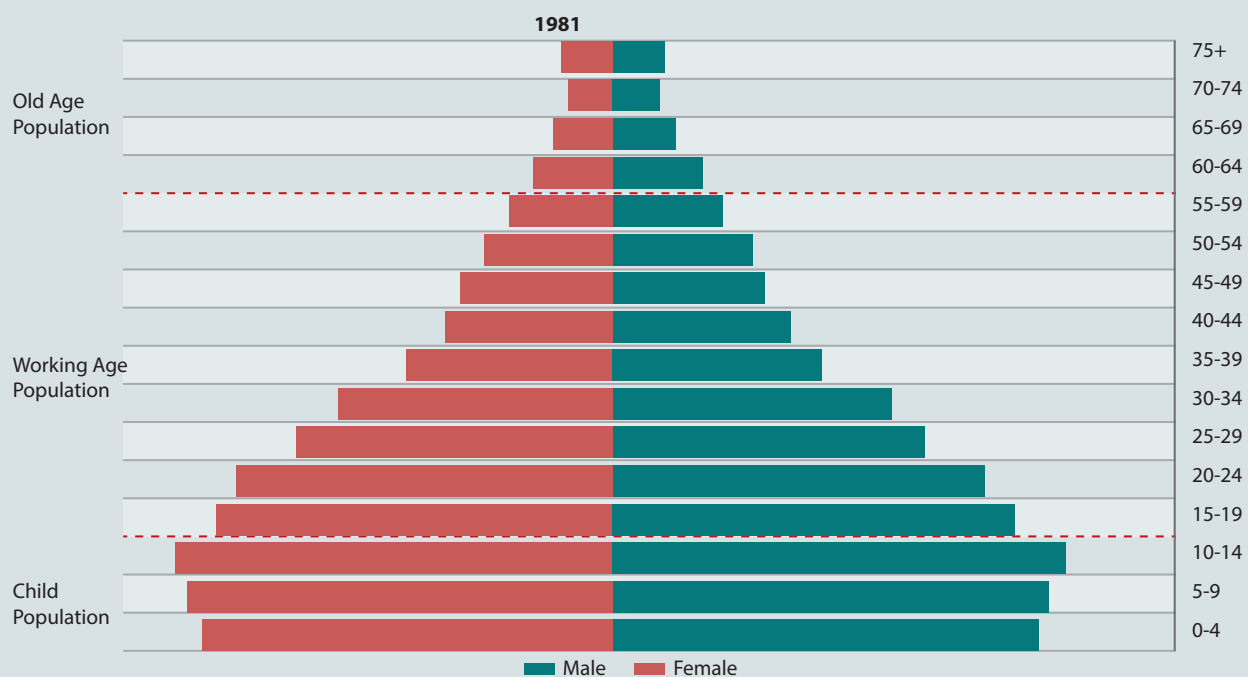
### Government priorities

As per the policy statement of the government of Sri Lanka that was released in November 2015, special measures are to be undertaken to generate one million job opportunities to enhance income levels; develop rural economies; ensure land ownership to rural and estate sectors, the middle class and government employees; and create a wide and strong middle class.

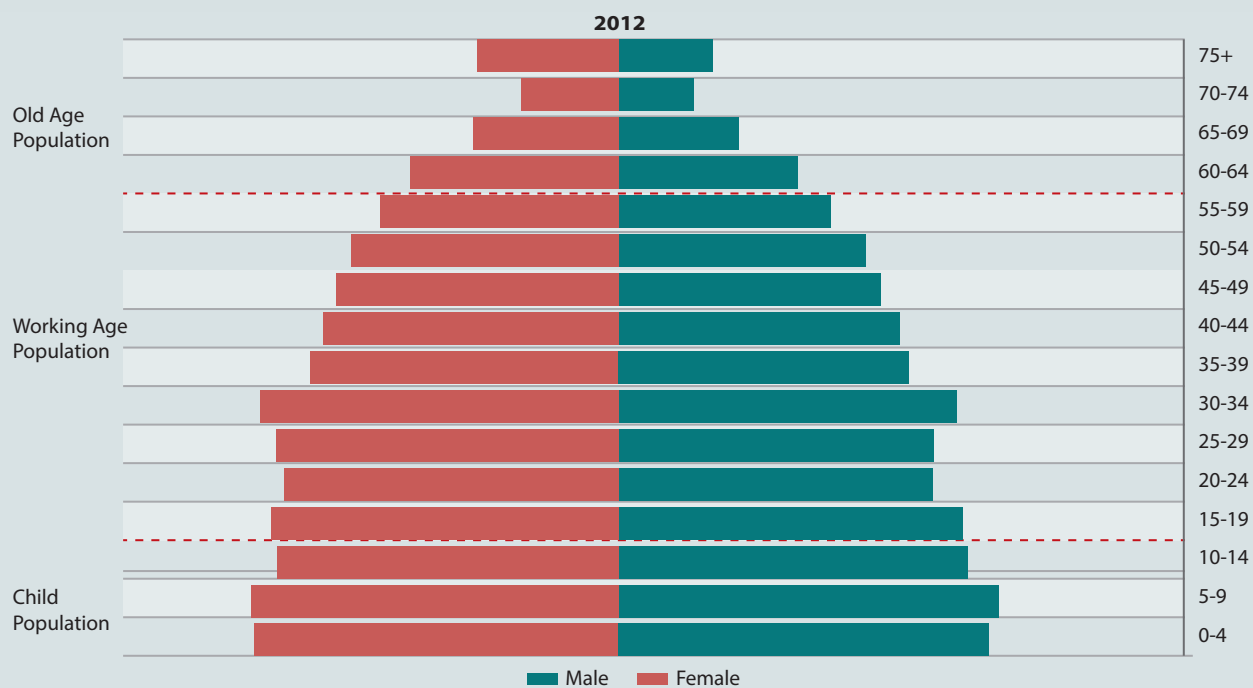
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<sup>1</sup> 2015 Mid-year population estimates, Department of Census and Statistics

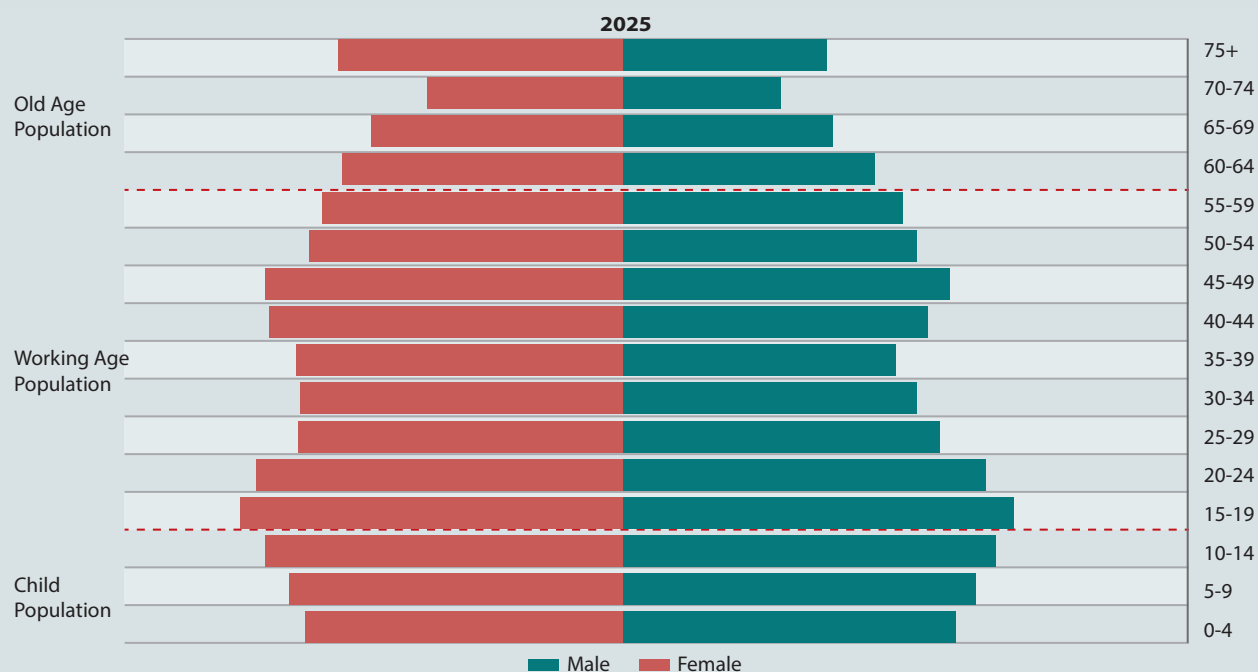


**FIGURE 5.1****POPULATION STRUCTURE IN 1981**

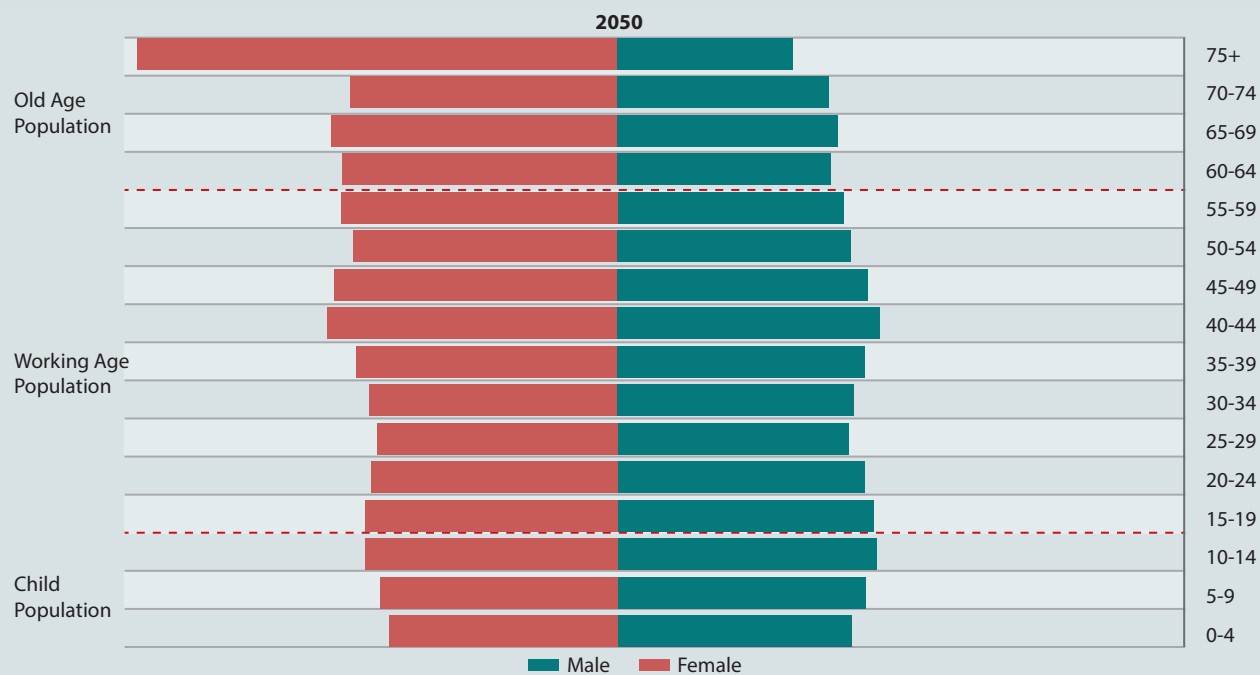
Source: Department of Census &amp; Statistics

**FIGURE 5.2****POPULATION STRUCTURE IN 2012**

Source: Department of Census &amp; Statistics

**FIGURE 5.3****PREDICTED POPULATION STRUCTURE IN 2025**

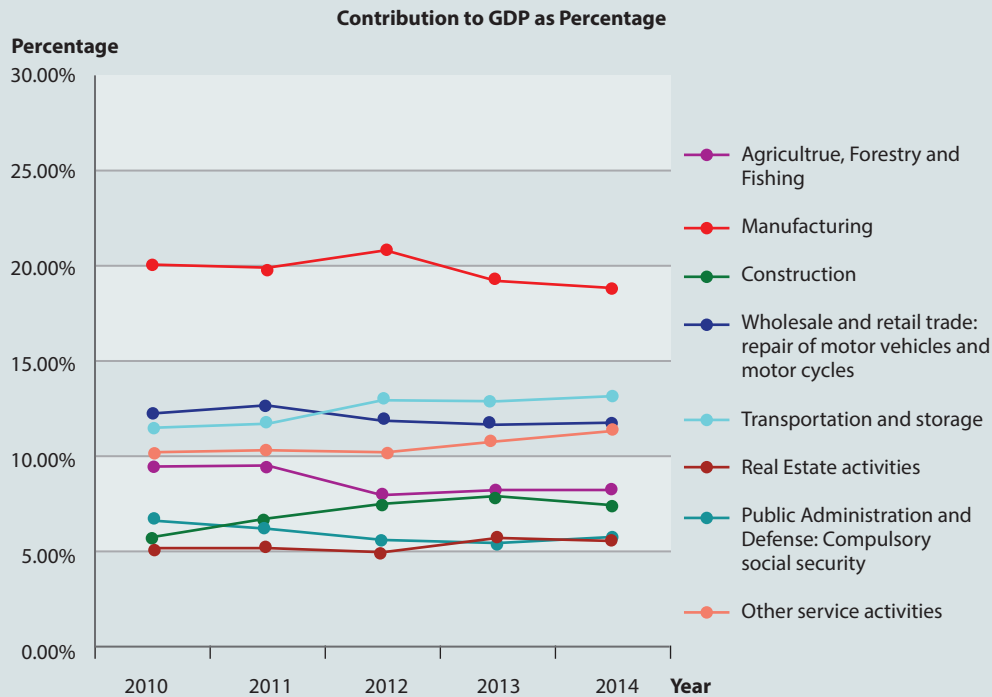
Source: UNDP Population Division

**FIGURE 5.4****PREDICTED POPULATION STRUCTURE IN 2050**

Source: UNDP Population Division

FIGURE 5.5

## CONTRIBUTION TO GDP FOR SELECTED SECTORS (MORE THAN 5% IN 2014)



Source: Department of Census and Statistics

The strategies earmarked for the implementation of such measures are as follows:

- (i) Create the background needed to enter the global value system
- (ii) Encourage small-, medium-, and large-scale farmers and entrepreneurs to participate in the global economy
- (iii) Encourage competitive international organizations to invest in Sri Lanka
- (iv) Bring about the digitization of the economy

To achieve the above-mentioned objectives, the following activities need to be planned, with the adoption of foreign direct investment if needed:

- (i) Setting up of 45 economic development zones focusing on manufacturing, technology, agriculture, and tourism and other service industries
- (ii) Setting up of 11 manufacturing and technology development industries: ship building, ICT and other technologies, agricultural industries, gem and jewelry industries, and financial services
- (iii) Setting up of tourism development zones

- (iv) Setting up of 23 agricultural development zones (rice, rubber, tea, coconut, fruits, animal husbandry, other export crops, flora, and other high value crops)
- (v) Setting up of 10 fishery development zones

This policy statement identifies the priority industries and businesses that would demand productivity training.

### **SMEs**

The National Policy Framework for Small and Medium Enterprise Development (NPFMSMD) defines SMEs as micro, small, and medium enterprises that employ less than 300 employees and have an annual turnover not exceeding LKR750 million.

In the NPFMSMD, the government of Sri Lanka recognizes SMEs as the backbone of the economy, as it accounts for more than 75% of the total number of enterprises, provides 45% of employment, and contributes 52% to GDP. SMEs promote broad-based equitable development and provide more opportunity for women and youth participation in the economic development of the country. With the onset of globalization, the SME sector is not merely seen as a sector for “protection and promotion”, but more importantly, as a driving force for “growth and development”.

The government of Sri Lanka recognizes that enhancing national and international competitiveness is fundamentally important for this sector to face emerging challenges and to develop into a thriving sector. The mission of the National SME Policy Framework is to stimulate the growth of SMEs to produce world-class products and services that can compete locally and internationally with a supportive environment and interventions such as technology transfer, entrepreneur culture, skills development, access to finance, market facilitation, and research and development. Thus, productivity enhancement of entities in the SME sector should be given special consideration to achieve the mission of the SME policy.

## **Institutions Offering Productivity Courses**

Training programs are mainly offered by the Ministry of Public Administration and the Ministry of Industry and Commerce. The National Productivity Secretariat (NPS) and the Sri Lanka Standards Institution (SLSI) take active part in conducting these government-supported programs. There are three types of institutions offering these programs: government-owned training institutions, NGO-operated training institutions, and private training institutions.

The lists of productivity courses/programs specifying their areas being offered in the select categories are given in Appendix D.

## **Characteristic Features**

There are three types of training programs: diplomas (long term), certificates (medium term), and short-term training courses or workshops (one- to three-day duration). Only two diploma courses on productivity are implemented in Sri Lanka. There are substantial similarities and slight differences in curriculum, training delivery methodologies, and evaluation methods between those two courses.

## Current Problems

With respect to designing and conducting training courses and programs, the following problems are worth mentioning:

- (i) There is a lack of knowledge of policy makers and top managers in both public and private sectors on the importance of productivity. As a result, the interest and enthusiasm to train their staff and to launch productivity enhancement programs are poor.
- (ii) There is a shortage of competent productivity experts and resource persons. There is a need to further strengthen current trainers with the required knowledge and skills.
- (iii) There is non-availability of basic and postgraduate degree courses on productivity to create experts with a broad understanding and knowledge of productivity-related subjects.
- (iv) Due to the heterogeneity of participants in productivity training, the breadth and depth of training on certain technical subjects are limited.
- (v) There is no proper coordination and collaboration among the institutions delivering productivity training courses. Quality of training (in terms of curricula, methodology, and effectiveness) may vary significantly among institutions. Although the NPS has some dealings with these institutions, it is not authorized to regulate or guide their activities.
- (vi) Although SMEs contribute substantially to the national GDP and employment, participation of employers and employees from SMEs in productivity training courses is limited.
- (vii) Since productivity is relatively low in certain sectors such as agriculture, their participation in training courses and programs is relatively low compared to other sectors.

## Research Issues

In view of the current scenario and existing problems, as outlined in the previous section, it is imperative that the problems are addressed. Many of these problems are research related and require specific research issues to be identified. In specific terms, the following questions are worth addressing:

- (i) What is the quality and effectiveness of the productivity training courses currently being offered by the training institutions?
- (ii) What are the specific problems encountered by these training institutions?
- (iii) Which sectors/industries of the national economy need significant productivity improvement?
- (iv) What are the strategic actions needed to improve the quality and effectiveness of the courses being offered by productivity training institutions?

## Productivity Movement

The concept of productivity was introduced in Sri Lanka when it became a member of the APO in 1966. In the initial years, progress achieved in promoting productivity was marginal. The National

Institute of Business Management (NIBM), established in 1968 as a unit of the Ministry of Industries (later incorporated by an Act of Parliament in 1976), was appointed as the NPO. Thereafter, productivity training programs were conducted and productivity promotion activities were carried out. Continuous support and assistance of the APO and the government were the main strengths behind the productivity movement.

The productivity movement in Sri Lanka has passed through a number of phases and the following promotional activities and observations need to be mentioned.

### **The first systematic productivity promotion campaign**

As a result of advocacy activities, the government of Sri Lanka assigned high priority to the productivity movement in the early 1990s. The year 1996 and the following decade (1996–2005) were announced as Productivity Year and Productivity Decade, respectively. A series of activities were implemented during this period to promote productivity at national as well as provincial levels. A National Productivity Awards scheme was introduced to recognize highly productive enterprises covering industry and service sectors. Public-sector training organizations introduced productivity into their curricula as a subject and launched training courses. A series of radio talks and television programs were broadcast to enhance awareness on the importance of productivity in the country. In addition, productivity lectures were conducted in schools.

### **Operations of the present NPO**

In 2002, productivity was transferred from the Ministry of Industries to the Ministry of Labor, with the NPS operating as the coordinating body. The NPS, appointed as the NPO for Sri Lanka by the APO, implemented a series of projects and programs with a greater vigor to promote productivity in the country, launching many training activities. In 2003, the National Productivity Policy was formulated with technical assistance from the APO, comprising two components for enhancing productivity in the public and the private sectors. Since 2014, the NPS has been functioning under the Ministry of Public Administration.

## **National Productivity Policy**

Formulated for the public and private sectors separately, the National Productivity Policy is specifically focused on the kinds of strategic actions to be undertaken in each of these two sectors. These actions are based on five guiding principles: (i) customer-based production of value, (ii) continuous improvement of quality as a core work ethic, (iii) results-driven organizations, (iv) decentralization, decent work, and employee involvement, and (v) proactive management.

The specific strategic actions for the public sector are: (i) labor market development, (ii) legal reforms, (iii) inter-sector coordination, (iv) management of organizations, (v) productivity at the individual level.

For private sectors, these strategic actions require contemplation: (i) establishing a more supportive economic framework, (ii) encouraging more savings and better investment, (iii) improving labor market flexibility, (iv) developing the workforce, (v) enhancing enterprise-level productivity, (vi) encouraging new businesses and supporting SMEs, (vii) encouraging a culture of quality and productivity proactive management, and (viii) implementing strategy and monitoring progress.

In this context, there are other national policies that may be considered desirable as productivity improvement initiatives of the government.

The main policies shaping, directly or indirectly, the productivity scenario of Sri Lanka are as follows::

- (i) Sri Lanka National Agricultural Policy under the Ministry of Agriculture and Agrarian Services (2007)
- (ii) National Plantation Industry Policy Framework under the Ministry of Plantation Industries (2009)
- (iii) Tourism Development Strategy 2011–2016 under the Ministry of Economic Development (2011)
- (iv) National Science and Technology Policy (2008) under the Science, Technology, and Innovation Strategy for Sri Lanka 2011–2015 (2010)
- (v) Policy and Procedures for ICT Usage in Government (e-government Policy) (2009)
- (vi) Information and Communication Technology Plan for Sri Lanka 2011–2016 (2011)
- (vii) National Energy Policy and Strategies of Sri Lanka (2008)
- (viii) National Transport Policy (2009)
- (ix) National Policy Framework for Decent Work in Sri Lanka (2006)
- (x) Livestock Master Plan: A Strategy for Livestock Development for Self-sufficiency (2011)
- (xi) Kapruka Navodawa: National Coconut Sector Development Plan (2011–2016) (2011)
- (xii) Five-Year Plan (2010–2015) - Industry and Commerce (2010)
- (xiii) Strategic Plan (2011–2015) - Export Development (2011)
- (xiv) Ten-Year Development Policy Framework of the Fisheries and Aquatic Resources Sector (2007–2016) (2007)
- (xv) The National Strategy for Mine Action in Sri Lanka (2010)

The government of Sri Lanka has formulated and partially implemented the National Productivity Policy with a view to enhancing productivity in all sectors. Initiatives such as the following have a direct bearing on the productivity of both private and public sectors of the economy:

- (i) Setting up a presidential task force on productivity
- (ii) Setting up e-Government project - Service delivery through the Internet
- (iii) Establishing the National Institute of Labor Studies
- (iv) Setting up the Government Information System

- (v) Setting up of District Labor Advisory Councils
- (vi) Setting up of Quality Circles in organizations
- (vii) Introduction of results based management
- (viii) Introduction of National Vocational Qualification (level 1–7)
- (ix) Setting up of Labor Market Information System
- (x) Setting up of Jobs Net (job bank) to link supply and demand in the job market and productivity competitions (by sectors and categories of organizations)

## Evaluation of Existing Courses and Programs

When evaluating the existing courses and programs, two specific criteria are considered: sector coverage and effectiveness (of the training courses and programs).

With respect to each of these criteria, the following assessments are made:

### Sector coverage

- (i) The attention paid to agriculture and agro-based industries is low, although an even lower level of productivity prevails in this industry when compared with industries and service sectors.
- (ii) Participation of employees or employers from SMEs in productivity courses is not adequate, although productivity enhancement in this sector can generate a significant impact on national economic growth.
- (iii) Industry-specific productivity training courses are rarely offered. The effectiveness of training can be improved if industry-specific courses are implemented.
- (iv) Training methods used in the majority of training courses and programs are based on knowledge improvement rather than skill development and attitudinal change of the participants.

### Training courses

For long-term (diploma) courses, the effectiveness is greater since in-depth knowledge is imparted and tested through assignments and tests. There are only two courses implemented in the country by NPS and the National Institute of Labour Studies (NILS). Classes are conducted in Colombo, which discourages participation from geographical areas in the periphery. Although training sessions are conducted in the weekend, enabling employed persons to participate, it is difficult for those who live outside the Western Province to attend. Careful scrutiny of the course contents reveals that the subject coverage in diploma courses offered by NPS and NILS are almost similar in several instances.

Obviously, such coverage gives a complete knowledge on productivity concepts as well as tools and techniques. Training methodology used in both courses include lectures, discussions, group activities, field visits, simulations, role plays, etc. However, the time allocated for lectures is very



much greater (almost 80%) than that for other activities. Thus, skill development is relatively lower than knowledge improvement through these courses.

Diploma class participants are heterogeneous in character, representing different fields and disciplines from the private and public sectors, and with different academic and professional backgrounds (managers, supervisors, doctors, engineers, etc.). Such diversity of participants may generate both positive impacts (such as issues being viewed from various perspectives, participants learning from each other, and group discussions becoming more resourceful) and negative impacts (such as in-depth analysis of specific issues being difficult, group decision-making consuming more time and participants becoming bored due to excessive simplicity or complexity).

The medium-term certificate course by the NPS is a miniature version of the diploma course, covering basic but essential productivity-related subjects with less depth and breadth.

Certificate courses offered by NILS are equal to the modules of the diploma course. This model is developed to provide opportunities to participants to complete certificate courses during periods that are convenient to them and claim credits from diploma courses. When they have collected the required number of credits through participation in the certificate courses, they can implement an action learning project and obtain the diploma certificate.

Short-term (1 to 3 days) training courses conducted by institutions in the public or private sector or by an NGO are designed by taking into account the contemporary needs and demands of the training market. Most training courses by public-sector institutions are offered free for government employees, while private-sector participants are charged a reasonable fee.

## Improvement Plans

An evaluation of the productivity training institutions and the courses they offer has identified several improvement alternatives. The improvement plan, as envisaged, addresses issues that are vital for taking preventive and corrective measures to counter the problems. The improvement initiatives (a 10-step action plan) are as follows:

- (i) Establish a formal network of productivity training institutions under the leadership and guidance of the NPS, which is the NPO for Sri Lanka. Standard training modules and guidelines should be prepared collectively to ensure quality standards.
- (ii) Strengthen the NPS to deliver basic degrees, postgraduate diplomas, and master's level courses in collaboration with universities, specializing in various fields (management, engineering, medicine, agriculture, finance, etc.). Assistance from the APO via Technical Expert Services (TES) could be sought to develop the curricula.
- (iii) Create a pool of productivity experts (about 100) to train the human resource. These experts should be grouped into consultants, researchers, auditors, and trainers based on their competencies. The APO's assistance via TES could be sought to develop competencies.
- (iv) Build up a pool of human resource (about 500) to be deployed for training, consultancy, and research. They should be grouped into consultants, researchers, auditors, and trainers based on their competencies.

- (v) Pay special attention to the SME and agriculture sectors. In addition, important industries should be identified based on the government's contemporary development programs and the industries that contribute at least 10% to GDP, as explained on page 42 (See Important sectors for productivity enhancement) and Figure 5.5 (page 45).
- (vi) Form SME clusters based on industries and geographical locations. Quality standards should be ascertained in collaboration with the SLSI. Employees of participating entities should be given special training. Such moves would enhance competitiveness.
- (vii) Organize advocacy and awareness programs in collaboration with trade associations, chambers of commerce, and employers' associations such as Employers' Federation of Ceylon (EFC) to educate top management in all sectors.
- (viii) Design and implement training courses on special advanced productivity tools and techniques that target homogenous (same profession) rather than mixed groups.
- (ix) Review and revise training methodology to emphasize skills development and to highlight changing attitudes.
- (x) Evaluate training in terms of impact through regular monitoring and follow-up.

## Action Plan for Implementation

The implementation of the improvement steps requires certain activities to be carried out. A three-year plan for is shown in Table 5.1.

**TABLE 5.1**

### ACTIVITIES FOR IMPLEMENTING IMPROVEMENT STEPS

Activity	2017				2018				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Establish network of productivity training institutions representing all sectors	X	X										
Develop standard training modules for productivity-related subjects		X	X									
Expand the network		X	X	X	X	X	X	X	X	X	X	X
Conduct training (standard modules)			X	X	X	X	X	X	X	X	X	X
Collaborate with a university and introduce degree (higher level) programs (NPS)	X	X	X	X								
Launch/implement MSc, Diploma, BSc degree programs (specific disciplines)					X	X	X	X	X	X	X	X
Select 100 resource persons and develop competencies to be productivity experts		X	X									

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## CONTINUED FROM PREVIOUS PAGE

Activity	2017				2018				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Select 500 potential resource persons and develop their competencies				X	X	X						
Develop and implement productivity courses for sectors mentioned under Appendix D					X	X	X	X	X	X	X	X
Establish SME clusters, step-by-step, design, and implement training courses			X	X	X	X	X	X	X	X	X	X
Implement advocacy and awareness programs of top management	X	X	X	X								
Design and implement special advanced productivity training courses as in Appendix D			X	X	X	X	X	X	X	X	X	X
Review and revise training courses with special attention to skill development	X	X										
Training impact evaluation - follow up		X	X	X	X	X	X	X	X	X	X	X

## Critical Success Factors

The proposed course of action would create a significant improvement on the effectiveness and quality of productivity training in the country. However, successful implementation would largely depend on the following factors:

### Leadership of the NPS

The responsibility of productivity promotion is vested with the NPS, which is the NPO for Sri Lanka. At present, the NPS is implementing a wide range of projects and programs, including a large number of training courses. All proposed activities should be implemented under the leadership of the NPS.

### Assistance and guidance of the APO

- (i) The APO to extend assistance and guidance to implement the proposed course of action
- (ii) More opportunities to be offered to participate in APO's international training courses
- (iii) TES to build up the pool of local experts
- (iv) Opportunities for leaders to visit highly productive nations to learn from their experience under the Bilateral Cooperation Between NPOs (BCBN) programs

### Commitment of the government

The government of Sri Lanka should take following action:

- (i) Review and revise the national productivity policy and implement it fully. Policy implementation would help productivity enhancement in all sectors and stimulate

organizations to get their employees trained in productivity. Demand for training will be increased.

- (ii) Provide resources to implement the courses of action proposed in this report.

### **National Implications**

Successful implementation of the proposed courses of action would ensure (i) improved quality and effectiveness of productivity training, (ii) availability of sufficient number of productivity experts/resource persons, and (iii) increased productivity in all sectors, leading to higher economic growth.

## CHAPTER 6

# CASE STUDY: THAILAND

### Introduction and Background

In the 2015 IMD World Competitiveness Yearbook, Thailand ranked 30 out of 61 countries. Thailand's productivity, floated on the fourth quartile by overall productivity and labor productivity, ranked 55 and 56, respectively. This is a tocsin for Thailand to rapidly improve its labor productivity and build up the efficiency of SMEs for sustainable growth in the near future. Aside from technological progress, experts also help to develop an economy, which leads to sustainable economic growth. The critical driving factor is how to build and strengthen the productivity of human capital in Thailand.

According to Productivity and Investment Climate Study 2015, one of the possible answers to the question "What measures did you take to cope with macroeconomic risks?" was "increasing productivity," presumably through product and/or process improvements. Although around 40% of the firms take measures to improve productivity, a large number of firms, mostly smaller ones, have not yet taken any measures to cope with the macroeconomic instability.

One of the main reasons firms don't actively undertake measures to cope with the macroeconomic risks is that they lack the knowledge to do so; one-fifth of the firms fall within this category. This observation is particularly true for SMEs that are mostly domestically owned.

This case study analyzes the key driving forces, as stated in the productivity master plan, that may impact the Thai industry in the future and can be classified under six categories. External factors such as social, economic, environmental, technological, and political define the end-state of the productivity scenario.

Among the driving forces that may affect the productivity of the Thai industry in the future, directly or indirectly, the following six are expected to make an impact.

### The age of urbanization

The changes that happen in the regional provinces will provide them the opportunity to grow and develop into a more urban society. Economic activities will be boosted by the potential of these provinces.

#### Impact on Thai industrial development

- (i) Industry will spread to other provinces in accordance with the policy development of the government. This will lead to the expansion of the city to the countryside.
- (ii) Hi-tech and innovative industries will replace the heavy industry with higher salaries/wages of employees and workers. This may substantially reduce the number of migrating employees and workers.
- (iii) As labor mobility and migration decrease and the majority of workers reside within the country, there will be an emergence of a strong middle class.

- (iv) Development of local transport in order to move products and services rapidly will be a critical condition for regional industrial development.

### **Accelerating technological change**

Technological progress in products and services may replace existing ones and make them obsolete rapidly. For example, digital camera may become obsolete with the use of smart phones.

#### **Impact on Thai industrial development**

- (i) Technology will play an extremely important role in industry, making production processes more efficient.
- (ii) Business models can be adjusted more quickly using communication technology to meet the needs of consumers.
- (iii) Reorganization will be an important issue for industrial development. Large labor-intensive enterprises will need to restructure their organization due to the introduction of new technology that affects labor mobility from one type of technology to another.
- (iv) The advancement of technology has affected human performance in organizations. Employees need to develop their skills in line with these technological advances. It is necessary to accelerate the adaptation of new technology.

### **Responding to the challenge of an aging world**

The number of elderly people aged 65 and above is growing, while the populations of working people and children are decreasing. With the birth rate shrinking from around 5% in 1970 to around 1.4% in 2013, the number of persons aged 65 years and above accounts for 10% of the total population, making Thailand an aging society.

#### **Impact on Thai industrial development**

- (i) The proportion of taxpayers will continuously decrease. The budget to support the industrial sector will also decrease.
- (ii) Labor taskforce is reduced, as automated technology is used to replace workers.
- (iii) As the elderly population increases worldwide, the demand for medical care will also increase along with investment in research and development related to health.
- (iv) There will be a huge market demand for consumer products designed specifically for the elderly.
- (v) The size of the workforce drives economic activity, thus increased human productivity is the key factor that drives future economic growth. Productivity in service sectors being labor-intensive will play an important role in this context.

### **Greater global connections**

Technological advances of today make the world smaller. Globalization brings together trade and investment information and regulatory conditions that emerge with international relations that affect the industrial sector at different levels.

#### Impact on Thai industrial development

- (i) Industrial development will depend on the kinds of linkage along the supply chain that needs to be highly flexible to adjust to uncertainties.
- (ii) There will be more sectors involved when the perspective changes to the total value chain instead of supply chain only from manufacturers' perspective. The service sector plays a major role in this context.
- (iii) Design systems must be resilient, especially in a situation where there is outsourcing from foreign countries.

#### Private/corporate governance

Operations and management in a national economy may be examined from various stakeholders' perspectives in order to protect the interests of the society. Good governance will be able to build confidence among investors and partners, both domestic and foreign.

#### Impact on Thai industrial development

The style of management has changed; private enterprises and government agencies are designed to be transparent, reliable, and accountable. The principles of good governance will be used as a guideline for the management of private enterprises and government agencies.

#### Climate change adaptation

The failure of both government and businesses to protect against the effects of climate change is accumulated. The decline of natural resources and the weakness of international governance will hasten negative impact such as severe weather, loss of biological diversity, ecological disaster, and food and water crises in the near future.

#### Impact on Thai industrial development

- (i) Industries in general have to become environmentally and socially sustainable. The effect of greenhouse gas emission (for example, in terms of carbon footprint) against the products being produced and processes being used is measured to promote cost-effective green production and supply chain management as well as many aspects of environmental management.
- (ii) Energy efficient processes that may require additional financial investment for product and process performance excellence must be developed.
- (iii) There is a need to redesign industrial work systems wherever needed, including the use of flexible manufacturing/production systems in order to cope with disasters or unforeseen situations.

The desired skills that the Thai industry may need in the future are related to advanced strategic planning and innovation. Resilient business skills require collaboration, team work, leadership, change management, partnering, and diversity management. The ICT, computational, and digital skills will be considered as part of the main technological skills required. To build up stakeholder engagement, virtual collaboration, cross-cultural competency, and interdisciplinary approach are needed.

The content of existing training courses that may be linked to the desired skills depends on policies as well as the persons for whom they are offered. Examples of training programs and their relevant

skills with their existing or redesigned formats are given in Table 6.1. There are no existing training courses at present that support desired skills in Ethical Practice, Synthetical Thinking and Innovation, ICT and Digital Skill, Computational Thinking, Cross-Cultural Competency, and Virtual Collaboration.

The types of training courses/programs being offered that have been designed for skills and knowledge enhancement are listed in Appendix E.

**TABLE 6.1****DESIRED SKILLS AND CURRENT TRAINING COURSES**

Desired Skills	Existing Training Courses	Examples of Public Training Programs
Developing Self and People	Existing	Process Management in Practice, Job Method, Coaching and Mentoring Technique, Motivate Employees through Performance, Problem Solving and Decision-making Technique, Practical Knowledge Management, System Thinking, Knowledge Management Assessment, Professional Project Management, Stress Management for Better Work-life Balance, Kaizen Suggestion for Work Improvement, Effective Job Instruction, Daily Management for Supervisor, Power up Positive Thinking, Personnel Productivity, Knowledge Capturing, EQ-AQ-MQ for Self-Development
Communication and Media Literacy	Redesigned	Handling difficult and Demanding Customers, Handling and Managing Customer Complaint, Effective Writing for Organizational Communication, Personality and Communication for Frontline Service, Smart Meeting, Winning Negotiation Strategy, Communication with High Impact
Collaboration, Teamwork, and Leadership	Existing	Superb Supervisor, How to Manage Talent and Different People, Building Working Relationship, Professional Trainer, How to Define Strategic Destination, Strategic Thinking, Intelligence Leadership, Team Productivity, Assignment and Controlling Technique, Maximizing Time and Priorities management
Change Management and Partnering	Redesigned	Creative Conflict Management, How to Master Change Management, Building Climate Change-Resilient Organization, Build Innovation into Processes, Becoming a Strategic Partner through HR Scorecard, Business Model Innovation and Improvement
Diversity Management	Redesigned	Balanced Scorecard, Action Plan Technique, Holistic Management, Effective Cost Management, Value Stream Mapping, Strategic Risk Management, Risk and Opportunity Management Technique

Source: Source: FTPI

## Existing National Scenario

Thailand has three main national plans focused on various levels: the National Social and Economic Development Plan No. 12 (2017–2021), the Productivity Master Plan (2016–2021), and SMEs Promotion Plan (2017–2021). These three plans share the same objective of shifting Thailand from a middle-income country to a high-income one. To achieve this goal, the industrial structure has to change from a supporting industry to a high-technology industry. One of the main driving forces behind this transformation is enhancing the capacity of human capital.



The essential features of each of these plans, with respect to their critical importance for human capital development, are described in following sections.

### **The National Social and Economic Development Plan No. 12**

Ending the National Social and Economic Development Plan No. 11 in September 2016, the National Social and Economic Development Plan No. 12 has been prepared by the Office of the National Economic and Social Development Board. As per these plans, four principles have been followed: applying the philosophy of sufficiency economy, getting people involved in the country's development, supporting and promoting the country's reform, and developing a stable, prosperous, and sustainable society.

To achieve the development objectives, the plan sets two specific targets (out of four main targets) that are directly related to the use of human capital: to develop human capacity to support the country's growth and to create a high-quality aging society, and to enhance competitiveness and to move the middle-income population into high income.

Elevating competitiveness to reach high income requires building up productivity capabilities that focus on enhancing labor productivity. This can be done through partnership between the government and private sector to develop people's skills and sector competencies that are in line with market demand and ASEAN Economic Community liberalization. To upgrade and improve workforce performance in Thailand, the labor system has the ability to compete and the resilience to move between production fields and areas. People must have multifunctional skills for which professional qualification and performance standards are a necessity. The development of personnel in the public sector with adequate professional skills has been a priority in this plan.

### **The Productivity Master Plan: Ministry of Industry**

The Productivity Master Plan combines the plans of the Ministry of Industry and the Ministry of Science and Technology by examining six specific driving forces: the age of urbanization, accelerating technological change, responding to the challenge of an aging world, greater global connections, private/corporate governance, and failure of considering climate change-related issues. Furthermore, the plan covering nine industries sets out two main strategies related to human capital development: raising productivity skills in response to industrial changes, and developing environmental factors for sustainable productivity growth.

The following are objectives and initiatives for each of these strategies:

- (i) Raise productivity skills in response to industrial changes

The specific objectives are:

- (a) Raise labor productivity in the target industrial sectors to compete under conditions of global change
- (b) Prepare core competency and necessary skills for future industries and talents
- (c) Develop labor skills in accordance with the need and requirement of the industry, especially in special economic zones

- (d) Build up entrepreneurs' skills and capabilities to manage uncertainties
- (e) Create awareness of the merits and the concept of sufficiency economy paralleled with knowledge and skill development

The specific initiatives, grouped under economic, and social and environmental categories, are as follows:

Economic

- (a) Promote and develop workforce skills to meet labor standards in accordance with the core competencies of each industry
- (b) Enhance labor productivity by focusing on multifunctional skills that are needed to target industries
- (c) Develop and promote productivity facilitators and specialists in target industries and areas
- (d) Promote and encourage the industry to focus on human resource development through projects, activities, and incentives

Social and Environmental

- (a) Build up management skills for entrepreneurs in risk management and innovative creation, including raising awareness on sustainable growth and the concept of sufficiency economy
  - (b) Encourage the education sector to develop personnel skills that comply with the industries' requirement before entering the workforce
  - (c) Promote quality education to develop unique curriculum that meets the needs of the industry and responds to future changes
  - (d) Reinforce management with integrity and accountability
- (ii) Development of environmental factors for sustainable productivity growth

The specific objectives are as follows:

- (a) Strengthen and cooperate with supportive network to enhance productivity in the industrial or mechanical services and logistics
- (b) Build up government officers' competency by using the concept of managerial excellence in daily operations, focusing on uncertainty management in particular
- (c) Develop competency of the Ministry of Industry to keep pace with the transition to sustainable growth
- (d) Regulate standards in terms of environmental quality that comply with global trade regulations and the global market requirements

- (e) Raise the service quality of the relevant government agencies to meet needs and expectations, including creating awareness and understanding of productivity in all sectors
- (f) Provide insightful information that contribute to the productivity of the country for policy makers
- (g) Create awareness on good governance and treat business leads seriously in order to build confidence among foreign partners and entrepreneurs

The specific initiatives, grouped under economic, and social and environmental categories, are as follows:

#### Economic

- (a) Promote and support networks of collaborative partnerships, both within and outside the country
- (b) Promote and encourage knowledge transfer and exchange between organizations or experts
- (c) Promote productivity enhancement in logistics and supportive industries in the mechanical engineering sector
- (d) Support and encourage the Ministry of Industry to integrate excellent management practices in daily operations
- (e) Build up capacity of state officials to manage uncertainty and launch prevention and preparatory measures
- (f) Encourage and support technology and innovation management in relevant government agencies for improvement of quality of services
- (g) Promote and develop productivity professionals and specialists in the Ministry of industry

#### Social and Environmental

- (a) Create productivity awareness in all sectors
- (b) Update the regulations, law, and international standards that are related to business operations regularly
- (c) Encourage operating with transparency and accountability
- (d) Cooperation between public and private institutions to push innovation throughout the supply chain

### **SMEs Promotion Plans**

These strategic plans, under the Office of Small and Medium Enterprises Promotion (OSMEP), focus on the use of technology and innovation in manufacturing as well as the promotion of entrepreneurship and human resource development. In 2016, the OSMEP set the guidelines for promoting SMEs skill

development through the use of technology and productivity skill enhancement. The workshops and training programs proposed include a detailed curriculum for basic on-demand courses covering business plan writing, effective marketing, finance and accounting, tax and business laws, etc. In addition, the OSMEP provides consultancy services to entrepreneurs to address their problems.

As per the objectives set for the above-mentioned three plans, the following six strategic actions are recommended for productivity management in Thailand.

- (i) Raise industrial productivity by upgrading technology, innovation, and business management
- (ii) Raise labor productivity with multifunctional skills, responding to changes in industries
- (iii) Develop supportive environments for productivity enhancement
- (iv) Create an environment that supports and promotes investment in the Thai industry
- (v) Develop entrepreneurship to enhance production in a new industry
- (vi) Ensure added value of industrial products in line with market demand

The supporting programs for these strategic steps as well as the kinds of training courses required to be offered, keeping in mind the specific needs of industries and entrepreneurs, are given in Appendix E.

Thailand has established two levels of growth in engineering sectors: the first S-Curve and the new S-Curve. Whereas the first S-curve refers to industrial sectors such as automotive, electronics, food processing, etc., the new S-curve is related to new technology such as robotics, digital device, cloud sensor, augmented reality, etc. It is expected that networking and interconnectedness will be the focal components. In this changed environment, workers will be able to collaborate and communicate without borders as they can utilize smart devices that connect them in real time to their co-workers and workplace tools as needed. Machines automatically communicate with other machines to accomplish the customization of products. Factories will have fewer workers and their job descriptions will change from operations to monitor control instead.

The big gap in Thailand's human capital development can be synthesized into two major points. One is the miss-match of the educational system and skills that industries need. In the majority of cases, it is opined that employees' education is not consistent with their work and may not match with the job description. However, training cost is an average THB160,000 or USD4,800 per year. This cost is not high as they are trained on the job rather than through external training courses.

In April 2014, VDI (the Association of German Engineers) and the ASME (American Society of Mechanical Engineers) jointly studied the potential impact of industrial innovation on human capital for manufacturing industries. The report relied on tasks, qualifications, and skills that are considered important for the skilled labor in a "factory of the future". The skill sets are categorized into two groups: technical and personal qualifications, and skills.

The types of productivity training topics for humans, products, and policies as well as the qualifications and skills that need to be offered are given in Appendix E.

The order of listing in the three categories does not indicate a prioritization among the factors in the respective category. In order to achieve effectiveness of the productivity courses at the industry level in the future, they are to be offered at two levels: at the first level, as part of basic infrastructure development techniques, the courses are offered to strengthen the skills of workers; and at the second level, the courses should include training on productivity tools and techniques to be used for human resources at different levels of an organization within a business excellence framework. These courses should focus on applications rather than theory.

## Assessment of the Existing Training Courses and Programs

The institutions that impart education and training on different aspects of productivity management offer mainly postgraduate degrees. There is no faculty capable enough of teaching courses on productivity. Productivity-related courses and programs are a part of faculties of engineering and business administration, and are included in certain subjects at vocational schools. For productivity training, there are more than 100 private training firms that offer basic productivity. Thailand also has 11 networking institutes that offer their own productivity training courses under the supervision of the Ministry of Industry, the Technology Promotion Association (Thailand-Japan), and the Federation of Thai Industries. Most of the training courses offered by these networking institutes charge a very low or no course fee for learners.

The types of productivity management courses and training programs, excluding the Thailand Productivity Institute, include topics based on the requirements of the 4P: people, product, policy and process, and position of participants. Most of them are short-duration courses (one to three days). The average cost is approximately USD50–USD150, depending on the types of experts and the level of complexity involved.

From the supply side, the majority of productivity training courses teach basic productivity concepts. The in-house training courses are customized to customers' requirements, and consultants are hired in case sophisticated tools and techniques need to be learned. The courses, ranked according to priority, are: (i) programs on improving productivity, (ii) programs on business management such as HR, KM, TQA, BSC, and KPI, (iii) general training or seminar for new or refresher programs, (iv) programs on management and maintenance of the quality system as per ISO or other standards, (v) organizational research such as customer satisfaction, customer needs, and customer engagement, (vi) programs on sales, marketing, and advertising, (vii) distance learning, (viii) counseling on financial management and accounting, and (ix) training and visits abroad. The curriculum that is based on the above will reflect the maturity of productivity awareness in Thailand.

## Critical Success Factors

While identifying the success factors of the courses or institutions in the given context, it is also important to consider the factors that determine the effectiveness of a course or an institution in order to achieve the national goals for productivity improvement. These critical success factors are discussed separately in the following sections.

### Critical success factors for courses and programs

#### People

- (a) The programs help students learn and grow on the job, and meet organizational needs.

- (b) The training programs balance the practical and the theoretical parts, and the knowledge imparted is assessed.
- (c) The contents or case studies offer plausible information that realistically address the problems learners are likely to encounter at the workplace.

Product

- (a) The knowledge learned can apply or be transferred to the actual work being carried out.
- (b) The programs help win and keep large customers and partners.
- (c) Programs are of superior value to the company.
- (d) The programs can be customized to organizational needs and expectations.

Policy

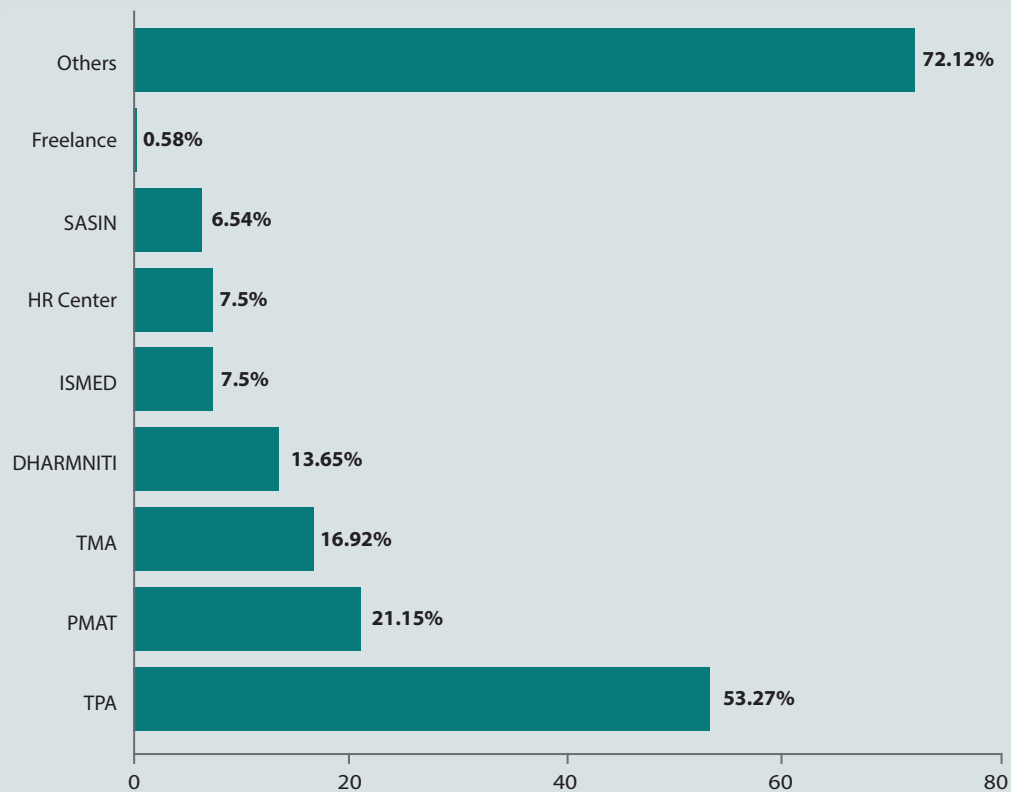
- (a) Policies help companies plan and execute programs more effectively to maximize their marketing efforts and revenues.
- (b) Policies help companies network with each other to enhance their business potential and to share new and innovative ideas.
- (c) Policies help companies prevent risks from uncertainty factors that may directly affect business performance.

Process

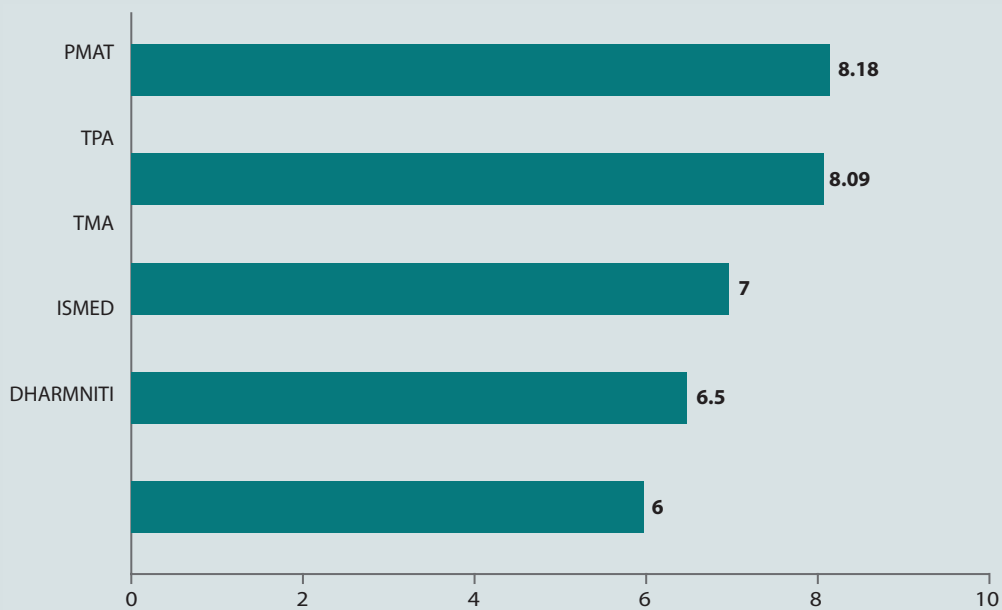
- (a) Programs guide the engineering and the strategic planning efforts of a company.
- (b) Programs help companies become a well-planned, adequately resourced, and efficient entity.
- (c) Programs can be customized to specific organizational operations.

The Thailand Productivity Institute has surveyed the productivity training courses that are considered acceptable in terms of their quality and effectiveness. The questionnaire-based survey has been conducted in all sectors of the national economy and has received 400 responses from manufacturing, service, and the public-sector companies. The objective of the survey is to locate productivity course providers who are entrepreneurs as well as to assess the quality of training courses.

From the survey results, it may be concluded that the courses offered by the Technology Promotion Association (Thailand-Japan) are preferred by entrepreneurs. The Personnel Management Association of Thailand (PMAT) is second in terms of preference. The majority of PMAT's training courses are in the areas of HRD and HRM. Training institutes such as the Thailand Management Association (TMA) and Sasin Graduate Institute of Business Administration of Chulalongkorn University offer mainly executive training programs. Figure 6.1 shows the names of the productivity training providers that are preferred by entrepreneurs. The satisfaction scores of the training courses offered by these institutes are shown in Figure 6.2.

**FIGURE 6.1****PRODUCTIVITY TRAINING PROVIDERS AS PER ENTREPRENEUR PREFERENCE**

Source: Questionnaire survey

**FIGURE 6.2****SATISFACTION SCORES FOR TRAINING COURSES**

Source: Questionnaire survey

The top five criteria that entrepreneurs may consider when assessing the quality of programs are as follows:

- (i) Course content that can help develop employees' skills
- (ii) Experience and professionalism of trainers
- (iii) Applicability of course content in various tasks and jobs
- (iv) Course cost compared to course benefits
- (v) Reliability of the organizations offering the courses and programs

The indicators of the training programs' quality are not different across various samples of organizations. However, the order of importance may vary; for example, manufacturers may prioritize course content that helps develop employee skills at 90%, experience and professionalism of trainers at 77.41%, and the applicability of course content across various tasks at 74.44%.

For service sectors, the corresponding values are found to be 87.5%, 75%, and 74.04%, respectively. Public organizations may prioritize the cost versus benefits of the course at 88%, while quality features such as experience and professionalism of trainers, and course content that helps develop employee skills are considered equally important at 84% each.

When assessing the quality of the experts or consultants who are engaged in training courses and programs, the following factors were found to be critical in the survey:

- (i) Punctuality of lecturers
- (ii) Lecturers' professionalism
- (iii) Courteous demeanor and interpersonal skills of lecturers
- (iv) Lecturers' experience
- (v) Lecturers' willingness to assist
- (vi) Lecturers' ability to use materials effectively (video, slides, transparencies)
- (vii) Lecturers' problems and their solutions
- (viii) Lecturers' ability to transfer knowledge (getting to the point and being easy to understand)
- (ix) Lecturers' openness to comments and suggestions

#### **Critical success factors for institutions**

Critical success factors have also been identified for various types of training institutions such as freelance, private organizations, public organizations, universities, and vocational training institutes.



#### Freelance

- (a) Quite flexible as the programs can be adjusted or designed in per a company's requirements
- (b) Ease of contact
- (c) Participation in providing advice and assistance

#### Private Organization

- (a) New or trendy programs
- (b) Effectiveness of the programs
- (c) Trust and confidence in the quality of service
- (d) Quality of the programs

#### Public Organization

- (a) Cost of the course compared to its benefits
- (b) After-program services that are provided such as the company being eligible to take up government projects to provide assistance in various areas
- (c) Level of cooperation offered
- (d) Professionalism

#### University

- (a) Professionalism
- (b) Quality of the programs
- (c) Focus on cognitive theory
- (d) Provide continuity programs at a higher level

#### Vocational Training Institutes

These public institutes prepare students to enter the workforce as technicians. Thailand has 10 types of vocational schools and 404 colleges under the Vocational Education Commission. The types of programs offered are in the areas of trade and industry, agriculture, home economics, arts and crafts, commerce and business administration, fishery, textile, gems and jewelry, tourism and hospitality, ship building, and IT. The programs provide short-term vocational training, Certificate in Vocational Education (three years at upper secondary level), Diploma in Technical Education (two years at post-secondary level), and Higher Diploma in Technical Education or bachelor's degree (two years after Diploma in Technical Education). The types and numbers of colleges under the Office of Vocational Education Commission (OVEC) are shown in Table 6.2.

**TABLE 6.2****TYPES AND NUMBERS OF COLLEGES UNDER THE OVEC**

Serial No.	Types of Colleges	Numbers
1	Technical Colleges	106
2	Vocational Colleges	40
3	Agricultural and Technological Colleges	47
4	Industrial and Community Colleges	144
5	Polytechnic Colleges	54
6	Business Administration and Tourism Colleges	4
7	Industrial and Ship Building Technological Colleges	3
8	Arts and Crafts Colleges	2
9	Fishery Colleges	3
10	Royal Goldsmith College	1
<b>Total</b>		<b>404</b>

Source: Office of Vocational Education Commission

### Major Barriers to Improvement

The major bottlenecks and barriers that hinder improvement in the quality of training courses and programs may be considered as two separate issues. The first issue is the huge demand for productivity training programs and courses that have not yet received adequate response, especially from SMEs. The basic tools and techniques that most of the Thai entrepreneurs facing macroeconomic risk are required to use are related to productivity improvement. In around 40% of the cases, however, no measures have been taken in this direction due to a lack of knowledge. Thailand has many institutes that offer productivity courses. However, there is a mismatch between the demand for the productivity courses by enterprises and the number of courses and programs being offered by institutions. In many cases, SMEs are busy with their daily operations and activities and lack the motivation to offer training courses to their employees, even if these government-run institutions may offer courses at no cost. In this context, the sector-wise training cost per head is given in Table 6.3.

**TABLE 6.3****SECTOR-WISE TRAINING COST PER HEAD**

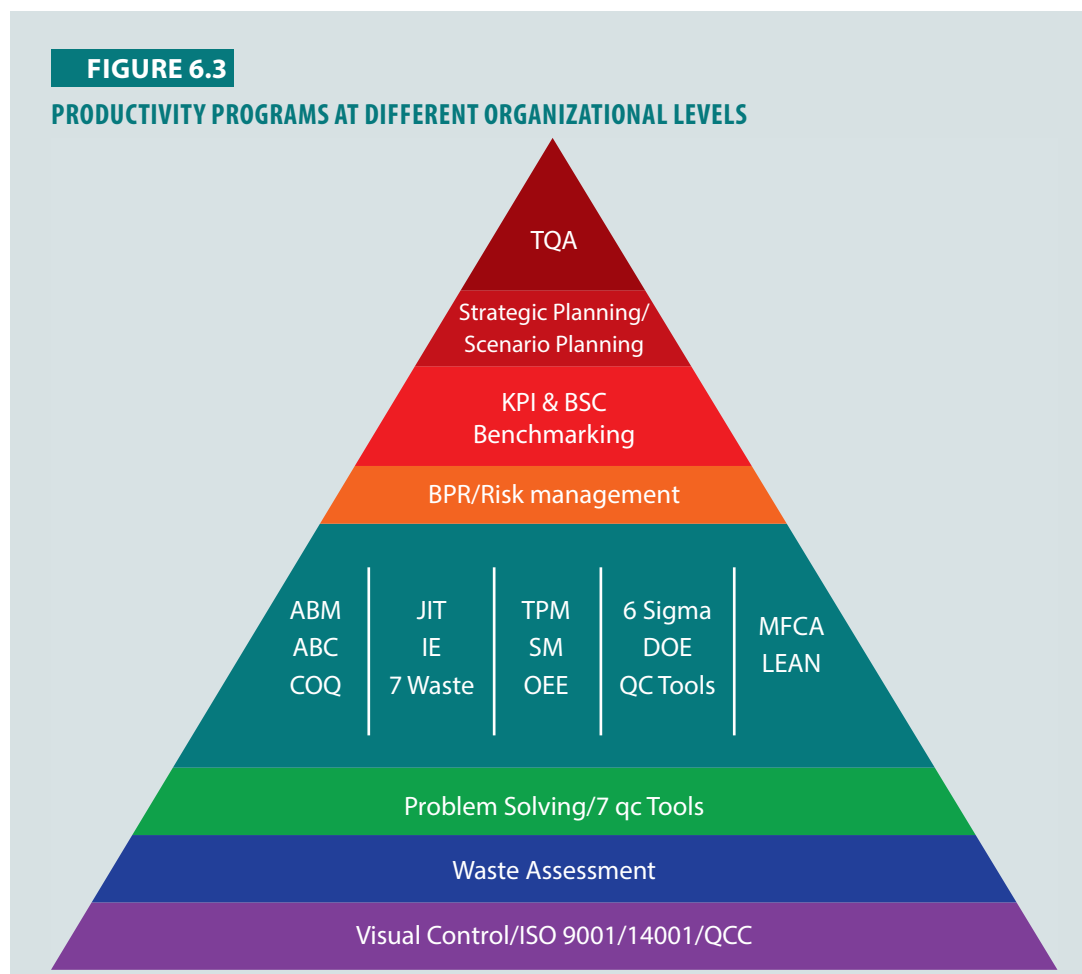
Serial No.	Sectors	Mean USD (THB)	No. of Firms	Std. Deviation USD (THB)
1	Food Processing	27.86 (928.50)	89	98.10 (3,269.70)
2	Textile	10.40 (346.47)	40	16.35 (544.83)
3	Garment and Apparel	5.82 (193.91)	65	10.23 (340.81)
4	Auto parts	13.81 (460.72)	77	14.93 (497.75)
5	Electrical and Electric Devices	10.05 (334.97)	53	11.24 (374.58)
6	Rubber and Plastic	16.44 (547.82)	67	68.73 (2,290.85)
7	Furniture	9.46 (315.28)	45	25.93 (864.18)
8	Machinery and Devices	21.44 (714.52)	54	33.46 (1,115.22)
9	ICT	67.91 (2,263.49)	39	113.54 (3,784.26)
10	Total	19.29 (642.87)	529	60.05 (2,001.35)

Source: PICS 2015

There are institutions in Thailand that have the inherent ability to offer productivity courses. These courses are developed based on the needs of the stakeholders. The majority of such training courses are offered on basic productivity tools. In some cases, advanced courses such as Scenario Planning, Benchmarking, etc., are offered. As shown in Figure 6.3, the majority of the institutions offer programs in three areas (waste assessment, problem solving, and 5S). Only a few institutes provide intermediate tools and techniques such as Material Flow Cost Accounting and Six Sigma. The programs at the top of the pyramid require the high expertise of practitioners or facilitators, which only a few institutes can provide.

Although there is a lack of productivity awareness from the entrepreneurs' viewpoint, the majority of the institutions deliver their programs according to their capabilities and interests in basic productivity tools. A few institutions, however, may find that conducting surveys to identify training needs has little impact, if any, on the country as a whole.

To date, there has been no intensive analysis carried out on the status and requirements of human capital at the strategic level of Thai organizations. Most of the national strategic plan focuses on process improvement projects by consultants, and training programs are embedded as one of the less important activities under the projects. The scenario-based strategic process plan is shown in Figure 6.4. On the other hand, the productivity training projects require mass participation of manpower on strategic issues and topics related to productivity management. However, the KPIs of the projects focus on a number of learners' achievement.



Furthermore, there is a lack of an integration system between government departments and potential private sectors involved in skills development. Most projects have no continuity. However, there is a joint committee between OVEC and industrial clusters that identifies competencies required by each industrial cluster and career path. This is an attempt to develop a sense of ownership in industrial clusters and encourage them to work closely with OVEC in developing and producing qualified graduates. This is a good move to solve the mismatch problem so that the knowledge learned can be applied at the work or job level.



## Current Problems

Thailand is working out a new master plan to increase the productivity and efficiency of its industrial sector to enhance the country's competitiveness. The master plan will be implemented during the next five-year period from 2016 to 2021. It aims to increase the growth of total productivity to 3 percent a year and labor productivity to 5 percent a year. Thus, Thai manufacturing sector would be able to compete effectively in the world market. Emphasis should be placed on economic, social, and environmental development. Adjustments in the manufacturing structure should be made as well, since Thai exports have changed recently. More technology-based products have been exported than labor-intensive products.

According to a study by the International Institute for Management Development (IMD), it is "business efficiency" in terms of performance in an innovative, profitable, and responsible manner that matters. Two of its indices are productivity and efficiency. Based on IMD's findings, there is a dire need for improvement in the labor productivity and efficiency of SMEs to shore up competitiveness.

Thailand ranked 30 among 61 nations in the 2015 IMD World Competitiveness Yearbook. It still needs to improve the labor productivity and efficiency of SMEs for sustainable growth in the future. Prime Minister Prayut Chan-o-cha on 24 July 2015 chaired a meeting of the National Competitiveness Development Committee to listen to reports of various sub-committees that have been set up to help develop Thailand's competitiveness. The meeting discussed human resource development in response to market demand. For instance, specialized training programs should be

arranged for new graduates. The meeting also discussed the establishment of research centers in educational institutions with cooperation from both the public and private sectors. A data center will be set up for people to make use of information on trade and industry. People in all regions of the country will be encouraged to have greater access to technology. Issues such as research and development, vocational education, and infrastructure development have been emphasized.

## Research Issues: Future Skills for Thai Industry Productivity in 2025

The Productivity Master Plan focuses on big data and analytics, autonomous robots, simulation, horizontal and vertical system integration, the industrial Internet of things (IoT), cyber security, cloud system, additive manufacturing, and augmented reality. Thus, the goal of any organization is to upgrade employee skill level in accordance with the direction of the plan.

## Research Framework

The research framework highlights the following seven aspects:

- (i) Environmental scanning in order to define the trends and driving forces in five categories, namely, social, economic, environmental, technological, and political issues affecting Thai industry productivity in 2025
- (ii) Synthesis scenario for Thai industry productivity in 2025
- (iii) Analysis of desired management skills for Thai industry productivity in 2025
- (iv) Benchmarking current training courses with respect to desired skills
- (v) Formulation of productivity improvement plans for change
- (vi) Setting strategic objectives and implementation plans for different productivity improvement tools
- (vii) Conclusions and learning

## National Implications

In order to develop employees' skills to meet future changes, productivity must be considered a baseline for the development of skills. This will ensure a clear direction and guidance in cooperation with involved public organizations and private institutes. There must be a controlled monitoring mechanism to evaluate the overall accuracy/efficiency and timeliness or the adjusting of plans and projects under strategic circumstances that are changing all the time. Thus, it requires the establishment of a central authority or agency that is responsible for the direction, planning, monitoring, and evaluation of employee skills that fit the current and future needs of the industries, and the integration of all sectors of the national economy. This will be essential in driving the implementation of effective and efficient systems. The following agency has a number of roles to play:

- (i) The National Manpower Council, with the prime minister or the deputy prime minister assigned as chairman. This council needs representatives from the ministries of industry,

education, labor, and science and technology, and key private sectors as members. The council will focus not only on manufacturing but also on all employees in all sectors. The role of the council is to plan on ways to increase employee skills based on the national context and to respond to external factors affecting Thailand's competitiveness. The council will define the strategic plan and budget, and manage uncertainties while including all relevant stakeholders throughout the supply and value chains. Furthermore, the council must be authorized to impose regulations, incentives, and assistance to support substantial skill development plans.

- (ii) The agency is responsible for the analysis of the data and information derived to help plan the development of the national manpower effectively. It must, hence, develop insight regarding the requirements of key stakeholders. Analysis of the industry data will help in getting a direction to develop an implementation plan for course and program development. It is desired to develop related research and integrated training programs, including disseminating information accessible to entrepreneurs both proactively and reactively, and supporting the National Manpower Council to help develop the necessary skills and knowledge in the field of productivity management.

## CHAPTER 7

# CASE STUDY: VIETNAM

### Introduction and Background

With the target of becoming an industrial country, the policy of the Vietnamese government is to accelerate the process of industrialization and modernization. To achieve this goal, investment in human capital is necessary as it is the key to growth. Higher human capital leads to higher worker productivity and finally contributes to economic development. To advance human capital, the most important investments are education, training, and health. Of these, education and training are especially important for productivity management as they help to equip learners with knowledge on how to work more effectively and efficiently, leading to an increased number of productivity specialists. Assessing the quality of different productivity courses offered by training institutions is important to strengthen and expand them to meet the growing demand of local industries and to improve human capital.

In order to assess the productivity courses offered in Vietnam, a study was conducted on 25 training institutions in the country. Based on the findings, suggestions were made to strengthen and expand productivity training in Vietnam.

### Existing National Scenario

In 1996, the 8th National Congress of the Communist Party of Vietnam set the national target of becoming an industrialized country by 2020. However, after 30 years of renewal, the review of development results revealed that the objective in terms of time is not feasible. The 12th National Congress of the Communist Party of Vietnam at the beginning of 2016 kept the target of becoming an industrialized country, but the time was changed.

According to the documents, the objectives of Vietnam for the next five years are achieving an economic growth rate of 6.5% to 7% on average; a GDP per capita of about USD3,500; a proportion of industry and service sectors of about 85% of Vietnam's GDP; TPF contributing to economic development of about 30% to 35%; and labor productivity increase of about 5% annually on average. By 2020, labor in agricultural sector should account for about 40% and trained labor should be about 65% to 70% of the country's entire workforce.

To achieve these objectives, the role of human capital is very important. Previous researches revealed that human capital is an important factor in fostering the economic development of a country. However, the recent ILO/ADB report argued that labor productivity in Vietnam was far lower than that of many other countries in Asia-Pacific and was among the region's lowest in 2013. According to the report, Singapore's labor productivity was 18 times higher than that of Vietnam, while Malaysia and Thailand were 6.6 and 2.7 times higher, respectively. Vietnam's labor productivity was 1.8 times lower than those of the Philippines and Indonesia. It is expected that Vietnam will be able to catch up with the Philippines in 2038 and Thailand in 2069.

Given these figures, it is necessary to push up labor productivity in Vietnam. Among the ways to enhance labor productivity, education, training, and motivation are the most popular. Compared to motivation, which is often short term, education and training influences are long term and the results are sustainable. Since the proportion of trained labor is low in Vietnam, accounting for 22% in the 1st quarter of 2015, the assessment of productivity courses are presented in this study in the hope that suggestions will be given to training institutions to improve their courses.

## Quality of Training Programs and Courses

According to ISO 9000, quality is the “degree to which a set of inherent characteristics fulfils requirement.” Quality can be viewed in different perspectives. When talking about quality, it is important to refer to specific situations. In the case of training, there are several models that can be used to assess the quality of training programs and courses. These include the Nordic model (Gronroos, 1984), the Kano model (Elma et al., 1996), the SERVQUAL model (Parasuraman, Zeithaml, and Berry, 1985, 1988, 1991), the SERVPERF model (Cronin and Taylor, 1992), the Evaluated Performance (EP) and Normed Quality models (Teas, 1993), and the four-level Kirkpatrick model (Kirkpatrick, 1994). Due to the time constraints, the author could not organize a large number of respondent surveys to evaluate the quality of programs and courses, so the four-level Kirkpatrick model was used. The respondents were asked about their assessment of the programs and courses, based on the following four levels:

Level 1: Reaction - What does the learner feel about the training?

Level 2: Learning - What facts, knowledge, etc., did the learner gain?

Level 3: Behaviors - What skills did the learner develop and what new information is the learner using on the job?

Level 4: Results or effectiveness - What results occurred and did the learner apply the new skills to the necessary tasks in the organization, and if so, what results were achieved?

In this study, productivity courses and programs are evaluated in terms of quality. The evaluating methods are presented in the methodology section.

## Current Problems

In 2015, the Ministry of Labor, Invalids, and Social Affairs (MOLISA) and the General Statistics Office (GSO) reported the high proportion of untrained labor in Vietnam. According to the report, in the first quarter of 2015, there were about 53.64 million people in the labor force in Vietnam. Among them, 78% have not been trained (MOLISA and GSO, 2015). The rest have been trained; 22% of this group possess three-month training certificates. Among these workers, about 4.3 million have university degrees, equivalent to 36.39%. Others have lower level of education or even short-term training certificates. Thus, more training courses, especially productivity training courses, should be given to workers.

The other reason for conducting this survey is that the quality of productivity courses and programs needs to be improved. In order to do that, it is necessary to evaluate the training courses and programs and explore any opportunities for improvement.



## Research Questions

The research questions are as follows:

- (i) What are the productivity courses and programs in Vietnam?
- (ii) Which institutions offer productivity courses and programs in Vietnam?
- (iii) What is the quality of productivity courses and programs in Vietnam?
- (iv) What are the national policies and programs for productivity improvement in Vietnam?
- (v) What are the results of the national programs for productivity improvement in Vietnam?
- (vi) What are the implications of expanding and improving productivity courses and programs in Vietnam?

## Research Framework

The study focuses on two types of training institutions: organizations that provide productivity courses and programs for non-students, and universities and colleges that offer courses to students pursuing undergraduate and postgraduate degrees.

Based on the four-level Kirkpatrick model, questionnaires were developed. The contents of the questionnaires are presented in the next part.

There were two types of data used: secondary and primary. Secondary data were collected from sources such as books, journals, the Internet and reports from training institutions. Primary data were collected through questionnaires, surveys, and interviews.

Two types of questionnaires were used. The first was used for training institutions such as colleges, universities, and companies. Table 7.1 shows the contents of the first type.

**TABLE 7.1**

### BRIEF CONTENTS OF QUESTIONNAIRES FOR INSTITUTIONS

Serial No.	Contents
1	To explore which productivity courses are provided by institutions
2	To know numbers of productivity courses
3	To learn the numbers of teachers providing productivity courses
4	To learn numbers of trained people
5	To learn the main merits and problems associated with design and running each type of course or program with respect to issues such as quality of courses, availability of re-source persons, and facilities required
6	To learn the future plan in terms of offering productivity courses and programs

**Source:** Conducted by author

The second type of questionnaire was for learners. It included two slightly different forms for students in universities and learners of on-demand courses. Each consisted of five parts. They

covered the learners' feelings about the training courses and programs, the knowledge they gained, the skills they have, the results after completing the courses and programs, and their ideas to improve the quality of the courses and programs.

The questionnaires were distributed and collected by the author from July 2015 to February 2016. Some questionnaires were distributed and collected through e-mail and the majority by direct survey. Each respondent in the direct survey was met to fill in the questionnaire or to be interviewed. The length of the questionnaire was two pages for institutions and one page for learners. They were designed in both Microsoft Word and Google Docs formats. It took the respondents about 15 to 20 minutes to answer all the questions. This is considered the most appropriate amount of time to give the respondents enough concentration and motivation to answer. After seven months, the author collected information from 26 training institutions and 66 learners, of which 10 learners were interviewed for detailed information about their productivity courses. Microsoft Excel software was used to process data.

## Findings of the Study

Based on the questionnaire survey, certain observations were made related to the functioning of productivity training courses and programs by various training institutions in the country:

### Quality management and productivity courses at public institutions

#### Bachelor's degree programs

Among universities, academies, and colleges in Vietnam, there are two universities that offer bachelor's degree programs on quality management. They are the National Economics University in Hanoi and Ho Chi Minh City University of Economics. The courses offered by these two universities are shown in Table 7.2.

**TABLE 7.2**

#### BACHELOR'S DEGREE COURSES ON QUALITY MANAGEMENT

Courses by National Economics University in Hanoi	Courses by Ho Chi Minh City University of Economics
Quality Management	Advanced Quality Management
Productivity Management	Quality Management System
Service Quality Management	Quality Techniques 1
Standardization	Quality Techniques 2
Quality Statistics	Six Sigma

Source: Result of the survey

In addition to the above courses, students in these two universities also take productivity courses such as lean management, customer satisfaction management/measurement, ISO 14000, and business re-engineering. These are either offered by other departments or the contents are embedded in other courses.

The National Economics University and Ho Chi Minh City University of Economics are also the two institutions that have quality management departments which specialize in providing productivity and quality management courses. They also train undergraduates major in quality management. On average, there are about 130 to 150 graduates in quality management annually. These graduates are considered productivity and quality specialists. Many of them are now in the position of quality managers, teachers, and consultants in productivity and quality management in Vietnam.

### Master's degree programs

Master's degree programs in business management, specializing in quality management, are offered by the National Economics University. Students study subjects such as quality improvement tools, business process management, quality management system, business re-engineering, and modern business management. There are about five to eight postgraduate students in these programs annually.

### Productivity courses

The survey revealed that among public institutions, many offered productivity courses.

Domain I: Several courses such as quality management, productivity management, quality control, and quality assurance are offered in universities. Among these courses, quality management is the most popular. It is offered by 16 out of 20 surveyed universities.

Domain II: Many courses on productivity tools and techniques are offered in public training institutions. They can be classified into:

- (i) Technology based: Enterprise Resources Planning, Material Handling System, Energy Conservation, Technology Management, Technology Transfer, Technology Innovation, Technology Upgrading, Information Management System, and IT
- (ii) Employee based: Team Management, Job Management, Motivation Management, and Management Skills
- (iii) Product based: Market Research, New Product Development, and Quality Function Deployment
- (iv) Task based: Job Analysis, Job Evaluation, Production Scheduling, Key Performance Indicators, and Performance Management
- (v) Material based: Inventory Management, Supply Chain Management, and Purchasing Management
- (vi) Quality based: Service Quality Management, Operations Management, Lean, Six Sigma, Kaizen, Statistical Process Control, Quality Control, Quality Management System, ISO 9000, Quality Statistics, Quality Tools, Quality Improvement Tools, Customer Satisfaction Management, Customer Relationship Management, and Leadership for Quality
- (vii) Cross functional/Interdisciplinary: Environment Management System, Production System, Service System, Knowledge Management, Process Management, Process Improvement, Corporate Social Responsibility, Logistics Management, Standardization, Business Re-engineering, R&D Management, Risk Management, and Management of Change

### Customized courses for enterprises

Whereas the contents of courses offered to students in universities are similar, customized courses for enterprises offered by universities are varied from different fields. Some of the well-known state organizations offering productivity courses are:

- (i) The Assistance Center (TAC) for Small- and Medium-sized Enterprises in Hanoi and Ho Chi Minh City

TAC for Small and Medium-sized Enterprises was established in 2001, initially known as the Technical Assistance Center for Small and Medium-sized Enterprises. There are three TACs: in Hanoi, Da Nang and Ho Chi Minh City. TACs are state organizations that belong to the Ministry of Planning and Investment. Each center operates independently and is funded by state budget. The major roles of TACs are as follows:

- (a) Organizing training courses for SME leaders and managers
- (b) Providing consultancy services and information, especially technology information to SMEs
- (c) Implementing business networking and promotion activities
- (d) Implementing state supported activities
- (e) Supporting the Ministry of Planning and Investment in policy formulation and implementation

TAC Hanoi is in charge of providing courses and consultancy services to 30 provinces and cities in Northern Vietnam. The center has 42 staff members, including 21 engineers, four masters, and one doctor. The center specializes on various courses, including Entrepreneurship, New Product Development, Technology Transfer, Quality Control, Equipment Management and Improvement, and Business Management. In 2012, TAC Hanoi organized 201 courses, of which 30 were on entrepreneurship and 171 on business management. There were 8,505 students from 2,269 SMEs. Between 2013 and 2015, TAC Hanoi offered more than 350 courses to more than 10,000 students from over 1,000 enterprises. Courses were mostly short term. Appendix F shows the questionnaire on these courses and programs.

While TAC Hanoi mostly offers short-duration courses, TAC Ho Chi Minh City (TAC HCM) focuses on medium-duration courses. Table 7.3 shows the courses that are offered by TAC HCM.

**TABLE 7.3**

**COURSES OFFERED BY TAC HCM**

Course	Duration
Quality Improvement	7 days
Quality Management	7 days
Quality Management in Fishery Enterprises	7 days
5S-Kaizen	7 days
Enterprise Management	7 days
Value Chain Analysis in Agriculture	7 days
Marketing Management	3 days
Trademark Management	3 days
Management Skills	3 days
Corporate Culture	3 days
Sales Skills	3 days
Teamwork Skills	3 days
Operation Management	3 days

Source: [www.smetac.gov.vn](http://www.smetac.gov.vn)

From 2013 to 2015, TAC HCM organized more than 300 courses all over Southern Vietnam. In addition to providing productivity courses under the responsibility of the Ministry of Planning and Investment, TAC HCM also cooperates with other organizations such as the Japan International Cooperation Association, the Korea International Cooperation Association, and the Gyeongsangnam Representative Office in delivering training courses.

(ii) Public institution training programs for enterprises

Public universities, colleges, and institutes not only offer courses to students. These institutions also design training programs for enterprises. The relevant departments and faculties in these institutions are in charge of these courses. They work directly with enterprises in providing the courses. While most of the trainers are from these institutions, in some cases, outside trainers or experts are invited to disseminate lectures.

Enterprises can custom-order courses from institutions or express their need for training programs. The institutions then implement training needs assessments to personalize courses. In Vietnam, such institutions are the National Economics University, the University of Economics and Business at the Vietnam National University, the Hanoi University of Technology, the Vietnam University of Commerce, the Hanoi University of Industry, and the Hanoi Industrial Textile Garment University. Some universities also cooperate with state organizations such as the Ministry of Planning and Investment, the Ministry of Industry and Trade, and the Ministry of Agriculture and Rural Development in delivering training courses. The following are details of the courses offered in some of these institutions.

(a) National Economics University

The National Economics University (NEU) is one of the leading universities in economics and business management training in Vietnam. In addition to delivering productivity and quality management training programs in both bachelor's and master's levels, some faculties of the university also provide productivity courses. Among these faculties, the NEU Business School, the Faculty of Business Management, and the Banking and Finance Institute are the most successful. Courses differ from each faculty.

(b) University of Economics and Business (UEB) at Vietnam National University, Hanoi

The UEB at the Vietnam National University was established in 2007, known initially as the Department of Political Economics of General University. To date, the UEB has more than 100 teachers who conduct on-demand training courses for enterprises.

Most of the training courses are tailor-made. Often, the UEB spends time on training needs assessment to determine which courses should be given to customers. From 2013 to 2015, the UEB had organized hundreds of courses for enterprises. In addition to that, the university had set up strategic relationships with customers and provided long-term training programs for them. Examples include strategic relationships with PetroVietnam Power, Hapro, and the People's Committee of Phu Tho province. Multi-module courses are designed for these organizations annually.

### Productivity training in private training institutions

(i) Vietnam Chamber of Commerce and Industry (VCCI)

The VCCI is a non-governmental organization with missions of supporting enterprises and fostering economic trade, commerce, and technical cooperation between Vietnam and foreign countries. The VCCI was established in 1963. Its functions are twofold:

- (a) To represent the Vietnamese business community in promoting and protecting their lawful and legitimate interests in domestic and international relations
- (b) To promote the development of business enterprises and entrepreneurs, to foster cooperation among business entities, and to offer assistance in trade and investment, and to encourage economic and technological cooperation and other business activities in Vietnam and abroad.

The VCCI has its headquarters in Hanoi and six branches in Ho Chi Minh City, Can Tho, Da Nang, Nghe An, Thanh Hoa, and Hai Phong provinces. The organization has several units in charge of providing training such as the College of Business Administration and Management, the Institute of Enterprise Development, and the Women Entrepreneurs Council. A wide range of productivity courses are offered by the VCCI.

Currently, the VCCI has more than 10,000 members all over the country. In addition to providing courses for members who are enterprises, the VCCI also organizes numerous workshops to facilitate the sharing of information and knowledge among members. Fee discounts are often given to members when they participate in these courses.

(ii) Associations

In Vietnam, there are many business associations that often organize productivity courses. Some of the well-known providers of productivity courses include the Vietnam Association of Small and Medium Enterprises (VINASME), the Hanoi Small and Medium Enterprise Association (HASMEA), the Vietnam Textile and Apparel Association (VITAS), and the Ho Chi Minh City Association of Apparel, Textile and Embroidery (AGTEK).

Among these, VINASME and VITAS have highest members. VINASME has many units, including 53 associations in cities and provinces all over Vietnam. VITAS also has association members in cities and provinces around the country. Each member could ask the head office for support in organizing training courses for regional enterprises.

Business associations also cooperate with foreign organizations in offering training courses. For example, in December 2015, VITAS in cooperation with Vietnam Apparel and Textile Cooperation and the Japan Ministry of Economics, Trade, and Industry organized a course on production management for 32 VITAS members. The five-day course, disseminated by a Japanese production expert, focused on designing processes, task management, machinery election, layout management, trimming skills, and production improvement, among others. Business associations also often have long-term partnerships with foreign organizations in training.

(iii) Projects

Vietnam is a low-middle income country and exports necessary goods such as foods and garments to developed countries. In order to help enterprises in Vietnam work more effectively and produce high-quality products, these countries often support Vietnam through governmental and non-governmental projects. For government projects, the recipient should be a Vietnamese state organization. These projects are implemented with the cooperation of both partners. For non-governmental projects, the Vietnamese

partner may be a state organization, an association, or even a private enterprise. Either way, the support is direct to enterprises. An example of such a project is the Hanoi Business Incubator (HBI).

HBI is a project on Hanoi food processing and packaging. Established in 2004 by the government under European Union aid, the project is part of the Support Programs for private sectors in Vietnam. The objective of the HBI is to create a favorable environment for SMEs by providing them with equipment, building, technology, consultancy services, networks, and office services for a period of two to three years. The HBI organized a number of productivity courses for enterprises in the food industry.

From 2005 to 2008, the HBI selected eight enterprises to incubate. Of them, five achieved significant results. A total of 23 courses were organized and nearly 200 jobs were created. In the period of 2009 to 2012, 22 enterprises were selected and 11 of them were successful. There were 43 courses with 1,578 learners from the food processing and packaging enterprises. New businesses that were incubated created approximately 500 jobs. As a result of the incubation, many new products were introduced such as canned fish, grilled chopped fish, grilled chopped squid, and products from chicken, meat, rabbit, chili, and garlic as well as hibiscus wine, jelly, cooking oil, and baby milk.

(iv) Private organizations

In Vietnam, there are a lot of private training companies. Most of them are located in Hanoi and Ho Chi Minh City, the two biggest economic centers in the country. There is a wide range of courses offered by these organizations. Two of these private companies are detailed as follows:

(a) Top Man Joint Stock Company

Established in 2011 in Hanoi, Top Man JSC's vision is to become one of the top training organizations in Vietnam in delivering productivity and quality courses, especially courses on 5S and ISO 9000, to help 10,000 enterprises achieve effective, lean management systems. With the slogan "Customer is the first, people are the most important," the company's commitments are:

- Always understand and meet customer expectations
- Always provide on-time and high-quality service
- Collaborate with qualified experts
- Continuously improve on the company's quality management system
- Build and develop a customer-oriented culture that addresses creativity and professionalism
- Dedicate to the development of Vietnam, implement employees' wishes, and increase the value of the company

Since its establishment, the company has organized hundreds of training courses.



Currently, Top Man JSC has five full-time trainers and 25 part-time trainers on productivity and quality management. In addition to offering courses, Top Man JSC also provides management consultancy services, helping enterprises apply for international management systems such as ISO 9001:2015, ISO 14000, OHSAS 18000, ISO 22000, ISO 27000, ISO 50000, SPC, and ISO/IEC 17025.

(b) PTI Training Joint Stock Company

PTI Training JSC was established in 2008 in Hanoi. Its missions are to provide training courses on improving business management capabilities of entrepreneurs. One of PTI Training JSC's strengths is providing practical courses that help learners apply themselves better in their jobs. PTI Training JSC is considered the fastest developing training organization in Vietnam. The majority of its courses are organized in Hanoi and Ho Chi Minh City, while some are organized in provinces such as Hai Phong, Thai Binh, Da Nang, and Can Tho.

PTI Training JSC also provides on-demand courses for enterprises. To date, the company has organized over 1,566 courses for more than 87,000 learners. Customers have experienced significant and quantifiable success with its training and effective solutions. About 83% of learners take repeated courses. The number of trainers increased to 126 with long-term commitment. In addition to training, the company also provides consultancy services to enterprises. To date, 158 consulting projects have been implemented.

## Existing National Policies and Programs on Productivity Improvement

### Current policies

The National Programs themed “Improving Productivity and Quality of Products and Goods of Vietnam’s Enterprises in 2020” was developed by the Ministry of Science and Technology and formally approved by the prime minister in May 2010. At present, this is the most important and dominant policy that has been planned for adoption in various sectors of the economy to boost productivity. The following are some information about the programs (the government of Vietnam, 2010):

#### Outlook of the programs

- (i) To improve productivity and quality of products and commodities based on: the applications of standards and technical regulations, advanced management systems, productivity and quality improvement tools, and science and technology and technological innovation.
- (ii) For the state to create the foundation and support for productivity and quality improvement. Enterprises play a key role in improving productivity and quality of products and services
- (iii) To integrate the program’s missions with the objectives of other national programs

#### Objectives of the programs

- (i) Overall objectives:
  - (a) To develop and apply a system of standards, technical regulations, management systems, and productivity and quality improvement models and tools; and develop essential human resources to improve productivity and quality of products and commodities



- (b) To create a marked improvement in productivity and quality of key products and commodities of enterprises to contribute to the socioeconomic growth of Vietnam
- (ii) Specific Objectives:
  - (a) Period between 2010–15
    - Build newly 4,000 national standards (TCVN), ensuring synchronous TCVN for major products and goods of the economy, aim for 45% of national standards that are harmonized with international and regional standards
    - Manage based on national technical standards for all groups of products or goods that are likely to endanger the safety, sanitation, and environment
    - Establish a network of organizations that specialize in assessing conformity with technical regulations and national standards for key products and goods
    - Organize productivity and quality movements in 40 provinces and cities throughout the country
    - Prepare a pool of productivity and quality specialists and consultants; and guide 40,000 enterprises to apply advanced scientific and technological innovation and to apply management systems and productivity and quality improvement models and tools
    - Aim for 40% of enterprises that manufacture key products and commodities to construct and implement productivity and quality-improvement projects
    - Contribute to increase the proportion of TFP in GDP to 30% by 2015
  - (b) Period between 2016–20
    - Develop 2,000 new Vietnam standards (TCVN) and harmonize 60% of the total Vietnam standards with international and regional standards
    - Aim for 100% quality laboratories for key products and commodities to meet international requirements
    - Guide 60,000 enterprises to apply advanced scientific and technological innovations, management systems, and productivity and quality models and tools
    - Implement productivity and quality movements in provinces and cities throughout the country
    - Aim for 100% of enterprises that produce key products and goods to develop and implement productivity and quality improvement projects
    - Contribute to increasing the proportion of TFP in GDP to 35% by 2020

### Strategic plan

In order to achieve the above objectives, the following tasks and projects were organized:

#### Program tasks

- (i) Develop the national standards system fully in all socioeconomic sectors, updated with the progress of science and technology, in harmony with international standards. Build sufficient national technical regulations for groups of products and goods that can endanger the safety, hygiene, and environment. Disseminate standards and technical regulations. Build a database system for the quality of products and goods, and a domestic warning information system that links to the international warning system.
- (ii) Build a network of organizations to assess conformity with technical regulations and national standards for key products and goods. Strengthen the ability of institutions that can provide the service of international conformity assessment. Invest in the construction of quality laboratories. Implement activities that mutually recognize results that conform with standards and technical regulations at all levels.
- (iii) Build a network of productivity and quality organizations and specialists. Train productivity and quality specialists and consultants. Train leaders, managers, and workers in productivity and quality. Add productivity and quality courses in training programs at vocational schools, business management training institutions, etc.
- (iv) Organize promotional activities to raise awareness on productivity and quality. Conduct productivity and quality movements in provinces and cities nationwide. Guide enterprises to apply advanced scientific and technological innovations, management systems, and productivity and quality models and tools. Create integration between management systems and tools.
- (v) Identify key products and goods of Vietnam. Identify quality requirements of products and goods to meet market demand. Select enterprises to manufacture key products and goods. Construct and implement productivity and quality projects.
- (vi) Assess the quality of products and goods. Measure the productivity of the economy, industries, and enterprises.

#### Program projects

##### Project 1: Develop and apply standards, technical regulations

- (i) Content: Develop and apply technical standards and regulations; develop a network of standard conformity assessment organizations; invest in constructing quality laboratories
- (ii) Chaired by: the Ministry of Science and Technology

##### Project 2: Promote productivity and quality activities

- (i) Content: Disseminate information, train, and improve knowledge on productivity and quality; strengthen the application of management systems and productivity and quality improvement models and tools; promote the application of advanced science and technology, and technological innovations; evaluate the quality of products and goods; measure the productivity of the economy, industries, and enterprises
- (ii) Chaired by: the Ministry of Science and Technology

##### Project 3: Improve productivity and quality of products and goods of the industrial sector

- (i) Content: Improve productivity and quality of products in key and priority industries on the basis of application of solutions that are suitable to the characteristics of industries and enterprises; innovate technology and apply advanced technology to improve quality and value-added ratio in the domestic value of industrial products
- (ii) Chaired by: the Ministry of Industry and Trade

Project 4: Improving productivity and quality of products and goods in the agricultural sector

- (i) Content: Improve productivity and quality of key products in the agricultural sector; apply and transfer advanced science and technology in production, cultivation techniques, and applications of new plant and animal varieties; apply and innovate technology in raising, processing, and preserving the value of key agriculture, forestry, and fishery products and goods for export
- (ii) Chaired by: the Ministry of Agriculture and Rural Development

Project 5: Improving productivity and quality of products and services in the information and communication sector

- (i) Content: Improve productivity and quality of key products and services in the information and communication sector, especially in manufacturing information and communication equipment; strengthen the ability of testing the quality of information communication equipment; raise the capacity of R&D; apply technological innovation to improve product quality of switchboards and terminals to meet national, international, and export market standards
- (ii) Chaired by: the Ministry of Information and Communications

Project 6: Improving productivity and quality of products and services in the construction industry

- (i) Content: Improve productivity and quality of products and services in the construction industry, especially in producing construction materials on the basis of the application of solutions in line with specific agencies and enterprises; use advanced technology and select appropriate equipment to ensure production of high-quality products that conform to national and international standards; save mineral resources, reduce fuel costs, and stay environmentally friendly
- (ii) Chaired by: the Ministry of Construction

Project 7: Improving productivity and quality of products and services in the health sector

- (i) Content: Improve productivity and quality of products and services in the health industry, especially in producing vaccines, pharmaceuticals, and health equipment on the basis of the application of solutions and measures; apply advanced technology in the production of traditional and essential medicines, vaccines, biological products, and medical equipment; invest and strengthen the testing quality of medicines and pharmaceutical products to meet the international level for production, and for import and export
- (ii) Chaired by: the Ministry of Health

Project 8: Improving productivity and quality of products and services in the transportation sector

- (i) Content: Improve productivity and quality of products and services in the transportation sector, especially in producing means of transportation and equipment on the basis of the application of solutions; invest and strengthen the testing quality of specialized products

and technological innovation; apply advanced technologies in the production of key products and services with high localization ratio; achieve export standards or the equivalent in quality of the same products in foreign countries

- (ii) Chaired by: the Ministry of Transport

Project 9: Improving productivity and quality of products and services of SMEs in localities

- (i) Content: Improve productivity and quality of products and services in local areas on the basis of the application of solutions; direct enterprises to exploit information on quality standards, technical regulations, technology and information on industrial property to put into production practice and business; replace obsolete technology, apply advanced technology, and master the technology transferred from foreign countries into Vietnam
- (ii) Chaired by: the People's Committees of provinces and cities

**Program solutions**

- (i) Financial solutions
  - (a) Expenses for the implementation of the programs are mostly covered by enterprises. The state pays for the development of standards and technical regulations, for the strengthening of the testing quality of products and goods, for the training of experts and consultants on productivity and quality in the ministries, agencies, and localities; for the dissemination and mobilization of information and communication for productivity and quality; for the improvement of productivity and quality with guidelines in the application of management systems, models, and tools
  - (b) Tasks, projects, and activities are planned and implemented annually
- (ii) Organization and human resource solutions
  - (a) Develop a network of organizations and individuals working professionally in productivity and quality management throughout the country
  - (b) Train trainers, experts, and consultants on productivity and quality management in various organizations such as ministries, branches, localities, and enterprises.
- (iii) International cooperation
  - (a) Cooperate with international organizations to train and improve the qualifications of staff and experts on productivity and quality management
  - (b) Enlist international cooperation to support and strengthen the capacity of testing the quality of products and goods to implement activities to assess conformity with standards and technical regulations
  - (c) Sign bilateral agreements on mutual recognition of results of conformity assessment at the national level
- (iv) Program management
  - (a) The Ministry of Science and Technology establishes a Programs Executive Board directed by the Minister of Science and Technology. Members are representatives

of the Ministries of Planning and Investment, Finance, Industry and Commerce, Agriculture and Rural Development, Information and Communication, Construction, Transport, and Health

- (b) The Ministry of Science and Technology (General Directorate for Standards and Quality) is a standing body of a Programs Executive Board

### Projects and courses designed to implement the policies and strategic plan

A number of projects and courses have been designed and implemented in the National Programs themed Improving Productivity and Quality of Products and Goods of Vietnam's Enterprises in 2020. Table 7.4 shows the list of these projects and courses.

On 14 December 2014, a meeting on the implementation of the National Programs was organized by the Directorate for Standards, Metrology, and Quality and several standing bodies. A report by the Vietnam National Productivity Institute showed that in the period of 2011 to 2014, among 10 planned projects, four were implemented. A total of 740 enterprises have received support to apply management standard systems and productivity and quality improvement models and tools such as ISO 50001, ISO 31000, ISO 22000, ISO 9001, Lean, MFCA, TPM, and Seven QC tools. The state funded about VND251 billion, equivalent to USD 1.22 million.

**TABLE 7.4**

### LIST OF PROJECTS AND COURSES

Projects	Project 1: Develop and apply standards and technical regulations
	Project 2: Promote productivity and quality activities
	Project 3: Improve productivity and quality of products and goods of industry sector
	Project 9: Improve productivity and quality of products and goods of SMEs in localities
Courses	ISO 9001:2008
	ISO 22000:2007
Courses	Productivity improvement tools (daily management, total quality management, Lean, KPI, integrated management system)
	Productivity measurement and lean production system
	Material Flow Cost Accounting - MFCA (ISO 14051:2011)
	Product safety and quality
	OHSAS 18001:2007
	Productivity specialist
	Improving productivity by 5S
	Continuous improvement
	SPC
	Value chain analysis
	Waste recognition in Vietnam enterprises
	Standardization
	Quality and quality management
	Measurement and measurement management
	International standards

Source: Project summary report

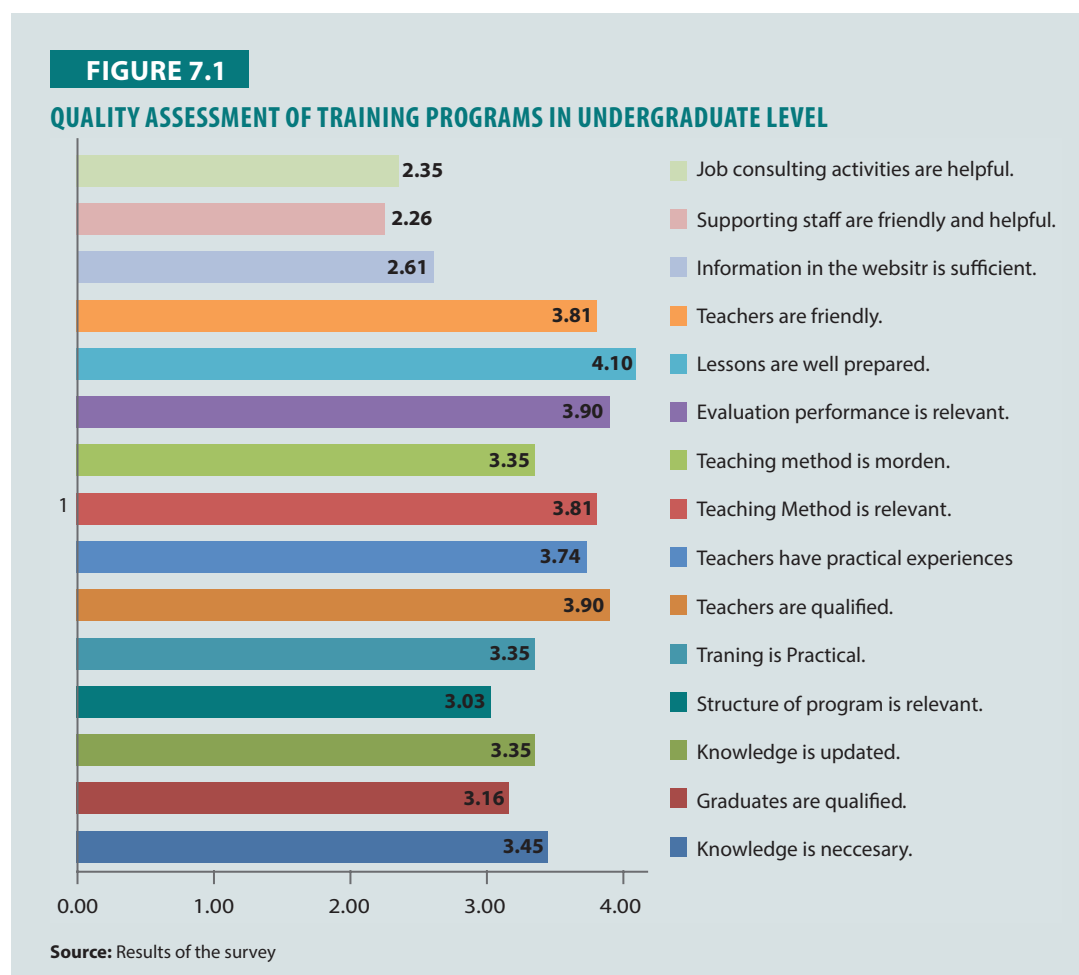
## Results of the National Programs

### Quality of productivity courses and programs

The majority of the survey statements were followed by a scale (5 grades, from “totally disagree” to “totally agree” options). In the following analysis, the two lowest grades (1-2) are grouped as negative opinion, the third grade (3) as neutral, and the two highest grades (4-5) as positive opinion.

It is not easy to assess whether respondents were satisfied with the training programs they participated in at universities. The results of the survey revealed that among 32 respondents who were either fourth-year students or recent graduates, most (59.4%) were neutral with regard to this issue, with more negative views (28.1%) than positive (12.5%).

Among three criteria - training programs, teachers, and service support - respondents seem to be dissatisfied with service support. Their evaluation of information in the website, supporting staff, and job consulting activities were the lowest and less than the average level. The average score for service support is lower than 3, indicating that the majority of respondents were not satisfied with service support. Respondents seem to be more satisfied with teachers than training programs as shown in Figure 7.1. Given these statements, learners' opinions about the training programs were also assessed.



Again, it is not easy to learn customer loyalty by asking respondents whether they will sign up for advanced level programs in universities in the future as among respondents, 28% were neutral with regard to this issue, with more positive (40.7%) than negative (31.3%).

Figure 7.2 shows assessment based on the Kirkpatrick model by respondents. According to this model, the quality of training programs was evaluated based on four levels of feelings, knowledge, skill, and results occurred. Feelings of the programs are given in Figure 7.1. The last three levels of knowledge, skill, and attitude are shown in Figure 7.2. It can be said that the majority of respondents agree with the statement that they gained knowledge and a changed attitude after participating in training programs. A large proportion of respondents were neutral with regard to the statement that they develop skills after being trained, with the positive (43.75%) being much higher than the negative (9.38%).

### Quality of On-demand Productivity Courses

Figure 7.3 shows the respondents' assessment of some productivity courses. Learners seem to be the most satisfied with the meeting room, the encouragement of learners' participation and interaction, and the learning objectives. The overall mean value of learners' perceptions with respect to these statements are higher than 4.0 as shown in Figure 7.3. Learning materials seem to make learners the most dissatisfied as the average score is the lowest, coming in at under 3. Learners quite agree with the remaining statements.

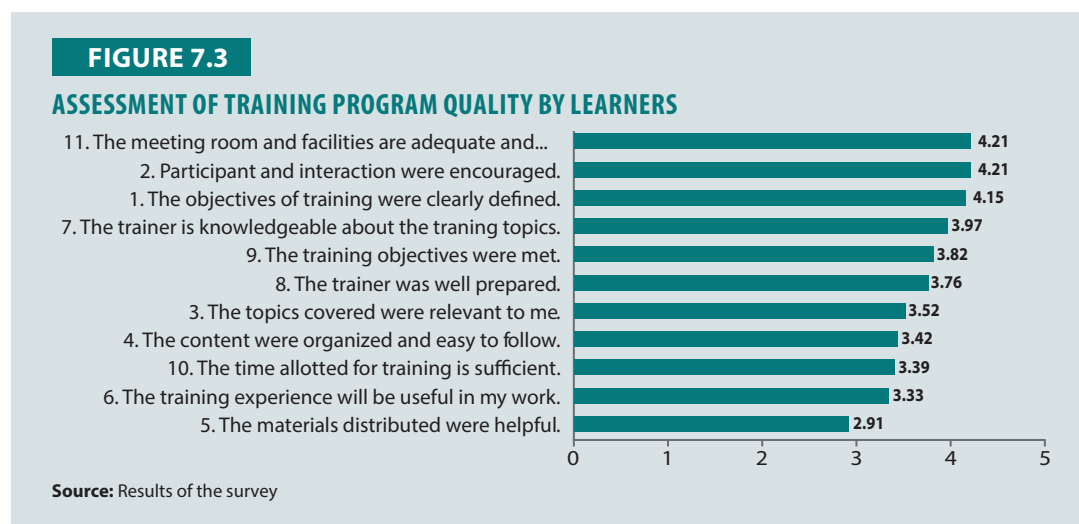
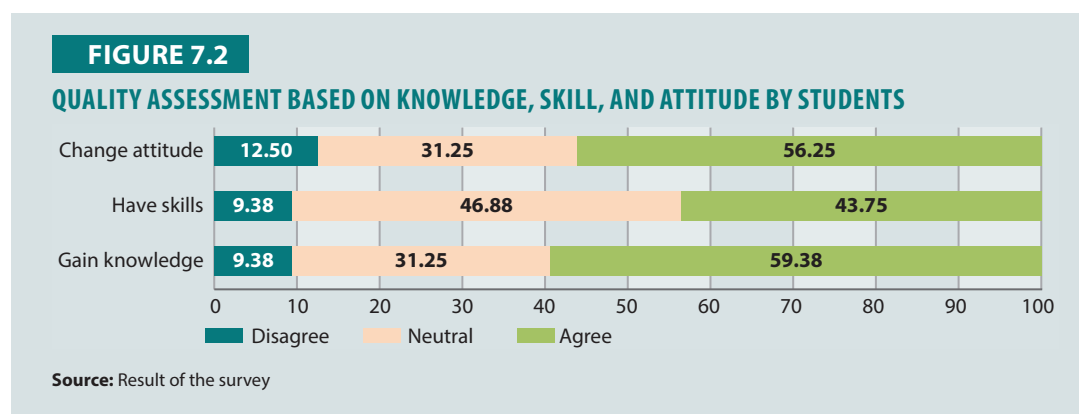
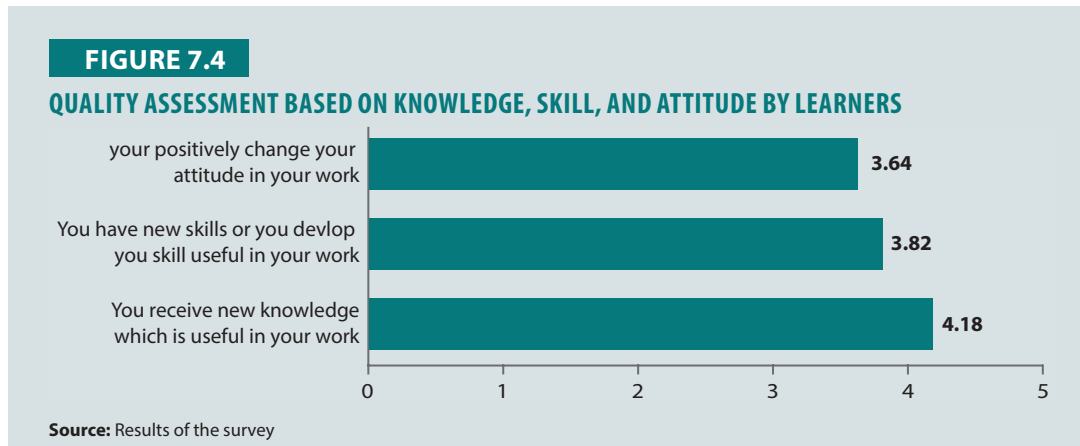


Figure 7.4 shows respondents' assessment of the quality of productivity courses with respect to knowledge, skills, and attitude. The overall mean values of learners' assessment are all higher than 3.5. It means that respondents quite agree that they received new knowledge that is useful in their work, they have new skills or have developed their useful skills for work, and they have positively changed their attitude towards their work.



Among the surveyed respondents, 53% were satisfied with the training courses, nearly 6% were dissatisfied, and 41.18% were neutral. The weaknesses that were reported were addressed to improve course quality.

## Evaluation of the Existing Courses and Programs

### Training programs in universities

The results showed that learners were quite satisfied with the training programs. After three years and a half or four years, students are rather confident with their knowledge of productivity and quality management. They have basic knowledge on productivity and quality management such as quality planning, quality assurance, quality control and improvement, and productivity measurement and improvement. They are also able to apply quality techniques such as SPC, 5S, QFD, and QC to implement quality management activities and they know how to write quality manuals, working procedures, process flowcharts, and work instructions. In addition, they are trained to improve their skills in presentation, communication, time management, stress management, and problem solving, among others. Responses from recent graduates revealed that the training curriculum has been helpful to their careers.

Good practices aside, there were also some weaknesses of the productivity programs offered by the universities. Weaknesses were fourfold:

- (i) Training program structure - the survey revealed that students complained about the number of courses on theory. At present, the programs include many basic and required courses such as Political Economics, Ho Chi Minh Ideology, Philosophy, History of the Communist Party, Basic Informatics, etc. However, the courses on business practices are few. Each major has five required 3-credit courses and four elective 2-credit courses.
- (ii) Teachers - some lacked practical business knowledge. Some did not have interesting teaching methods. Most of the time, teachers presented lessons and students listened and wrote in their notebooks. Although students often had a presentation or project in each course, the teaching method was still considered boring. For some courses, guest speakers are recommended to support learning. Students will have opportunities to gain real insights into management practices.
- (iii) Staff - their services were not highly rated. According to the learners, staff members were often too busy and thus students' requirements were not met on time. The staff's responsiveness and courtesy also fell short of the students' expectations.



- (iv) Support services - libraries, information services, dormitories, canteens, and parking were not highly rated. There were complaints about staff attitudes in these services.
- (v) Reading materials - these were not highly rated. In some courses, text books were not fully updated. Besides text books, reading materials were not sufficient.

### On-demand training courses and programs

According to the results of the survey, learners were quite satisfied with the training courses and programs. Generally, courses are designed based on training needs assessment. Course objectives are clearly defined and met. Course contents are relevant and useful to learners, well organized, and easy to follow. Trainers are knowledgeable about the course topics and well prepared. However, some weaknesses still exist. These include:

- (i) Contents of courses are theoretical and general but not practical. In some courses, topics are mostly theoretical and far from reality. Teachers focused too much on concepts and models and learners have difficulties applying them to their work.
- (ii) Some teachers lack practical experiences. Some do not have attractive methods of knowledge delivery. As a result, learning effectiveness is not high.
- (iii) Learning materials are not really useful for learners. In some courses, reading materials are quite different from the course content. In some, reading materials are just printed slides of the presentation.

## Suggestions for Improvement

### Suggestions to universities

- (i) There should be fewer courses on theory and more courses on business practices instead. Some courses such as Ho Chi Minh Ideology, History of the Communist Party, and Philosophy should be shortened or restructured as seminars or workshops, which could be organized in one class and excluded in training programs. More specific subjects on business practices should be added to the programs.
- (ii) With regard to teachers, there should be some “training of trainers” courses given to teachers. Courses should be about both teaching method and knowledge of business practices. Courses on business practices should be in the form of field trips, study trips, seminars, workshops, etc. International resource experts should be engaged to improve teacher capabilities. Productivity and quality managers or experts should be invited to speak with students about the realities of management practices.
- (iii) Service staff should be trained in order to improve their responsiveness and courtesy. Internal training should be organized to change staff attitude in providing internal services.
- (iv) There should be assessments of customer satisfaction towards the quality of support services such as libraries, information services, dormitories, canteens, and parking. Students’ complaints about these services should be collected and solved.
- (v) Reading materials should be improved. Text books must be fully updated and reading materials need to be sufficient and relevant to courses.

### Suggestions to training institutions

- (i) The process of training needs assessment in training institutions should be improved. Learners' needs should be identified, and based on that, the contents of the courses should be conducted.
- (ii) Like teachers in universities, training institutions should assess trainers based on learners' evaluation. If there is any evidence that trainers could not meet learners' expectations, "training of trainers" course should be given to teachers. Based on the evaluation of learners, training institutions need to identify areas for improvement, for example, enhancing knowledge, practical experiences, etc.
- (iii) Learning materials should be useful for learners' work. Since learners aim to deepen knowledge and develop skills to improve their work, reading materials should focus on business practices.

### Implications to Related Organizations

To develop and improve productivity courses, there should be support from organizations such as the Ministry of Science and Technology, especially the Vietnam National Productivity Institute (VNPI), which is under the purview of the Ministry of Science and Technology, the Ministry of Planning and Investment, and associations.

The VNPI is authorized to be a permanent representative of Vietnam in the APO to coordinate and implement the APO's programs and projects. With the mission of contributing to the socioeconomic development of Asia and the Pacific through enhancing productivity, the APO has a network of productivity experts around the world. Thus, VNPI is a conduit of relationship with experts through the APO. The VNPI can support training institutions in Vietnam in expanding and improving productivity courses through several ways. Firstly, the institute could allow trainers from institutions participate in productivity courses organized by the APO either inside or outside Vietnam. These courses can help learners update their knowledge and skills in productivity management. Through the participation of courses with foreigners, Vietnamese trainers can also strengthen their relationship with each other and enhance knowledge sharing. Secondly, since the VNPI has qualified trainers in productivity management, it can help other training institutions organize courses for either trainers or learners. Thirdly, the VNPI could organize a network of productivity management trainers and consultants so that members can share knowledge, skills, and experiences of productivity management.

The Ministry of Science and Technology can support institutions in expanding and improving productivity courses in several ways such as giving annual grants to projects that enhance productivity teachers' capabilities or create productivity movements related to the development of productivity courses. Other ministries such as the Ministry of Planning and Investment, the Ministry of Agriculture and Rural Development, and the Ministry of Industry and Trade can support their training institutions in expanding and improving productivity courses.

### Critical Success Factors

In order to expand and develop productivity courses, factors influencing the quality of training courses should be addressed so that factors that have positive impact can be promoted, while factors that have negative impact may not be considered. These factors are stated in Table-7.5.

TABLE 7.5

## FACTORS INFLUENCING QUALITY OF PRODUCTIVITY TRAINING

Internal factors	
Trainers	The better the trainers, the better the quality of training programs or courses. Experienced and well-qualified trainers play an important role in the development of good training programs, which can lead to satisfied learners and contribute to the development of institutes.
Teaching methodology	The better the teaching method, the better the quality of training programs or courses. If teachers use interactive methods of knowledge delivery - implemented through questions and answers, discussions, exchange of thoughts, experimental projects, case studies, and cooperative learning - learners will get introduced to practical experiences and real-life scenarios. This will get them involved in teamwork to complete the course.
Teaching resources	The more appropriate and sufficient the teaching resources, the better the quality of training programs or courses. An institution must have a library, a digital library, journals, well-equipped laboratories and workshops, availability of teaching aids such as LCD projectors, overhead projectors, conference rooms, discussion rooms, and advanced computing system.
Management	The better the management of the institute, the better the quality of the institutes.
Supplementary services	The better the supplementary services, the better the quality of training programs and courses.
External factors	
Learners	The output of the training process depends on learners. The native capacity of learners is of prime importance in determining the effectiveness of the learning process. Success in learning is generally closely related to the level of the intellect. The learner with high intelligence often finds it easier to learn than those with low intelligence.
Other institutions	Other institutions may affect the quality of an institution. Quality is the “degree to which a set of inherent characteristics fulfils requirement.” The degree or level of a program that customers (learners) are satisfied with may be affected by the programs offered by other institutions.
Socio-culture environment	Learners of different socio-cultural environment may have different viewpoints, which lead to different expectations towards training programs and courses. In order to have the desired training results, the curriculum and other factors need to conform to the learners’ socio-cultural environment.
Economic situation of the country	The economic situation of the country may affect the quality of institutions. Research shows that poverty and education are related. Education reduces poverty in both rich and poor countries and is linked to economic growth. It means rich countries often have high-quality training institutions.

**Source:** Summary of secondary data and primary data from interview

## CHAPTER 8

# TRAINING SCENARIO IN INDIA: AN INTEGRATED FRAMEWORK

### Introduction and National Scenario

Over the past six decades, policies regarding productivity improvement have evolved through a number of stages. In the 1950s, the focus had been to foster, promote, and sustain, by all appropriate means, the cultivation of science and scientific research in all its aspects (pure, applied, and educational). Programs to train scientific and technical personnel on a scale adequate to fulfill the country's needs in science, education, agriculture, industry, and defense were also encouraged and initiated.

In the 1980s, the focus had been on the use of traditional skills and capabilities to make commercially competitive technology with maximum use of local resources. This was done while ensuring a correct mix of mass production technologies and production by masses, and identifying technological obsolescence and ensuring the modernization of both equipment and technology.

For the first two decades of the current century, the policy regarding productivity improvement is mainly geared towards building and maintaining organizations as centers of excellence to raise the level and quality of work in selected areas to the highest international standards. This is in addition to highlighting other conditions to create such as the integration of science and technology with all spheres of industrial activity, including SMEs and the organized sector of the national economy. In this context, the assurance of resource-optimized, cost-effective innovations and the development of a robust national innovation system are the two important areas that have direct relevance in productivity management.

The underlining principles in these policies have been to adapt effectively to the emerging technologies to enhance the skills and knowledge of human resources so that they can perform productively using sustainable productivity enhancement practices. For effective implementation of such policies, the government and the industries have been following a number of strategic actions such as technology upgrades in manufacturing and service sectors.

In order to get the maximum benefit at the national level in terms of increased GDP and improved standard of living, policies and corresponding strategic actions must be focused to meet the special requirements of industries and service sectors, prioritizing critical areas where performance improvement in totality has to be assured. Related issues such as capacity enhancement of the industries in general, effective collaboration among stakeholders, investment schemes that meet the interests of different industries, and performance and quality monitoring mechanisms are important considerations for designing and implementing an integrated and optimized productivity/performance management system in the industry.

In specific terms, policies and corresponding strategic actions are to be focused to meet the special requirements of manufacturing and service sectors, prioritizing critical areas where performance

improvement in totality has to be assured. Designing and implementing an integrated and optimized productivity/performance management system in an industry and its functional units is a prime necessity. A number of issues, in this context, need to be considered such as (i) capacity enhancement of the industries in general, (ii) effective collaboration among stakeholders (iii) investment schemes that meet the interests of different industries, and (iv) performance and quality monitoring.

The current national policies on productivity management highlight several objectives to be achieved:

- (i) Enhance skills for the applications of science among the young from all social levels
- (ii) Establish world-class infrastructure for R&D to gain global leadership in select frontier areas of science
- (iii) Position India among the top five global scientific powers by 2020
- (iv) Link contributions of science, research, and innovation systems with the inclusive economic growth agenda, and combine priorities of excellence and relevance
- (v) Create an environment for enhanced private-sector participation in R&D
- (vi) Promote resource-optimized and cost-effective innovations
- (vii) Create a robust national innovation system

## Government- and Industry-supported Programs

Over the years, there have been a large number of productivity improvement programs in different domains of productivity/performance management systems that highlight almost all dimensions. These are initiated and supported by the government through its various training centers and institutes of technology. Several engineering institutes, technical universities, and premier institutes of national importance - such as the Indian Institutes of Technology, the Indian Statistical Institute, the Indian Institute of Science, and the National Institutes of Technology - have been conducting training programs on different dimensions of productivity or performance. These programs have a two-fold objective: to develop knowledge in different aspects of productivity management among teachers/faculty members so that they become capable of offering courses on productivity and its related topics/disciplines, and to develop knowledge and skills among the industrial personnel working at different levels of organizations - strategic, tactical, and operational.

Notwithstanding the prevailing awareness among the stakeholders about the importance of establishing and maintaining a total productivity management system, the majority of such programs are designed and executed on important dimensions or aspects of productivity.

This is because the knowledge and skills in each dimension are a prime necessity in view of the product/process varieties, production volumes, and complexities involved in Indian manufacturing and service systems as well as the fast-changing requirements needed to meet the universal standards that match the existing state-of-the-art technology (Table 8.1).

**TABLE 8.1**

**AREAS OF TRAINING PROGRAMS ON PRODUCTIVITY MANAGEMENT AT INSTITUTES OF TECHNOLOGY AND THE NATIONAL PRODUCTIVITY COUNCIL IN INDIA IN THE PAST 10 YEARS**

Types of Institutes/ Training Centers	Areas of Training						Conference	Target
	Productivity	Quality	QWL	Innovation and Technology	Profitability	Tools and Techniques		
IITs	IITKGP	√	√	√	√	√	√	R&D, Industry, Educational Institute, Researcher
	IITB	√	√		√		√	
	IITR	√	√	√		√		
	IITK	√						
	IITD	√		√			√	
	NITIE	√		√	√			
NPC		√	√	√	√	√		Industry, R&D

The Indian economy is growing at a faster pace with the involvement of young entrepreneurs in important sectors, including SMEs, and the development of sustainable manufacturing and service systems. It is capable of withstanding external and internal pressures over time, with productivity management of resources (both physical and human) playing a key role in this effort.

The existing training programs need to be assessed and judged from a number of perspectives, including: (i) how these programs are perceived by new entrepreneurs, (ii) how they are related to the concept of sustainability of different manufacturing and service systems, (iii) how programs can be made self-sustainable (remaining relevant in all situations and times), and (iv) how organizations can be assisted to create a “critical mass” with specialized knowledge and skills in one or more of the elements and dimensions of productivity management.

The tools, techniques, and methodologies to be used to address these perspectives may be the main focus of many such programs. As different sectors of the national economy have different business and strategic plans for economic or financial performance, decisions regarding the contents, scope, training pedagogy, and duration of any programs are required to be based on the requirements and problem analyses of individual sectors/organizations/work units for which the programs are designed and executed. The compatibility of specific programs with the prevailing policies and strategies of an organization has to be ensured so that the system implementation by the “critical mass” on one or more aspects of productivity management becomes a reality and return on investment (ratio of expected returns in time streams and the cost of productivity study) remains acceptable and attractive.

## Overview of Current Training and Capacity Development Programs

In specific terms, there are a large number of programs being designed and executed by several institutes and training centers of India. The majority of these programs are expected to serve two main purposes: enhancement of knowledge and/or skills related to different categories of manpower engaged in industries, and capacity augmentation of human resources in different sectors, keeping in mind current and future requirements in constantly changing business and industrial scenarios. The characteristics of these programs may be discussed from a number of criteria:

- (i) Types of training programs: The majority of the training programs are focused on one or two specific dimensions of productivity. They are mainly sector specific and targeting personnel at the operational, supervisory, or management levels; few programs are exclusively for the personnel at the top management levels of the industry.
- (ii) Dimensions in focus: These programs are mainly oriented toward tools and techniques. Only a few dimensions such as physical productivity, profitability, and quality are emphasized. Other dimensions such as innovation and quality of working life (QWL) are not adequately focused. Integration and optimization aspects as highlighted in total productivity system development may not be covered. Programs on technology management, as part of the overall productivity improvement initiative, are few in number. Interface design aspects based on the principles of Ergonomics and Human Factors Engineering are not covered in the majority of such programs.
- (iii) Target industry/sector: The programs are mainly for manufacturing sectors. The service sectors and particularly white collar personnel working in all organizations are rarely considered. SMEs are not given adequate coverage or importance. Certain emerging sectors such as construction and IT are not included.
- (iv) Purpose and mode of training: There are two main types of training programs: short duration (one to two days) awareness training on one or a few dimensions of productivity, and longer-duration programs (one to several weeks) are designed and executed for participants. In certain cases, the programs are offered as workshops, either to participants representing different organizations/sectors or to particular organizations (in-house training) for an extended period, where project-based transfer of knowledge may be the main purpose. For participants' self-assessment as well as for the evaluation of these training programs, comprehensive evaluation schemes are implemented.

In order to reap maximum benefits from the training programs, an appropriate and comprehensive quality monitoring mechanism for each training program should be in place. The following issues and factors have assumed importance in the majority of Indian firms. Success of any training program and its continuation depends on how firms perceive these issues concerning business gains and significant improvements:

- (i) Usefulness with respect to the achievement of business/performance goals
- (ii) The level of adoption of new productivity improvement practices (including tools and techniques)
- (iii) To what extent assessment and evaluation become a regular practice and a way of life
- (iv) The level of management commitment (in terms of investment in new technology and continuous improvement)
- (v) The implementation hurdles that need to be overcome in promoting and introducing new approaches. It is imperative that before a training program is designed, an analysis of the requirements, with the involvement of prospective participants and other concerned officials of the organization, is carried out through brainstorming sessions, both extensively and intensively.



## Main Challenges

Although the institutes and training centers across the countries are aware of the issues as stated, and they attempt to offer programs to the best of their ability and intent, it is essential that such programs are assessed continuously based on current perspectives of the global economy. The aim is for all sectors of the Indian economy to achieve the objectives related to technology, quality of work life, and sustainability in economic and environmental performances that are acceptable to the society at large.

At the national level, the roles of trade unions, corporate management, government and regulating authorities, national productivity councils/centers, institutes of technology, the Confederation of Indian Industries (CII) and chambers of commerce, the Ministry of Corporate Affairs, and financial institutions become critical in making all these programs effective and result oriented in the long term. In this context, out of the many challenges being faced by the organizations (particularly in manufacturing and service sectors) in a country, the following are worth mentioning:

- (i) How to justify the levels of labor and human performance in adverse environmental conditions?
- (ii) How to determine the threshold of performance for any manufacturing or service systems in relation to labor or capital intensity?
- (iii) How to relate business or financial performance with the environmental performance of an organization?
- (iv) How to design and develop a generic and integrated framework for service system productivity/performance measurement and evaluation?
- (v) How to link or relate productivity with quality and innovation in general, and for an industry in particular?
- (vi) How to measure and evaluate white-collar productivity in an organization?
- (vii) How to implement the “continuous improvement” concept as a performance improvement tool in manufacturing or service organizations?
- (viii) How to measure and evaluate the performance of personnel involved in complex jobs consisting of all three components (skills, rules, and knowledge)?
- (ix) How to measure and assess the performance of an organization’s technological system and how to select state-of-the-art improvement tools and technologies under constraints and limitations in this context?
- (x) How to formulate and design implementation framework for different productivity improvement tools and techniques?
- (xi) How to prepare a professional capacity augmentation plan on productivity that matches industry requirements in the next 10 to 15 years?

When initiating any training program on productivity, it is essential that they are designed and executed addressing all these issues. Industry-specific requirement analysis must be carried out before such training programs, in module format, are offered for maximum effectiveness.



## An Integrated Training Framework for Effective Productivity Management System

In view of emerging complex scenarios in manufacturing and service systems in India, as far as productivity management is concerned, the training programs must have specific goals. As these goals depend on a condition or a phase that an organization may evolve to, it is desirable that the training fulfils the needs of a particular phase in which it currently exists. There may be five specific stages or conditions to which an organization may link itself to: (i) exploration and exploitation, (ii) self-reliance and sustainability, (iii) cooperation and collaboration, (iv) new opportunities, and (v) continual improvement/consolidation.

For each phase, the contents of the training components for productivity management may vary in both their types and levels. The specific training type's contents need to be identified for each of these phases. The integrated training framework phases are given in Table 8.2.

**TABLE 8.2**

### INTEGRATED TRAINING FRAMEWORK PHASES

No.	Phase	Requirements	Types of Programs	Prime Initiator
1.	Exploration and Exploitation	1. Status survey	1. Awareness/short-duration	1. Work area
		2. Data collection/ analysis	2. Idea/concept based	2. Organization
		3. Criticality of problems	3. Problem identification	3. Industry
2.	Self-reliance and Sustainability	1. Dimensions/elements	1. Dimension/element specific	1. Experts/critical mass
		2. Sustainability-related issues	2. Long duration	2. Plant management
		3. Critical mass/expert interaction	3. Project based	3. Business planners/ corporate
3.	Cooperation/ Collaboration	1. Domain expertise	1. Strategic/tactical management	1. Industry
		2. Benchmarking	2. Short duration	2. Institutes
		3. Innovation	3. Planning documents	3. NPCs as coordinators
4.	New Opportunities	1. Technology based	1. Product/process specific	1. Institutes
		2. Methods of improvement	2. Workshop	2. Industry
		3. Environmental issues	3. Industry specific	3. NPC/ government
		4. Alternatives		
5.	Continual Improvement/ Consolidation	1. Benchmarking exercises	1. In-house training	1. Corporate
		2. Cause identification and removal	2. Project based	2. Systems analyst
		3. Assessment tools	3. Small group activity	3. Individuals/ experts at plants
		4. Improvement tools	4. Problem specific	

While proposing programs on productivity/performance improvement for any organization, both corporate and operational management groups need to develop a procedure for the identification of the phases and requirements so that productivity programs become most effective for organizations in achieving the goals of business performance and sustainability.

### Concluding Remarks

When designing training programs on productivity management in India, adequate emphasis needs to be given to its applicability and usefulness so that everyone concerned is able to link its essentiality to achieve organizational goals on a continual basis. The proposed training framework considers all the pertinent issues that are applicable in the Indian manufacturing and service organizations from a training perspective so that adequate, competent, and knowledgeable human resources are developed industry wise in the area of productivity/performance improvement.

## CHAPTER 9

# ROLES AND RESPONSIBILITIES OF IMPLEMENTING ORGANIZATIONS

With respect to the six Asian countries, there is a need to enhance and upgrade productivity courses and programs as well as the institutions offering them. The research clearly indicates that there is a strong possibility of improving the quality and effectiveness of these courses and programs to meet the national goals and requirements, keeping in view the fast-changing national, international, and industrial scenarios. In this context, the national implications of introducing new courses and programs are highlighted and corresponding critical success factors are identified for the respective countries.

The APO, the NPOs, the governments, industries, and other organizations of the participating countries have specific roles and responsibilities for implementing improvement plans.

Two important aspects must be looked into in this respect: (i) benchmarking of the courses and programs as well as the institutions, and (ii) improving the inherent potential of the institutions. The roles and responsibilities of implementing organizations are elaborated in the following sections.

### The APO

With the fast-changing national and international scenarios in respect of an organization's as well as individual's needs and wants, the organization that is entrusted with policy formulation and strategic actions has to be pro-active and professionally competent to address the existing problems related to the conduct of courses and programs and their assessment by sub-ordinate/member organizations. These approaches will ensure the development of both the system component as well as human capital in any organization of a national economy.

The APO, established in 1961, has been a unique organization that plays a vital role in promoting the application of productivity management-related tools and techniques through the conduct of intensive as well as extensive training courses and programs for all stakeholders (policymakers, operating personnel, executives, etc.) for the productivity development of the industries, government-run entities, and privately-owned organizations in a national setting. The APO has specific objectives and has over the years been playing a critical role in meeting its stated objectives and contributing significantly to achieve and sustain the above-mentioned conditions.

The research undertaken on the institutions of six select Asian countries offering productivity courses has focused on a number of issues with respect to which present status, improvement alternatives, and implementation plans in each of the six countries have been elaborately discussed with the collection and analysis of relevant data, information, and opinions of the participating national experts involved in this research effort. Based on the status review of the courses and programs being run by the institutions of all these countries, a number of improvement alternatives (country wise) with their implementation plans have been proposed by a national expert for his or

her country. The APO, as a parent body that provides leadership implementing improvement plans, has a number of roles and responsibilities to play. In specific terms, the following responsibilities of the APO are critical and worth mentioning:

### Policy Guidance

- (i) Assessing current policies with respect to providing expert support in designing upcoming courses and programs
- (ii) Outlining policy regarding supervising and controlling special courses and programs for member countries
- (iii) Developing policy statement for each member country
- (iv) Outlining policy regarding fostering formal contact/agreement with organizations for industry partnerships and industry-supported projects

### Strategic Partner

- (i) Preparing strategic action plan with respect to physical and human resource development in member countries
- (ii) Conducting new and upcoming courses and programs for individual member countries
- (iii) Formulating action plan to assess periodic industrial and organizational requirements analysis of member countries
- (iv) Analyzing and assessing organizational structure, keeping in view the changing requirements of human support at different levels of the organization
- (v) Preparing guidelines to implement new courses and programs for resource mobilization and for partnership with industries/organizations and the NPOs of member countries for long-term action plan

## NPOs

The APO as a leader is to provide guidance and support to the member countries' NPOs directly so that the NPOs have the responsibility to work as per the policies and strategic actions of the APO on a regular basis. As each NPO represents a specific country, it must have the flexibility in continuing existing courses and programs or introducing new ones to fulfill their unique requirements and conditions to meet the interest of their stakeholders. In this context, individual NPOs have the following responsibilities and the roles in meeting policy guidelines and preparing strategic action plans.

### Policy Guidelines

- (i) Preparing national guidelines to match those of the APO and fulfilling the national requirements
- (ii) Formulating specific guidelines to introduce new courses and programs on several dimensions of productivity/performance management, addressing specific problem areas

### Strategic Action Plan

- (i) Preparing short- or medium-term action plans for resource acquisition and mobilization (physical as well as human resources)
- (ii) Setting guidelines for joint or collaborative activities to support organizations/institutions in running existing courses and programs as well as for introducing new courses and programs

### Government

Although independently set, many of these NPOs' policies must be compatible with the policies and the strategies of the government to meet the social and organizational needs of the country. The policies and strategic actions as formulated by the APO and NPOs must be supported by the governments of the member countries. Specifically, the responsibilities of a member country's government are vital for institutional development and for updating courses and programs for productivity/performance management. These are twofold: (i) to review the status of the educational and training scenario on a periodic basis, and (ii) to promote collaboration and resource generation between NPOs and the APO as well as between industries and institutions.

### Industries and Other Organizations

As has been the practice, the industries and organizations of each member country have their independence in selecting the specific courses and programs that meet their requirements directly or indirectly for performance sustenance and improvement (with respect to perspectives such as operational, financial, environmental, and social). The government as well as the NPO of each member country, in collaboration with the APO, need to ensure the following conditions:

- (i) Close interaction with NPOs and the APO to create new courses and programs with the assistance of the respective chamber of commerce and industries
- (ii) Close interaction with NPOs and the APO to conduct courses and programs that have a general acceptability among stakeholders
- (iii) Expertise and financial support by the APO and NPOs for in-house courses and programs to industries and organizations

### Benchmarking of Courses and Programs

In order to maintain the relevance of the particular courses and programs as well as the institutions that offer them in fast-changing national and international scenarios, and the critical importance of the role played by an NPO in the national development of a member country, it is essential that benchmarking exercises are undertaken at regular intervals (at least once in two years for courses, programs, and institutions). These exercises should be carried out independently by the NPO with the support of experts, if needed.

Benchmarking requires the following steps to be carried out in sequence and closed loop:

- Step 1: Collect institution-related data for factors such as organization structure, decision-making body, infrastructure facility, expertise availability, admission procedure,

selection norms, sourcing of monetary budget, authority and power at different levels, and procedural norms for the introduction or continuation of a course or a program

- Step 2: Identify the problem(s) in each of the factors stated above and the problem handling mechanisms or instruments
- Step 3: Identify the “best-in-class” institution within the same category
- Step 4: Collect data on the factors as stated in Step 1 for “best-in-class” institution using organization intelligence, direct interaction, and secondary data sources that include assessment studies of nationally or internationally accredited organizations or bodies
- Step 5: Select the performance criteria for each of the factors in Step 1
- Step 6: Conduct gap analysis for each criteria using spider diagram as well as qualitative deviation analysis, and identify factors where improvement is essential
- Step 7: Identify corrective measures to achieve the best possible performance for each of the criteria selected
- Step 8: Implement corrective/remedial measures to the factors where improvement is essential, in accordance with the steps that are outlined in the implementation manual
- Step 9: Review the actual results achieved with the implementation of the measures at regular intervals
- Step 10: Implement improvement alternatives as a part of the systems’ activities and organizational norms

All of the above 10 steps are to be followed with the consideration of the following factors: (i) course content, (ii) focus, (iii) training methods, (iv) mode of training, (v) relevance, (vi) practice orientation, (vii) level of self-learning, and (viii) level of self-confidence.

### Improvement of Inherent Potential of Institutions

The performance of any institution or organization, which offers productivity/performance-related courses and programs, and their personnel depends on a number of factors such as the institution’s or organization’s core competence, the adoption of new learning pedagogy, the introduction of upcoming or new topics of learning, the ability to sustain desirable traits and characteristic features of the institutions/organizations as developed over time, and the ability to form in-house “critical mass” with expertise in one or more dimensions and topics related to productivity/performance management. The inherent potential of an institution essentially is built around these factors.

It is highly desired that the potential of an institution in this respect should grow over time with the goal of achieving a “brand” name. With the evolution of such an institution, a robust as well as flexible organization and system structure will be in place to fulfill the necessary condition of developing a system-based comprehensive framework of implementing new ideas and concepts in

existing courses and programs. This will ensure the establishment of a system to develop a comprehensive framework to implement new ideas and concepts in existing courses and programs.

The implementation framework, in the form of manuals/guidelines, must be prepared after considering and integrating all the important issues as described for each of the six Asian countries. The case studies highlight the steps and procedures to be undertaken for the implementation of new courses and programs of the respective countries' institutions. A generic and comprehensive manual for implementing new practices has been developed and made applicable to all the participating member countries. It is assumed that the institutions working as per this implementation framework will be able to retain their inherent potential.

## Action Steps for Implementation

A number of activities need be undertaken to implement new courses and programs on productivity management at the institution level. These activities can best be described and illustrated with the help of a comprehensive implementation framework called implementation manual.

In specific terms, the objectives of the implementation manual are manifold, and they are as follows:

- (i) To chart out the steps to be undertaken for implementation in a systematic manner
- (ii) To implement improvement measures as identified
- (iii) To specify the kinds of data to be collected for implementation
- (iv) To highlight relevant organizational issues to be considered for implementation
- (v) To suggest ways and means to overcome problems, if encountered, while implementing new practices

The tasks to be carried out and the responsibilities to be assigned to the persons concerned are dependent on the types of improvement measures to be implemented and the management tools and techniques to be used on a regular basis. As implementation may be a necessity at all levels of institutions, the objectives as stated are relevant at every level of an institution.

The implementation requires both management and system support. In particular, the role of management at an institution, the identification of functional modules of the implementation framework, and the implementation methodology are principal issues to be considered. These are elaborated in the following sections.

## Role of Management at the Institutions

During the execution of a project, the responsibilities and roles of the management in implementing and sustaining the courses and programs must be duly emphasized. Needless to say, the management of any institution in the given context plays the most crucial role in the implementation for which either top-down or bottom-up approach may be followed. Moreover, as there are numerous organizational and management issues that must be addressed for the implementation, formal as well as informal organizational groups should work in tandem for the successful execution of required activities.

## **Functional Modules for Implementation**

As the manual needs to address pertinent issues and operational norms for the various tasks that need to be carried out for the implementation, details on aspects such as the selection criteria for the courses and programs, the selection criteria for the participants, the types of data to be collected and data collection instruments, the status review method for existing courses and programs, and the design and development of new courses and programs must be included in the manual for an effective and sustainable implementation. The particulars of these aspects are briefly described as follows:

### **Selection Criteria for Courses and Programs**

- (i) Relevance in the context of meeting organizational needs
- (ii) Thrust area of learning and research as per the national policy
- (iii) Potential for organizational performance improvement
- (iv) National as well as international relevance
- (v) Potential for knowledge creation and retention

### **Selection Criteria for Participants**

- (i) Educational background and working experience
- (ii) Types of tasks/jobs
- (iii) Problem areas in which training programs are to be offered
- (iv) Types of organizations for which programs and courses are to be offered
- (v) Learning opportunities

### **Types of Data and Data Collection Instruments**

There are two main purposes of data collection: to analyze the existing system and to identify the measures and tools for improving the performance of an institution with respect to the courses and programs offered. The criteria to be considered in this respect are:

- (i) The organizational structure of the institutions is to be appropriately documented
- (ii) The existing systems are to be presented with data representation tools

It is essential that a given institution is represented in a way that all the activities carried out are interrelated and bottlenecks between different departments and subsystems are adequately depicted. In this context, the types of constraints under which an institution or a course or a program has to operate are to be identified. These representations will help an analyst quantify problems and identify improvement alternatives and measures. It is advised that the management should represent the existing systems and their workings and constantly update them as and when changes occur in the operating procedures, the system components, and the technology being used for organizing training programs.



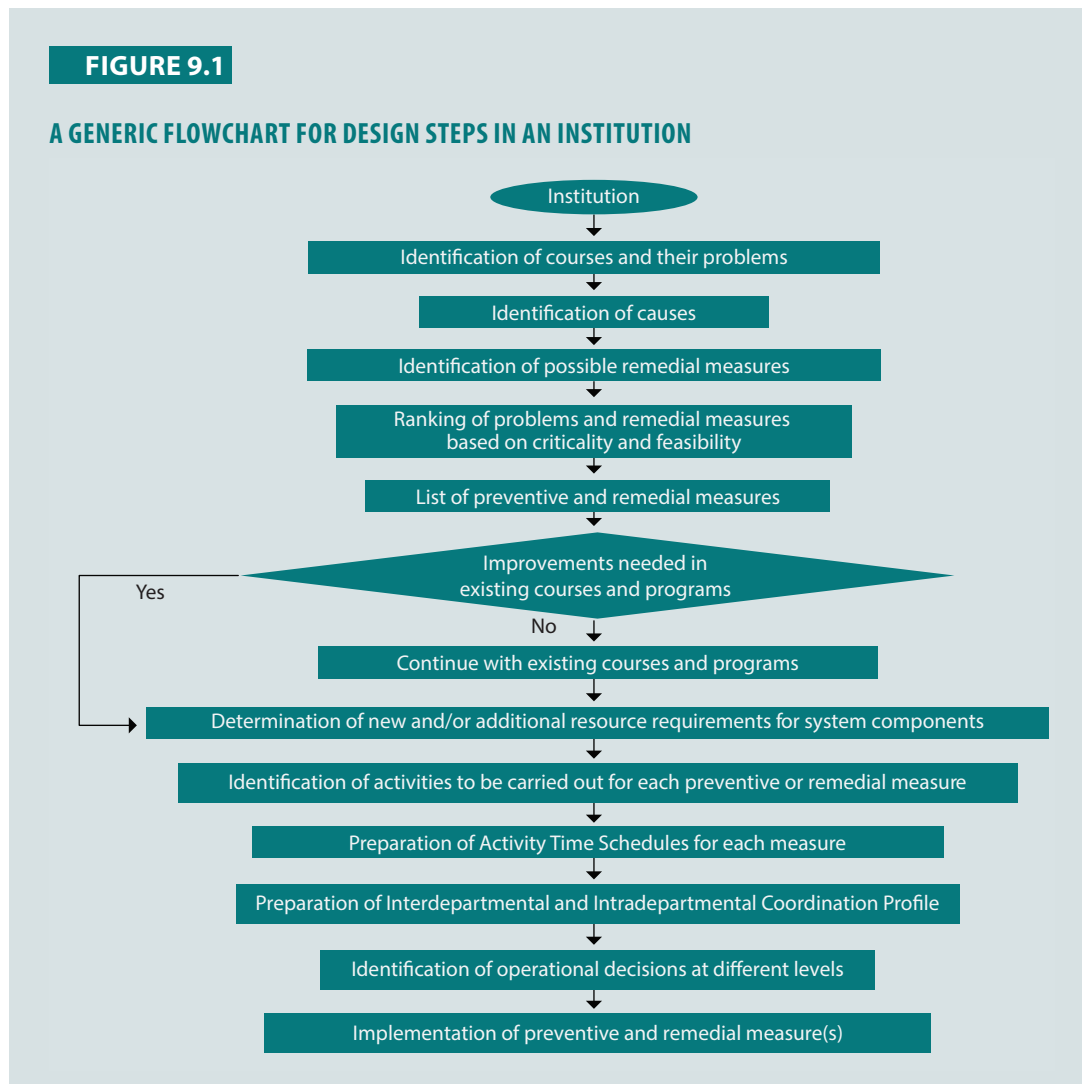
Appropriate training needs to be provided at periodic intervals on the use and construction of data presentation tools such as cause-and-effect diagrams, Pareto charts, and histograms with data that is relevant when organizing a course or a program on any aspect of productivity/performance management.

### Method for Status Review

The method consists of a number of steps such as data analysis, review of existing status, identification of critical area(s) of improvement, and analysis of possible cost and potential benefit. It is advised that institutions should study and develop the specific format for status review; notwithstanding, while developing this format it may happen that it may not match with the existing norms and the systems.

### Design and Development of New Courses and Programs

The methodology used to design and develop new or upcoming courses and programs may consist of a number of steps such as identifying new/upcoming courses or programs, generating alternative training/course modules, evaluating and selecting particular modules, producing impact assessments, and suggesting ways to improve procedures, processes, and systems for training. The specific design steps are described with the help of a flowchart as shown in Figure 9.1.



## Implementation Methodology for Institutions

The implementation of any course or a program related to productivity/performance management at an institution requires three principal interrelated elements: (i) management support and responsibilities, (ii) action steps, and (iii) authority and leadership. The sub-elements as well as the activities to be carried out for all these three elements and their interdependence are shown with the help of a flow chart in Table 9.1.

**TABLE 9.1**

### ELEMENTS FOR IMPLEMENTATION

Management Support and Responsibilities	Actions Steps	Authority and Leadership
1. Form Implementation Group and activate executive order	1. Identify work areas/ organizations/industries where courses and programs are to be introduced	1. Institution heads have: <ul style="list-style-type: none"> <li>• Authority to select members</li> <li>• Authority to assign responsibility</li> </ul>
2. Assess training needs	2. Identify factors related to courses and programs	• Command and control as well as participating leadership
3. Prepare workplan, including time sharing	3. Identify factors related to institutions	• Authority to prepare proposal for new courses and programs and budgets, as and when required
4. Assign responsibilities to group members	4. Collect data on relevant factors	• Authority to resolve conflicts
5. Conduct Nominal Group Techniques or brainstorming sessions	5. Analyze the data collected and document the status of an institution with regard to new courses and programs	2. Group members have: <ul style="list-style-type: none"> <li>• Functional responsibility</li> <li>• Capability assessment</li> </ul>
6. Provide expert interventions as per the guidelines provided for measures and tools	6. Assess the criticality of problems to overcome	• Communication and narration skills
7. Assess the required system components (resource persons, physical resources, and software)	7. Identify, list, and rank improvement measures	• Work experience
8. Monitor and control	8. Follow a 6x Step procedure for implementation	3. Experts have: <ul style="list-style-type: none"> <li>• Authority to propose need-based budget allocation and special requirements</li> <li>• Authority to select resource persons</li> <li>• Authority to add/modify course or program structure</li> <li>• Responsibility to identify issues and report to institution heads</li> </ul>
	9. Implement according to priority	
	10. Provide information system support to implement, monitor, and control	

Two important issues for implementation are (i) formation of the implementation group and (ii) steps to improve alternatives.

It is suggested that a small group of two to three persons are formed for most of the measures when introducing a course or program. Only when the involvement of outside agencies or resource persons is needed, a larger group may be preferred. At no point in time should the group work without the supervision of their leader. Also, at no point in time should the group members work on more than one problem. It is advised that the group members do not set contradicting objectives. It is the responsibility of the group leaders to resolve conflicts if they occur.

When implementing an improvement alternative related to a course or a program, the institution needs to take six specific steps: (i) identify the problems, their causes, and remedial measures, (ii) estimate the resources required, (iii) identify the activities to be carried out, (iv) prepare time schedules, (v) chart interdepartmental coordination, and (vi) prepare the improved course or program.

It may be mentioned that the implementation steps as stated above are needed irrespective of the types of measures suggested (in terms of their feasibility). Many of the issues related to management support, authority, and leadership are vital for an institution to act as an independent and self-supporting unit within the overall organizational framework of an institution.

As for implementation, the activities mentioned must be appropriately carried out by the institution and the implementing team. It is essential that these activities are designed and tailored to specific situations that prevail in an organization or a country. Many of the elements of implementation may become a part of the organizational information systems at both strategic and operational levels only when an institution is run as a business entity. Knowledge and expertise gained in developing and implementing a new course or program at an institution can be sustained only when they become a part of an institution's operating doctrine for which policy decisions are required from a competent authority or the government.

# CONCLUDING REMARKS

While designing a training course or program on any component of productivity/performance management, adequate emphasis needs to be given to its applicability and usefulness so that everyone concerned in a given country is able to link its necessity to achieve organizational or individual goals on a continual basis. The research as undertaken on institutions offering productivity courses in six Asian countries considers all the pertinent issues that are applicable in manufacturing, service, and government-run organizations from the perspective of education and training. This is to ensure that adequate, competent, and knowledgeable human resources are developed industry-wise as well as in the government sector. It is advised that institutions willing to assess and improve their course or program structure refer to the details of implementation framework as proposed.

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# APPENDIX A - BANGLADESH

Table A1 shows nine training institutes (selected for this study) that offer productivity courses, along with their addresses, their types, and the designations of the heads of these institutes (based on available data). Of the nine, three are controlled and managed by the government of Bangladesh, five are autonomous, and one is a private organization.

**TABLE A1**

## LIST OF THE NINE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY

No.	Name of Organization	Address	Type of Organization	Head of Organization
1	Bangladesh Public Administration Training Centre (BPATC)	Dhaka-Aricha Hwy, Savar 1343, Bangladesh	Autonomous	Rector
2	National Productivity Organization (NPO)	Shilpa Bhaban (1st floor), 91, Motijheel C/A, Dhaka-1000, Bangladesh	Government	Director
3	National Skills Development Council (NSDC)	2nd floor, Telecom Training Center, Tejgaon, Dhaka-1208, Bangladesh	Government	Chief Executive Officer
4	National Academy for Planning and Development (NAPD)	3/A, Kataban Road, Dhaka, Bangladesh	Government	Director General
5	Bangladesh Institute of Bank Management (BIBM)	Plot 4, Main Road, No.1, Section 2, Mirpur, Dhaka-1216, Bangladesh	Autonomous	Director General
6	Bangladesh Institute of Management (BIM)	4, Sobhanbag, Mirpur Road, Dhaka-1207, Bangladesh	Autonomous	Director General
7	Small and Cottage Industries Training Institute (SCITI)	Plot 24/A, Road 13/A, Sector 6, Uttara, Dhaka-1230, Bangladesh	Autonomous	Principal
8	Institute of Apparel Research and Technology (IART) under Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA)	Planners Tower (5th floor), 13/A Sonargaon Road, Banglamotor, Dhaka-1000, Bangladesh	Private	Chairman
9	Bangladesh Industrial and Technical Assistance Center (BITAC)	Tejgaon Industrial Area, Dhaka-208, Dhaka, 1208, Bangladesh	Autonomous	Director General

**Source:** Bangladesh Directory of Social Science Research Organizations 1996. Social Science Research Council, Bangladesh Planning Division, Ministry of Planning, March 1997

Table A2 shows the course types offered by the nine government, autonomous, and private training institutes in Bangladesh. Of the nine, three conduct both education and training types of courses, while six conduct only training courses.

**TABLE A2**

**TYPES OF COURSES OFFERED BY THE NINE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY**

No.	Name of the Organization	Education Type	Training Type
1	Bangladesh Public Administration Training Centre (BPATC)	√	√
2	National Productivity Organization (NPO)		√
3	National Skills Development Council (NSDC)	√	√
4	National Academy for Planning and Development (NAPD)		√
5	Bangladesh Institute of Bank Management (BIBM)		√
6	Bangladesh Institute of Management (BIM)	√	√
7	Small and Cottage Industries Training Institute (SCITI)		√
8	Institute of Apparel Research and Technology (IART)		√
9	Bangladesh Industrial and Technical Assistance Center (BITAC)		√

**Source:** Primary data collected from the organizations

Table A3 shows the duration of the courses offered by the nine government, autonomous, and private training institutes in Bangladesh. Of the nine, three conduct short-, medium-, and long-term courses, while six conduct short- and medium-term courses.

**TABLE A3**

**DURATION OF COURSES OFFERED BY THE NINE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY**

No.	Name of the Organization	Duration of Courses		
		Short term	Medium term	Long term
1	Bangladesh Public Administration Training Centre (BPATC)	√	√	√
2	National Productivity Organization (NPO)	√	√	
3	National Skills Development Council (NSDC)	√	√	
4	National Academy for Planning and Development (NAPD)	√	√	
5	Bangladesh Institute of Bank Management (BIBM)	√	√	
6	Bangladesh Institute of Management (BIM)	√	√	√
7	Small and Cottage Industries Training Institute (SCITI)	√	√	
8	Institute of Apparel Research and Technology (IART)	√	√	
9	Bangladesh Industrial and Technical Assistance Center (BITAC)	√	√	√

**Source:** Primary data collected from the organizations

Table A4 shows the level of participants at the nine government, autonomous, and private training institutes in Bangladesh. Of the nine, two conduct training courses for executives, managers, supervisors, and workers; four conduct courses for executives and managers only; one conducts courses for management, supervisors, and workers; and one conducts courses for supervisors and workers only.

**TABLE A4****LEVEL OF PARTICIPANTS AT THE NINE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY**

No.	Name of the Organization	Level of Participants			
		Executives	Managers	Supervisors	Workers
1	Bangladesh Public Administration Training Centre (BPATC)	√	√		
2	National Productivity Organization (NPO)	√	√	√	
3	National Skills Development Council (NSDC)		√	√	√
4	National Academy for Planning and Development (NAPD)	√	√		
5	Bangladesh Institute of Bank Management (BIBM)	√	√	√	
6	Bangladesh Institute of Management (BIM)	√	√		
7	Small and Cottage Industries Training Institute (SCITI)	√	√	√	
8	Institute of Apparel Research and Technology (IART)	√	√		
9	Bangladesh Industrial and Technical Assistance Center (BITAC)			√	√

**Source:** Primary data collected from the organizations

Table A5 shows the types of training fees of the courses at the nine government, autonomous, and private training institutes in Bangladesh. Of the nine, three offer sponsored and free-of-charge courses, five offer sponsored and self-financed courses, and one offers only free-of-charge courses.

**TABLE A5****TYPES OF TRAINING FEES AT THE NINE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY**

No.	Name of the Organization	Type of Training Fees		
		Free	Sponsored	Self-financed
1	Bangladesh Public Administration Training Centre (BPATC)		√	√
2	National Productivity Organization (NPO)	√		
3	National Skills Development Council (NSDC)	√	√	
4	National Academy for Planning and Development (NAPD)		√	√
5	Bangladesh Institute of Bank Management (BIBM)		√	√
6	Bangladesh Institute of Management (BIM)		√	√
7	Small and Cottage Industries Training Institute (SCITI)		√	√
8	Institute of Apparel Research and Technology (IART)	√	√	
9	Bangladesh Industrial and Technical Assistance Center (BITAC)	√	√	

**Source:** Primary data collected from the organizations

Table A6 shows the nature of training offered by the nine government, autonomous, and private training institutes in Bangladesh. Of the nine, four conduct awareness and intensive types of training, while five conduct only intensive type of training.

TABLE A6

## NATURE OF TRAINING OFFERED BY THE NINE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY

No.	Name of the Organization	Nature of Courses	
		Awareness	Intensive
1	Bangladesh Public Administration Training Centre (BPATC)	√	√
2	National Productivity Organization (NPO)	√	√
3	National Skills Development Council (NSDC)		√
4	National Academy for Planning and Development (NAPD)		√
5	Bangladesh Institute of Bank Management (BIBM)		√
6	Bangladesh Institute of Management (BIM)	√	√
7	Small and Cottage Industries Training Institute (SCITI)		√
8	Institute of Apparel Research and Technology (IART)		√
9	Bangladesh Industrial and Technical Assistance Center (BITAC)	√	√

**Source:** Primary data collected from the organizations

Table A7 shows the yearly contributions of the nine government, autonomous, and private training institutes in Bangladesh.

TABLE A7

## YEARLY STATEMENTS OF MANPOWER OF THE NINE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY

No.	Name of the Organization	2010–11	2011–12	2012–13	2013–14	2014–15
1	Bangladesh Public Administration Training Centre (BPATC)	494	494	494	555	650
2	National Productivity Organization (NPO)	66	66	66	67	67
3	National Skills Development Council (NSDC)	16	16	16	18	20
4	National Academy for Planning and Development (NAPD)	91	91	91	110	110
5	Bangladesh Institute of Bank Management (BIBM)	90	82	75	77	90
6	Bangladesh Institute of Management (BIM)	110	110	110	120	120
7	Small and Cottage Industries Training Institute (SCITI)	60	60	60	65	80
8	Institute of Apparel Research and Technology (IART)	59	60	70	80	100
9	Bangladesh Industrial and Technical Assistance Center (BITAC)	62	62	53	48	50
<b>Total</b>		<b>1048</b>	<b>1041</b>	<b>1035</b>	<b>1140</b>	<b>1287</b>

Table A8 shows the specific courses offered by the nine government, autonomous, and private training institutes in Bangladesh

**TABLE A8**

**COURSES OFFERED BY THE GOVERNMENT, AUTONOMOUS, AND PRIVATE TRAINING INSTITUTES IN BANGLADESH SELECTED FOR THIS STUDY**

No.	Name of the Organization	Name of the Courses
1	Bangladesh Public Administration Training Centre (BPATC)	Career Development Courses • Senior Staff Course • Advanced Course on Administration and Development • Foundation Training Course Special Courses • Policy Planning and Management Course • Special Foundation Training Course for Election Commission Officials • Special Foundation Training Course for 40+ Aged Officers Short Courses • Training of Trainers Course • Improving Public Services through TQM • Project Management Course • Course on Trade and Aid: Planning Negotiations Techniques • Human Resource Planning Course • Financial Management Course • Environmental Management and Sustainable Development Course • Modern Office Management Course • Course on IT and e-Governance • Foundation Refresher Program • Course on Communicative English • Gender and Development Course
		• Productivity Improvement and its Application • Improving Productivity through Kaizen Method • Role of Management to Improve Productivity • Factory-level Productivity Development and Application of its Tools and Techniques • Productivity Improvement and its Tools and Techniques in Textile Industries • Quality Management Techniques • Productivity Improvement through Application of 5S

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No.	Name of the Organization	Name of the Courses
3	National Skills Development Council (NSDC)	<ul style="list-style-type: none"> <li>• Research Methodology</li> <li>• Technical and Vocational Education</li> <li>• Training for Skills Development</li> </ul>
4	National Academy for Planning and Development (NAPD)	<ul style="list-style-type: none"> <li>• Postgraduate Diploma in Development Planning Course (1 year)</li> <li>• Postgraduate Diploma in ICT Course (1year)</li> <li>• English Language Certificate Course</li> <li>• Extensive ICT Courses</li> <li>• Extensive Project Management Courses</li> <li>• Extensive HRM Courses</li> <li>• Extensive Office Management Courses</li> <li>• Extensive Economic and Development-oriented Courses</li> <li>• Departmental Training Courses for BCS (Economic) Cadre officers</li> <li>• Foundation courses for BCS (Health) Cadre officers</li> <li>• Customized courses for various organizations</li> </ul>
5	Bangladesh Institute of Bank Management (BIBM)	<ul style="list-style-type: none"> <li>• Legal Aspects of General Banking and Credit</li> <li>• Credit Access for Women Entrepreneurs</li> <li>• Financial Analysis for Bankers</li> <li>• Appraisal and Management of Working Capital Financing</li> <li>• International Trade Payment and Finance</li> <li>• Human Resource Management in Banks</li> <li>• Islamic Banking and Finance</li> <li>• IT Application for Branch Managers</li> <li>• Risk Management in Banks</li> <li>• Credit Appraisal and Management</li> <li>• Investment and Merchant Banking</li> <li>• SME Product Development and Marketing</li> <li>• International Financial Reporting Standard and Financial Statements of Banks</li> <li>• Prevention of Malpractices in Bank</li> <li>• Online Banking for Non-IT Executives</li> <li>• Asset-Liability Management in Banks</li> <li>• Branch Management</li> <li>• Agricultural and Rural Banking</li> <li>• Internal Control and Compliance in Banks</li> <li>• SME Credit Risk Management</li> <li>• Legal Aspects of General Banking and Credit</li> <li>• Marketing of Financial Services</li> <li>• Financial Analysis for Bankers</li> <li>• Leadership, Team Building, and Negotiation Skills for Branch Managers</li> <li>• Entrepreneurship Development and SME Financing</li> <li>• Information System Audit in Banks for Non IT-Executives</li> </ul>

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No.	Name of the Organization	Name of the Courses
6	Bangladesh Institute of Management (BIM)	• Accounting and Financial Management
		• Computer Services
		• General Management
		• Marketing Management
		• Human Resource Management
		• Production Management
		• Productivity and Consultancy
		• Project and Social-service Sector
		• Research, Evaluation, and Publication
		• TOT and Behavioral Management
		Postgraduate Courses
		• Diploma in Human Resource Management
		• Diploma in Industrial Management
		• Diploma in Financial Management
7	Small and Cottage Industries Training Institute (SCITI)	• Diploma in Marketing Management
		• Diploma in Computer Science
		• Diploma in Human Resource Management
		• Entrepreneurship Development
		• General Management
8	Institute of Apparel Research and Technology (IART)	• Industrial Management
		• Financial Management
		• Marketing Management
		• Industrial Engineering and Lean Manufacturing
		• Production and Planning
		• Market Analysis and Export Promotion
		• Apparel Merchandising
		• Social Compliance
		• Fire Safety and Risk Assessment
		• Commercial Activities
9	Bangladesh Industrial and Technical Assistance Center (BITAC)	• Textile Testing and Lab Management
		• Training of Programmable Logic Controller
		• Training of Machine Shop
		• Training of Welding
		• Training of Electrical Maintenance
		• Training of Automobile
		• Training of AutoCAD
		• Training of Household
		• Training of Carpeting

**Source:** Primary data collected from the organizations

# APPENDIX B - PAKISTAN

## B.1 Productivity Courses Offered By Public-Sector Universities

Details of universities in Pakistan offering short-, medium-, and long-term productivity courses according to the course requirement are given in Table B1.

**TABLE B1**

### PRODUCTIVITY COURSES OFFERED BY PUBLIC-SECTOR UNIVERSITIES

No.	Institute	Location	Courses/Areas
Islamabad Capital Territory			
1	International Islamic University, Islamabad	Islamabad	Environmental Sciences, Mechanical Engineering, Professional Development
2	Allama Iqbal Open University	Islamabad	Educational Planning Policy Studies and Leadership (EPPSL)
3	COMSATS Institute of Information Technology	Islamabad	COMSATS Center for Executive Development (CCED)
4	Institute of Space Technology	Islamabad	Center for Advanced Composites and Smart Structures (CACSS)
5	Air University	Islamabad	Avionics Engineering, Mechanical and Aerospace Engineering
6	National University of Sciences and Technology (NUST)	Islamabad	Centre for Innovation & Entrepreneurship (CIE)
Punjab			
7	University of the Punjab	Lahore	Industrial Engineering and Management, Total Quality Management
8	University of Engineering and Technology	Lahore	Al-Khwarizmi Institute of Computer Science (KICS), Laser and Optronics Center
9	Islamia University	Bahawalpur	Forestry, Range and Wildlife Management
10	University of Agriculture	Faisalabad	Molecular Genetics, Dairy Animal Breeding, Meat Animal Breeding
11	Bahauddin Zakariya University	Multan	Management Sciences, Banking and Finance
Sindh			
12	NED University of Engineering and Technology	Karachi	High Performance Computing Centre, NED-DICE Energy Innovation Center

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No.	Institute	Location	Courses/Areas
13	University of Sindh	Jamshoro	National Center of Excellence in Analytical Chemistry
14	Sindh Agriculture University	Tando Jam	Institute of Food Sciences and Technology
15	Institute of Business Administration	Karachi	Management Sciences
16	Quaid-e-Awam University of Engineering, Science and Technology	Nawabshah	Computer System Engineering
Balochistan			
17	Balochistan University of Engineering and Technology	Khuzdar	Engineering Qualification Standardization
18	University of Balochistan	Quetta	Center of Excellence in Mineralogy (CEM)
19	University of Turbat	Turbat	Computing and IT
20	Sardar Bahadur Khan Women's University	Quetta	Biotechnology, Zoology, and Plant Sciences
21	Lasbela University of Agriculture, Water and Marine Sciences	Uthal	Water Source Management, Geology
Khyber Pakhtunkhwa			
22	University of Engineering and Technology Peshawar	Peshawar	Electrical and Mechatronic Engineering
23	Institute of Management Sciences	Peshawar	Human Resource Development Center
24	University of Science and Technology	Bannu	Plant Designing, Engineering Drawings, Plant Stabilization, Organizational Behaviour
25	University of Swat	Saidu Sharif	Center for Animal Sciences and Fisheries
26	Kohat University of Science and Technology	Kohat	Biotechnology and Genetics Engineering
Azad Jammu and Kashmir			
27	Mirpur University of Science and Technology	Mirpur	Mechanical Engineering, Power Engineering
28	University of Azad Jammu and Kashmir	Muzaffarabad	Health and Medical Sciences
29	University of Management Sciences and Information Technology	Kotli	Economics, Commerce, and Public Administration
30	University of Poonch	Ravalakot	Veterinary and Animal Sciences
31	Women University of Azad Jammu and Kashmir	Bagh	IT and Economics

## B.2 Productivity Courses Offered By Public-Sector Organization

Details of organizations in Pakistan offering productivity courses according to the course requirement are given in Table B2.

**TABLE B2**

### PRODUCTIVITY COURSES OFFERED BY PUBLIC-SECTOR ORGANIZATION

No.	Institute	Location	Courses/Areas
1	Directorate of Workers Education (DWE)	Islamabad	Production Productivity, Productivity Culture, Occupational Health and Safety, Health and Hygiene, Communication Skills, Communication and Management, Total Success Management, Health Management, Positive Attitude, Leadership and Development, Organizational Behavior, Time Management, Stress Management, Social Corporate Responsibility, Emotional Intelligence, Quality Control, ISO Standards, Computer Training, Language Improvement
2	Finance Division, Government of Pakistan	Islamabad	Workshops on national productivity
3	Ministry of Youth Affairs	Islamabad	National youth policy
4	National Productivity Organization	Islamabad	National productivity trainings
5	Pakistan National Accreditation Council	Islamabad	Accreditation courses for food, hospital management, inspection, certification bodies
6	Pakistan Council of Scientific and Industrial Research	Islamabad	Training Centers: (i) Pak-Swiss Training Center, Karachi (ii) Precision Systems Training Center, Lahore (iii) Precision Systems Training Center, Quetta (iv) Precision Systems Training Center, Peshawar (v) Dimension Stones Evaluation Center (DSEC), Peshawar (vi) Cast Metal & Foundry Technology Center (CM&FT), Daska
7	Technology Upgradation and Skill Development Company	Lahore	Cement Research & Development Institute, National Institute of Design & Analysis, skill development programs
8	Ministry of Textile Industry	Islamabad	EDF-funded textile training institutes, Pakistan Textile Company Limited
9	Engineering Development Board	Islamabad	Auto and Tractor Parts Manufacturing Workshop, Cost of Doing Business in Pakistan, Gas Equipment and Services from Pakistan, Directory of Engineering Goods Exporters

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No.	Institute	Location	Courses/Areas
10	Gujranwala Tools, Dies and Moulds Centre	Gujranwala	Courses in Design and Development: (i) Computer-Aided Design and Manufacturing (CAD/CAM) - CATIA, Pro/ENGINEER, Delcam (ii) Plastic Injection Moulds Designing (Basic) (iii) Plastic Injection Moulds Designing (Advanced) (iv) Sheet Metal Die Designing (v) Progressive Die Designing (vi) Deep Draw Dies (vii) Pressure Die Casting (viii) Compression Moulds (ix) Jigs and Fixtures (x) Reverse Engineering Courses in Machining Operations - CNC Machining Centers (3 axis and 5 axis), CNC Turning Centers, CNC EDMs and WEDMs, Conventional Machining
11	Agricultural Machinery Training School	Talagang	Auto and Farm Machinery
12	Government Technical Training Institute	Gujar Khan	Auto and Farm Machinery

### B.3 Productivity Courses Offered By Private-Sector Universities

Details of private-sector universities in Pakistan offering productivity courses according to the course requirement is given in Table B3.

TABLE B3

#### PRODUCTIVITY COURSES OFFERED BY PRIVATE-SECTOR UNIVERSITIES

No.	Institute	Location	Courses/Areas
1	Capital University of Science & Technology	Islamabad	Management and Social Sciences
2	Foundation University	Islamabad	Computer and Management Sciences
3	Muslim Youth University	Islamabad	Electrical and Civil Engineering
4	National University of Computer and Emerging Sciences	Islamabad	Software Project Management, Computer Science
5	Riphah International University	Lahore	Medical and Dental Sciences
Punjab			
6	Qarshi University	Lahore	Software Engineering, Eastern Medicine and Surgery
7	University of Central Punjab	Islamabad	Accounting and Finance, Business Management
8	Lahore School of Economics	Lahore	Economics and Finance
9	Lahore Garrison University	Lahore	Commerce, Business Management, and Home Economics

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No.	Institute	Location	Courses/Areas
10	NUR International University	Lahore	Life Sciences, Management Sciences
Sindh			
11	Jinnah University for Women	Karachi	Courses include Social Sciences, Business Administration, Commerce, Economics, Pharmacy, and Science
12	Indus University	Karachi	Electrical Engineering, Management Sciences
13	Hamdard University	Karachi	Health and Medical Sciences, Engineering and Technology
14	Habib University	Karachi	Social Development and Policy
15	Textile Institute of Pakistan	Karachi	Fashion Design Management, Textile Management and Marketing
Balochistan			
16	Alhamd Islamic University	Quetta	Engineering and Technology Sciences
Khyber Pakhtunkhwa			
17	Ghulam Ishaq Khan Institute of Engineering Sciences and Technology	Topi	Electrical and Power Engineering, Computing and IT
18	City University of Science and Information Technology	Peshawar	IT and Business Management
19	Sarhad University of Science and Information Technology	Peshawar	Mechanical Engineering and Technology
20	Abasyn University	Peshawar	Electrical and Civil Engineering, Computing and Management Sciences
21	Northern University	Nowshera	Engineering and IT
Azad Jammu and Kashmir			
22	Al-Khair University	Bhimber	Business Administration, Computer Science and IT
23	Mohi-ud-Din Islamic University	Mirpur	Pharmaceutical Sciences

## B.4 Productivity Courses Offered By Private-Sector Organizations

Details of private-sector organizations in Pakistan offering productivity courses according to the course requirement is given in Table B4.

TABLE B4

## PRODUCTIVITY COURSES OFFERED BY PRIVATE-SECTOR ORGANIZATIONS

No.	Institute	Location	Courses/Areas
1	Descon Technical Institute	Lahore	(i) Advance Welder (ii) Welder (3G) (iii) Electrical Technician (iv) Pipe Fabricator (v) Millwright (vi) Safety Inspector

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No.	Institute	Location	Courses/Areas
			(vii) Safety Assistant (viii) Pipe and General Fitter (ix) Rigger/Scaffolder (x) Steel Fixer (xi) Shuttering Carpenter
2	Siemens Pakistan	Karachi	(i) SAP Overview (ii) SAP Human Resources Overview (iii) Fundamentals of SAP Net Weaver Application Server (iv) SAP Net Weaver (v) Profitability Analysis Asset Accounting (vi) Business Processes in HCM Payroll (vii) Pricing in Sales and Distribution (viii) Administration AS ABAP I (ix) Administration AS Java (x) Developing Screen-Based User Dialogs (xi) Enterprise Reporting, Query & Analysis (Part I) (xii) Enterprise Data Warehousing (xiii) Integrated Planning (xiv) Data Mining and the Analysis Process Designer
3	Zishan Engineers (Pvt) Ltd	Karachi	(i) Process Simulation (ii) Hydraulics (iii) Equipment Sizing (iv) Piping Design and Analysis (v) Pressure Vessel/Heat Exchangers Mechanical Design (vi) Storage Tank Design (vii) Instrumentation (viii) Electrical (ix) Wind Energy (x) Hardware Equipment (xi) Survey/Inspection Equipment
4	Oil and Gas Training Institute	Islamabad	(i) Certificate Course on Corrosion Prevention (ii) Admission to PGD in Instrumentation and Control Systems (iii) Admission to MS Petroleum Engineering
5	Direct Assessment Services (DAS)	Islamabad, Pakistan	Quality Management (iv) Environment Management (v) Occupational Health and Safety Management System (vi) National Examination Board for Occupational Safety and Health (vii) Information Security Management System (viii) Food Safety Management System

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No.	Institute	Location	Courses/Areas
			(ix) Six Sigma (x) PMP (xi) Health and Safety Executive (HSE) (xii) Auto Manufacturing Management
6	Pakistan Refinery Limited	Karachi	(i) Process Engineering (ii) Technical Audit/Energy Conservation and HSE Audits (iii) Process and Techno-commercial Studies (iv) Plant Expansion and De-bottlenecking (v) Quality Control (Laboratory) (vi) Benchmarking Studies (vii) Pilot Plant Studies
7	ICI Pakistan Limited	Karachi	(i) Graduate Recruit Program (ii) Trainee Engineer Program (iii) Commercial Trainee Officer (iv) Finance Trainee Officer (v) IT Trainee Program (vi) Summer Internship Program 2015 (vii) Experienced Professionals
8	Ittehad Chemicals Limited	Lahore	Culture (Quality and Training)
9	Karachi School of Business & Leadership	Karachi	(i) Negotiation Skills (ii) Building and Marketing Brands (iii) Financial Acumen for Non-Financial Executives (iv) Finance for Strategic Decision Making (v) Introduction to Islamic Banking
10	Pakistan Steel Mill	Karachi	Trainee Apprentices and Artisans
11	Mobilink	Islamabad	(i) Teach To Transform (ii) Children Painting Competition (iii) mTaleem SMS-Based Literacy Program (iv) Mobilink Foundation ICT Labs (v) Cellular Technology
12	FMC Technologies	Lahore	(i) Maintain and/or Repair: Topside controls, including Power Distribution Unit, pilot console, and equipment rack (ii) Remotely operated vehicle hydraulic, electrical, and mechanical components
13	Telenor Pakistan	Islamabad	Open Mind Pakistan Program

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No.	Institute	Location	Courses/Areas
14	Ufone	Islamabad	Summer Internship Program
15	Wateen Telecom Limited	Lahore	Comprehensive Training Workshop
16	Zong Pakistan	Islamabad	Internship Program (i) ACCA/ICAEW Trainee Program (ii) Salient Features of ACCA/ICAEW Trainee Program
17	K-Electric	Karachi	(iii) Nurturing Leaders for Tomorrow (iv) K-Electric Talent Hunt – Leaders of Tomorrow (v) Management Trainees
18	Geo TV	Karachi	Programs in TV reporting, Production (i) Supply Chain Management (ii) SAP BI/BW (iii) TAX Management
19	Sheikh Zayed Islamic Center	Karachi	(iv) Import/Export Management (v) Clearing and Forwarding (vi) Applied Project management (vii) Android Apps Management
20	Pakistan American Cultural Center	Karachi	English Language Program, Culture Courses
21	Express News	Lahore	Special Program on SSG, Commando Training
22	Coca-Cola Pakistan	Lahore	(i) Blowing Process Training (ii) Applied Fluid Dynamics (iii) Instrumentation and Control (iv) Industrial Electronics (v) English Language Computer Skills (vi) Personality Development
23	PepsiCo	Multan	(i) Blowing Process Training (ii) Applied Fluid Dynamics (iii) Instrumentation and Control (iv) Industrial Electronics (v) English Language (vi) Computer Skills (vii) Personality Development

## B.5 Productivity Courses Offered By NGOs (Selected Organizations)

Details of selected organizations in Pakistan offering productivity courses according to the course requirement is given in Table B5.

**TABLE B5**

### PRODUCTIVITY COURSES OFFERED BY NGOS

No.	Institute	Location	Courses/Areas
1	Academy for Educational Development	Pakistan	(i) Global Health, Population, Nutrition (ii) Global Learning (iii) Leadership and Institutional Development (iv) Social Change (v) U.S. Education and Workforce Development
2	Aman Foundation	Karachi	(i) Aman Community Health Program (ii) Aman TeleHealth (iii) Aman Tech
3	Adventist Development and Relief Agency	Lahore	International Development Degree Program
4	AFS Intercultural Programs	Pakistan	(i) National Security Language Initiative for Youth (NSLI-Y) (ii) Future Leaders Exchange (FLEX) (iii) Kennedy-Lugar Youth Exchange and Study (YES)
5	American Himalayan Foundation	Pakistan	Healthcare Workers
6	Association for the Development of Pakistan	Pakistan	Humanitarian Development
7	Carter Center	Pakistan	Health Programs
8	Faiz Ahmad Faiz	Pakistan	Secular Tradition of Islam
9	FHI 360	Pakistan	(i) HIV/AIDS Programs (ii) Tuberculosis and Malaria
10	Clinton Foundation	Pakistan	Energy and Climate Change, Global Health, Human Rights and Peace, and Poverty Alleviation
11	Usaid Pakistan	Pakistan	(i) Dairy and Rural Development (ii) Feedlot Fattening Operation (ii) Economic Growth and Agriculture
12	International Development Enterprises	Pakistan	(i) Agriculture Development (ii) Water, Sanitation, and Hygiene (WASH) (iii) Drip Irrigation
13	Institute of Rural Management	Islamabad	Vocational and Technical Training
14	Indus Hospital	Karachi	Cardiology Technician
15	Pak Education Society	Pakistan	(i) Education (ii) Economic Development (iii) Information and Communication Technology (iv) Youth Development (v) Renewable Energy



## B.6 Productivity Courses Offered By Technical Training Institutes Of Pakistan

Details of technical training institutes in Pakistan offering productivity courses according to the course requirement is given in Table B6.

**TABLE B6**

### PRODUCTIVITY COURSES OFFERED BY TECHNICAL TRAINING INSTITUTES

No.	Institute	Location	Courses/Areas
1	Pak-German Institute of Cooperative Agriculture	Multan	Agriculture, Instrumentation
2	Government College of Technology	Lahore	Biomedical, Hardware Assembling
3	Government College of Technology	Attock	Auto Diesel, Auto Design, Auto Mechanic, CNC Operations
4	Government College of Technology	Sialkot	Auto Electrician
5	Government Technical Training Centre (AMTS)	Bahawalpur	Tractor and Mechanic
6	Government Technical Training Centre	Kabirwala	Tractor and Mechanic, Civil Surveyor
7	Government College of Technology for Glass and Ceramics, Shahdara	Lahore	Glass and Ceramics
8	Institute of Ceramics, Gujrat	Gujrat	Kiln Loading
9	Government College of Technology	Kamalia	Sugar Technology
10	Government College of Technology	Dera Ghazi Khan	Petroleum
11	Government Apprentices Training Centre	Lahore	Electronics Applications, Industrial Electronics
12	Government Technical Training Institute	Kamalia	Electrical (G-III), Machinery
13	Government Technical Training Institute	Sahiwal	Electrical (G-III), Electrical, Auto Diesel, Baking, Painting
14	Government Technical Training Institute	Bahawalnagar	Kashgiri, House Carpentry
15	Government Technical Training Institute	Bahawalpur	Electrical (G-III), Machinery, Industrial Electronics
16	Government Technical Training Institute	Gujrat	Electrical (G-III)
17	Government Technical Training Institute	Chichawatni	Quantity Surveying, Embroidery
18	Government Technical Training Institute	Lahore	Industrial Electronics, Instrumentation - Measuring and Control
19	Government Technical Training Institute	Sargodha	Electrical Wiring

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No.	Institute	Location	Courses/Areas
20	Government Technical Training Institute	Gujar Khan	Motor Winding, Welding, Mobile Repairing, Hardware Repairing
21	Government Technical Training Centre	Jand	Motor Winding, Biomedical
22	Government Technical Training Centre (M), (ABAD)	Kharian	Motor Winding, Motorcycle Mechanic
23	Government Technical Training Centre	Faisalabad	Home Appliance Repairing
24	Government Technical Training Centre	Bahawalpur	Mobile Repairing, IT
25	Government College of Technology	Multan	Electronics Equipment Repair
26	Government Technical Training Institute	Bhera	Electronics Equipment Repairing, Safety Inspection

# APPENDIX C - PHILIPPINES

## **C.1 Republic Of The Philippines, Congress Of The Philippines, Metro Manila, Eighth Congress, Republic Act No. 6971, November 22, 1990**

An Act to Encourage Productivity and Maintain Industrial Peace By Providing Incentives to Both Labor and Capital

*Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:*

Section 1. Short Title. This Act shall be known as the "Productivity Incentives Act of 1990".

Section 2. Declaration of Policy. It is the declared policy of the State to encourage higher levels of productivity, maintain industrial peace and harmony and promote the principle of shared responsibility in the relations between workers and employers, recognizing the right of labor to its just share in the fruits of production and the right of business enterprises to reasonable returns on investments and to expansion and growth, and accordingly to provide corresponding incentives to both labor and capital for undertaking voluntary programs to ensure greater sharing by the workers in the fruits of their labor.

Section 3. Coverage. This Act shall apply to all business enterprises with or without existing and duly recognized or certified labor organizations, including government-owned and controlled corporations performing proprietary functions. It shall cover all employees and workers, including casual, regular, supervisory, and managerial employees.

Section 4. Definition of Terms. As used in this Act:

- (a) *"Business Enterprise"* refers to industrial, agricultural, or agro-industrial establishments engaged in the production manufacturing, processing, repacking, or assembly of goods, including service-oriented enterprises, duly certified as such by appropriate government agencies.
- (b) *"Labor-Management Committee"* refers to a negotiating body in a business enterprise composed of the representatives of labor and management created to establish a productivity incentives program, and to settle disputes arising therefrom in accordance with Section 9 hereof.
- (c) *"Productivity Incentives Program"* refers to a formal agreement established by the labor-management committee containing a process that will promote gainful employment, improve working conditions and result in increased productivity, including cost savings, whereby the employees are granted salary bonuses proportionate to increases in current productivity over the average for the preceding three (3) consecutive years. The agreement shall be ratified by at least a majority of the employees who have rendered at least six (6) months of continuous service.

Section 5. Labor-Management Committee.

- (a) A business enterprise or its employees, through their authorized representatives, may initiate the formation of a labor-management committee that shall be composed of an equal number of representatives from the management and from the rank-and-file employees: Provided, That both management and labor shall have equal voting rights: Provided, further, That at the request of any party to the negotiation, the National Wages and Productivity Commission of the Department of Labor and Employment shall provide the necessary studies, technical information and assistance, and expert advice to enable the parties to conclude productivity agreements.
- (b) In business enterprises with duly recognized or certified labor organizations, the representatives of labor shall be those designated by the collective bargaining agent(s) of the bargaining unit(s).
- (c) In business enterprises without duly recognized or certified labor organizations, the representatives of labor shall be elected by at least a majority of all rank-and-file employees who have rendered at least six (6) months of continuous service.

Section 6. Productivity Incentives Program.

- (a) The productivity incentives program shall contain provisions for the manner of sharing and the factors in determining productivity bonuses: Provided, That the productivity bonuses granted to labor under this program shall not be less than half of the percentage increase in the productivity of the business enterprise.
- (b) Productivity agreements reached by the parties as provided in this Act supplement existing collective bargaining agreements.
- (c) If, during the existence of the productivity incentives program or agreement, the employees will join or form a union, such program or agreement may, in addition to the terms and conditions agreed upon by labor and management, be integrated in the collective bargaining agreement that may be entered into between them.

Section 7. Benefits and Tax Incentives.

- (a) Subject to the provisions of Section 6 hereof, a business enterprise which adopts a productivity incentives program, duly and mutually agreed upon by parties to the labor-management committee, shall be granted a special deduction from gross income equivalent to fifty percent (50%) of the total productivity bonuses given to employees under the program over and above the total allowable ordinary and necessary business deductions for said bonuses under the National Internal Revenue Code, as amended.
- (b) Grants for manpower training and special studies given to rank-and-file employees pursuant to a program prepared by the labor-management committee for the development of skills identified as necessary by the appropriate government agencies shall also entitle the business enterprise to a special deduction from gross income equivalent to fifty percent (50%) of the total grants over and above the allowable ordinary and necessary business deductions for said grants under the National Internal Revenue Code, as amended.

- (c) Any strike or lockout arising from any violation of the productivity incentives program shall suspend the effectivity thereof pending settlement of such strike or lockout: Provided, That the business enterprise shall not be deemed to have forfeited any tax incentives accrued prior to the date of occurrence of such strike or lockout, and the workers shall not be required to reimburse the productivity bonuses already granted to them under the productivity incentives program. Likewise, bonuses which have already accrued before the strike or lockout shall be paid the workers within six (6) months from their accrual.
- (d) Bonuses provided for under the productivity incentives program shall be given to the employees not later than every six (6) months from the start of such program over and above existing bonuses granted by the business enterprise and by law: Provided, That the said bonuses shall not be deemed as salary increases due the employees and workers.
- (e) The special deductions from gross income provided for herein shall be allowed starting the next taxable year after the effectivity of this Act.

Section 8. Notification. A business enterprise which adopts a productivity incentives program shall submit copies of the same to the National Wages and Productivity Commission and to the Bureau of Internal Revenue for their information and record.

Section 9. Disputes and Grievances. Whenever disputes, grievances, or other matters arise from the interpretation or implementation of the productivity incentives program, the labor-management committee shall meet to resolve the dispute, and may seek the assistance of the National Conciliation and Mediation Board of the Department of Labor and Employment for such purpose. Any dispute which remains unresolved within twenty (20) days from the time of its submission to the labor-management committee shall be submitted for voluntary arbitration in line with the pertinent of the Labor Code, as amended.

The productivity incentives program shall include the name(s) of the voluntary arbitrator or panel of voluntary arbitrators previously chosen and agreed upon by the labor-management committee.

Section 10. Rule Making Power. The Secretary of Labor and Employment and the Secretary of Finance, after due notice and hearing, shall jointly promulgate and issue within six (6) months from the effectivity of this Act such rules and regulations as are necessary to carry out the provisions hereof.

Section 11. Penalty. Any person who shall make any fraudulent claim under this Act, regardless of whether or not a tax benefit has been granted, shall upon conviction be punished with imprisonment of not less than six (6) months but not more than one (1) year or a fine of not less than two thousand pesos (P2,000.00) but not more than six thousand pesos (P6,000.00), or both, at the discretion of the Court, without prejudice to prosecution for any other acts punishable under existing laws.

In case of partnerships or corporations, the penalty shall be imposed upon the officer(s) or employee(s) who knowingly approved, authorized or ratified the filing of the fraudulent claim, and other persons responsible therefor.

Section 12. Non-Diminution of Benefits. Nothing in this Act shall be construed to diminish or reduced any benefits and other privileges enjoyed by the workers under existing laws, decrees, executive orders, company policy or practice, or any agreement or contract between the employer and employees.

Section 13. Separability Clause. - If any provision of this Act is held invalid, any other provision not so affected shall continue to be valid and effective.

Section 14. Repealing Clause. - Any law, presidential decree, executive order, and letter of instruction, or any part thereof, which is inconsistent with any of the provisions of this Act is hereby repealed or amended accordingly.

Section 15. Effectivity Clause. - This Act shall take effect fifteen (15) days after its publication in the Official Gazette or in at least two (2) national newspapers of general circulation.

Approved: November 22, 1990.

**TABLE C1**

**TYPES OF PRODUCTIVITY COURSES AND TRAINING**

COURSES			CLASSIFICATIONS		
	Duration	Target	Learning Mode	Financing	Execution
1. Personal Productivity	Short	Individuals	Distance	Self-financed	Regular
2. Time Management	Short	Individuals in middle management	Distance	Self-financed	Regular
3. 5S	Short	Worker-level to middle-level management	On-site	Company supported/ Sponsored	Regular and/or on-demand
4. Benchmarking	Medium-Progressive	Executive- and middle-level management	On-site	Company supported/ sponsored	Awareness and intensive
5. Kaizen	Short	Individual professionals/ middle-level management	On-site or Distance	Self-financed	Awareness and enhancement/ intensive
6. Quality Circles	Short	Workers to Managers	On-site or Distance	Company supported/ sponsored	Regular
7. Ergonomic Hazards Training	Medium	Worker-level to middle-level management	Distance	Supported	Regular
8. Just in Time Production	Long	Worker-level to supervisory-level management	On-site	Supported/ sponsored	Intensive and/ or regular
9. Lean Management System	Short – Medium	Executive- to middle-level management	On-site	Supported/ sponsored or self-financed	Intensive and/ or regular

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COURSES			CLASSIFICATIONS		
	Duration	Target	Learning Mode	Financing	Execution
10. Environmental Management System	Short	Executive- to middle-level management	On-site	Supported/ sponsored	Intensive and/ or regular
11. Six Sigma	Medium	Low- to middle-level management	On-site	Supported/ sponsored or self-financed	Intensive and/ or regular
12. Basic Project Management and Development Course	Short	Managers and team leaders	On-site or Distance	Supported/ sponsored	Awareness and intensive or regular
13. Basic Monitoring and Evaluation	Short	Program and project managers	Distance	Mostly supported/ sponsored, can be self-financed	Awareness and intensive or regular

TABLE C2

## LIST OF JOBS FOR WHICH PRODUCTIVITY COURSES ARE DESIGNED AND OFFERED

Industry	List of Jobs
Manufacturing Industry	<ul style="list-style-type: none"> <li>• Production Operator</li> <li>• Quality Control and/or Quality Assurance</li> <li>• Engineering Staff</li> </ul>
Small and Medium Entrepreneurs	<ul style="list-style-type: none"> <li>• SME Management and Administrators</li> <li>• SME Employees</li> </ul>
Hotel and Restaurant Management	<ul style="list-style-type: none"> <li>• Staff of Hotel and Restaurant categorized as standard or fast-food groups</li> <li>• Managers</li> <li>• Housekeeping Staff</li> <li>• Front Office Staff</li> </ul>
Electrotechnology Industry	<ul style="list-style-type: none"> <li>• Engineers</li> <li>• Technicians and Technical Staff</li> </ul>
Office Management and Administration	<ul style="list-style-type: none"> <li>• Office Professionals</li> </ul>

TABLE C3

## PURPOSE OF PRODUCTIVITY COURSES

Productivity Course	Purpose
Personal Productivity	Skill enhancement and empowerment
Time Management	Skill enhancement and empowerment
5S	Knowledge and skill development and enhancement, promote good housekeeping and discipline
Benchmarking	Knowledge development and empowerment, allow organizations to adopt good practices
Kaizen	Skill enhancement and empowerment, system improvement and knowledge development

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Productivity Course	Purpose
Quality Circles	Skill enhancement and system empowerment, team building and continual development, knowledge development
Quality Management System	Skill enhancement, knowledge development and empowerment, focus on customer satisfaction through quality products and services
Ergonomic Hazards Training	Skill enhancement and empowerment
Just in time Production	Skill enhancement and empowerment, elimination of waste
Lean Management System	Knowledge development and empowerment, elimination of waste
Environmental Management System	Knowledge and skill development, environmental responsibility consciousness
Six Sigma	Skill enhancement, knowledge development and empowerment, improve the capability of business processes
Basic Project Management and Development Course	System improvement and knowledge development
Basic Monitoring and Evaluation	System improvement and knowledge development
Basic Policy Process	System improvement and knowledge development

TABLE C4

## CHARACTERISTICS OF PRODUCTIVITY COURSES

Productivity Course	Characteristics
Personal Productivity	Self-help and self-employment
Time Management	Self-help
5S	Quality improvement for service and office personnel
Benchmarking	Service and product quality improvement for government officials, business sector, private company executives
Kaizen	Skill enhancement and empowerment
Quality Circles	Middle management and supervisory-level positions
Quality Management System	Business executives, directors, and officers of government agencies and executive departments
Ergonomic Hazards Training	Crew and employees in manufacturing, office workers, HRM industry professionals
Just in time Production	Crew and employees in manufacturing, and production line workers and supervisors
Lean Management System	Top- to middle-level management
Environmental Management System	Personnel in manufacturing plants, hotels, and restaurant service, government agencies top- to low-level management
Six Sigma	Executive- to middle-level management
Basic Project Management and Development Course	Top- to middle-level management
Basic Monitoring and Evaluation	Middle-level management, particularly in supervisory positions



TABLE C5

## COURSES OFFERED IN PHILIPPINE TRADE TRAINING CENTER

Course Name
Quality Customer Service
Import Procedure and Documentation
Documentation on Hazard Analysis and Critical Control Points (HACCP)
Introduction to Six Sigma
Resilience in the Work Place
ISO/IEC 17025:2005 Laboratory Management System Documentation
Supervisory and Effectiveness for Improved Quality and Productivity
Statistical Process Control (SPC)
Awareness Course in ISO 22000:2005
Total Quality Management (TQM)
ISO 9001:2008 Quality Management System Documentation and Awareness
Audit on Hazard and Critical Control Points (HACCP)
Effective IQA Reporting Writing Workshop
5S of Good Housekeeping
Logistics Management
Internal Quality Audit (IQA)
Problem-solving and Decision-making Techniques
Awareness on Hazard Analysis and Critical Control Points (HACCP)
ISO 9001:2008 QMS Root Cause Analysis and Corrective Action
ISTIV Plus (Succeeding in Business)
Green Productivity (Green My Enterprise Program)
Service Quality for Key Employment Generators - Hotel and Restaurant Industry
Training on Work Improvement and Measurement Study
Consulting/Supplemental Training on Advance Productivity Technologies
Production and Operation Management
Department of Labor and Employment Productivity Toolbox

**TABLE C6****BASIC, INTERMEDIATE AND ADVANCED TRAINING, AND RECOGNITION AND INCENTIVES**

Basic Training	
101	101 Productivity 101- LHP
102	ISTIV Program Awareness Program (PAP)
103	5S of Good Housekeeping
104	ISTIV Bayanihan Productivity Enhancement Training Program for BMBEs and Micro Enterprises
105	Productivity Enhancement Program for DOLE Livelihood Program Beneficiaries
Intermediate Training	
201	ISTIV Plus (Succeeding in Business)
202	Green Productivity (GP) Green My Enterprise (Green ME) Program “Green Productivity Starts with Me”
203	Service Quality (SQ) for Key Employment Generators - Hotel and Restaurant Industry
204	Training on Work Improvement and Measurement Study
205	Production and Operation Management (PROMAN)
Advanced Training	
301	Service Quality (SQ) for the Supply Chain
302	Gainsharing Schemes
303	Training Scholarship on Leadership, Management and Enterprise Development
Recognition and Incentives	
401	Productivity Olympics

**TABLE C7****DEPARTMENT OF SCIENCE AND TECHNOLOGY**

Serial No.	Title
1	Good Manufacturing Practices
2	Fabric Testing and Quality Evaluation
3	Productivity Improvement through 5S Practice
4	Disaster Mitigation

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Serial No.	Title
5	Bioreactor Operator's Training Course
6	Hazard Analysis Critical Control Points
7	Safe and Proper Usage of Food Additives
8	Proper Use and Handling of Laboratory Chemicals
9	Cleaner Production, Energy Efficiency and Environmental Management System Assessor's Training
10	Cleaner Production Awareness
11	ISO 9001:2000 Awareness
12	Climate Change
13	Documenting the Quality Management System Based on ISO9001:2000
14	Solid Waste Management
15	Recycling of Waste Styropore, Plastic Bags Using Plastic Densifier
16	Internal Quality Audit Seminar/Workshop
17	Energy Efficiency
18	HACCP in the Food Service Industry
19	ISO 22000:Food Safety Management Systems
20	ISO9001:2008 Quality Management Systems
21	Energy Efficiency, Conservation, Management and Audit Measures
22	Productivity and Quality Improvement Tools
23	Productivity Management
24	Disaster Risk Reduction

# APPENDIX D - SRI LANKA

## D.1 Existing Government- And Industry-Supported Productivity-Related Programs

### D.1.1 Programs under the Ministry of Productivity Promotion - Implemented by the National Productivity Secretariat (NPS) - the NPO of Sri Lanka

Various programs and projects have been introduced by the NPS to augment productivity.

#### Program for productivity improvement in the public sector at the regional level

A program is implemented at the regional level targeting public-sector employees. The objective of the program is to create a community-friendly public service. This program includes training, process improvements, and attitude improvement of public officials.

#### Program for productivity awareness for senior officials in public sector

A series of productivity awareness programs for secretaries of ministries, chief secretaries of provincial councils, and divisional secretaries are implemented. The objective is to enlighten them on the importance of productivity enhancement.

#### Preschool sector

A program is launched to improve productivity at the preschool (kindergarten) level to introduce basic productivity concepts to young children. The teachers of these preschools are trained to achieve this objective. Competitions are organized for participating preschools and productivity awards ceremonies are arranged to promote this program.

#### School sector

A productivity promotion program is implemented in schools. The school sector is considered a category in the annual national productivity awards ceremony. Special training programs are conducted for principals and teachers.

#### Higher Education Sector

A productivity promotion program for universities and higher educational institutions is implemented. Opportunities are provided for those institutions to participate in productivity competitions that are held annually.

#### Kaizen Entrepreneurs

Understanding the importance of SMEs and the need to enhance productivity in that sector, a new productivity promotion program was launched. At the initial stage, only selected SMEs are participating in this program.

#### Community Productivity Program

This program is implemented in collaboration with Divisional Secretariats (DS) to enhance productivity at the family and community level. Initially, the program is implemented in selected villages. The objective is to create productivity awareness among people in villages and to improve their living standards.

### National Productivity Awards Program

Productivity competitions followed by awards ceremonies have been implemented since 1993. Although few sectors participated in competitions in the initial stages, the number of participating sectors has now increased dramatically. The sectors that participated in competitions for 2015 are in Table B.1.

**TABLE D1**

#### SECTORS PARTICIPATING IN PRODUCTIVITY AWARDS COMPETITIONS

Manufacturing and Service Sector	Public Sector	School Sector
• Manufacturing Sector (Large)	• Inter-Ministries Sector	• Schools up to Advanced Level
• Manufacturing Sector (Medium)	• Inter-Provincial Ministries Sector	• Schools up to Ordinary Level
• Manufacturing Sector (Small)	• Inter-Departments Sector	• Schools up to Grade Five
• Service Sector (Large)	• Inter-Divisional Secretariats	• Private and International Schools
• Service Sector (Medium)	• Inter-Local Authorities	
• Service Sector (Small)	• Micro Category	

### D.1.2 Programs under the Ministry of Industry and Commerce - Productivity and Quality Improvement Programs in the Industrial Sector

#### Productivity and quality improvement program for selected factories

The productivity and quality improvement program is vital to prepare manufacturing industrialists to stay competitive in the global market by increasing productivity. It helps industrialists maximize profit by reducing the cost of production.

Considering the importance of productivity and quality improvement in industries, the Ministry of Industry and Commerce initiated a general productivity program as a pilot program to improve productivity in 10 factories in 2006. In 2008, it was extended to 20 factories and an energy-saving program was included as an extra package to produce better results than the pilot program. Some companies withdrew from this program due to financial constraints. This program helped build up their strengths to overcome financial difficulties, even during the global financial crisis. In the end, 12 out of 20 factories remained and they were highly committed to ensure the success of the program. Some of them have applied for the national level productivity and quality award competitions. It was completed by the end of 2010.

#### Energy efficiency improvement program

The ministry launched an energy efficiency improvement program to reduce energy consumption by 10% to 15% in all industries and to reduce the burden on the national energy system. Energy conservation is a national priority along with the mitigation of local environmental pollution. This project also addressed specific problems such as the lack of awareness on the potential economic benefits and inadequate in-house technical expertise. The ministry hired energy expert consultants to identify the potential energy-saving industries to achieve the expected results of the program. Fifteen companies in industrial estates in the western and north-western provinces were selected as model companies to be benchmarked by other companies.

### D.1.3 Programs under the Ministry of Industry and Commerce - Implemented by the Sri Lanka Standards Institution (SLSI)

The SLSI is the National Standards Body of Sri Lanka, established under the Bureau of Ceylon Standards Act No. 38 of 1964. The institution functioned under the name of Bureau of Ceylon

Standards until the Act was repealed and replaced by the Sri Lanka Standards Institution Act No. 6 of 1984. The institution now functions under the Ministry of Industry and Commerce and is governed by a council appointed by the minister in accordance with the Act.

#### Standard development

The Scientific Standardization Division of the SLSI develops national standards for products and services to be used mainly in the industrial and trade sector. The sections are agriculture, food, chemicals, cosmetics, textiles, and garments. The purpose is to facilitate development of standards in a multidisciplinary manner addressing different categories. The Scientific Standardization Division adopts and refers to international standards such as the International Organization for Standardization (ISO) and the American Society for Testing and Materials (ASTM) to make the national standards in line with international requirements.

#### Product certification

The Product Certification Scheme, popularly known as the SLS Marks Scheme, gives a third-party guarantee on the quality of products. This scheme is to grant permits to local as well as overseas manufacturers producing goods that conform to Sri Lanka Standards to place the SLS mark on their products. The Sri Lanka Standards Institution Act No.6 of 1984, and the regulations made there empower the Sri Lanka Standards Institution to issue such permits to manufacturers. The Certification Mark on a commodity or product signifies that the commodity or product is consistently manufactured in accordance with the relevant Sri Lanka Standard Specification and could be purchased with a reasonable assurance of quality. Compliance with the requirements of the specification is assured through regular monitoring of the quality assurance system through audits carried out by qualified auditors of the institution and product testing.

#### Sri Lanka National Quality Awards

The Sri Lanka National Quality Awards is an annual award to recognize Sri Lankan organizations that excel in quality management and quality achievement. The Quality Awards program is organized and implemented by the Marketing and Promotion division of the SLSI. The evaluation criteria is based on the criteria used for the Malcolm Baldrige National Quality Awards in the USA.

#### Award Categories

There are 12 eligibility categories:

- Large Manufacturing/Service/Education/Health Care
- Medium Manufacturing/Service/Education/Health Care
- Small Manufacturing/Service/Education/Health Care

#### Type of the Awards

- National Quality Award
- Merit Award
- Commendation Certificate

## D.2 Productivity Training Institutions And Their Contributions

There are large numbers of training and education institutions offering courses on a wide range of subject areas. Most of these training courses are designed to improve knowledge, skills, and attitudes related to a variety of fields. The expected impact is to improve performance, management,

customer/client satisfaction, environment protection, industrial relations, etc. Although such impact may be linked to productivity, it is practically impossible to study all training institutions. Although there could be a link between performance and productivity, increasing performance does not always ensure productivity enhancement.

The purpose of the research is to propose practically implementable courses of action to strengthen productivity training institutions. The implementation of recommendations should be coordinated by the NPO with the assistance and guidance of the APO. The NPO has already developed relations with training institutions in the public, private, and NGO sectors that deliver productivity training courses. Some trainers (faculty members) of these institutions have participated in APO training courses implemented in Sri Lanka and abroad. Therefore, only institutions delivering training courses or modules on productivity concepts, tools, and techniques are studied under this research project.

### D.2.1 Identification and Recognition of Productivity Training Institutions

**TABLE D2**

#### TRAINING INSTITUTIONS REGISTERED WITH TVEC BY PROVINCES

Province	Government	NGO	Private	Total
Western	184	39	640	863
Southern	145	32	80	257
Northern	85	24	33	142
Central	120	14	99	233
Uva	56	19	19	94
Eastern	85	24	63	172
North Central	63	10	33	106
Sabaragamuwa	79	6	57	142
North Western	71	11	91	173
<b>Total</b>	<b>888</b>	<b>179</b>	<b>1,115</b>	<b>2,182</b>

**Source:** Technical and Vocational Education Commission

As evident from data in Table D2, there are 2,182 training institutions registered with the Tertiary and Vocational Education Commission (TVEC) of the Ministry of Skill Development and Vocational Training. Those institutions deliver training courses on a wide range of subjects. In addition, some training institutions operate without registration. However, as of now, there are only a few training institutions that assign high priority to productivity training. Other institutions have implemented a small number of short-term (mostly one day) productivity training courses or incorporated one or several sessions on productivity-related subjects into their regular training courses that are focused on their interested themes.

#### Government-owned Training Institutions

There are many training institutions that function under various ministries, departments, and statutory bodies to develop the competencies of their employees. Some of these institutions train employees on productivity concepts, tools, and techniques. The National Productivity Secretariat (NPS) and the National Institute of Labor Studies (NILS) are the only two training institutions that implement diploma-level training courses, covering all aspects related to productivity. These institutions also implement certificate courses and short-term training courses on productivity.

### NGO-operated Training Institutions

There are 1,439 NGOs registered with the Secretariat for NGOs. Of these, 179 are registered with the TVEC as shown in Table D2. In addition, there could be a small number of NGOs operating in Sri Lanka without any registration. Most of those organizations conduct training on various subjects such as technical and vocational fields, ideologies, and social or spiritual issues. However, there are a few NGOs that conduct training courses exclusively on subjects related to productivity and implement short-term courses. In addition, they conduct on-demand/tailor made courses for private companies. Other NGOs have integrated one or several sessions related to productivity into the training courses they offer on various fields.

### Private Training Institutions

As evident from the data in Table D2, 1,115 private-sector training institutions are registered with the TVEC. A few private institutions have been established with the sole intention of conducting productivity training to cater to the needs of the private sector. They conduct short-term training on specific areas related to productivity such as Productivity Concepts, 5S, Kaizen, Six Sigma, and Balanced Score Card.

## D.2.2 Categorization of Productivity Training Institutions

For the purpose of discussion in this study, training institutions are categorized based on the type of ownership and the degree of priority assigned to productivity training as shown in Table D3.

**TABLE D3**

### CATEGORIZATION OF TRAINING INSTITUTIONS BY OWNERSHIP/PRIORITY FOR PRODUCTIVITY

Category by Ownership	Degree of Priority to Productivity		
	A. High	B. Medium	C. Low
Government	1.A	1.B	1.C
NGO	2.A	2.B	2.C
Private	3.A	3.B	3.C

Institutions that deliver long-term (diploma), medium-term (certificate), and short-term training covering important aspects related to productivity are considered high priority. Institutions that implement short-term and tailor-made courses are considered medium priority. Institutions that integrate one or a few sessions on subjects related to productivity are considered low priority.

### Government-owned Training Institutions

Government-owned institutions that offer productivity training are listed as follows by category:

Category 1.A: Government training institutions that give high priority to productivity

As evident from the data in Table B.2, there are 888 government-owned training institutions that are registered with the TVEC. The total number should be higher since some training institutions operate without registration. But only two government training institutions offer diploma, certificate, short-term, and tailor-made courses on productivity and related subjects.

### NPS

This is the leading institution in productivity training and promotion in the country dedicated to:

- Establishing a productivity work culture within the country
- Encouraging innovation and creativity



- Launching an awareness program to the general public
- Popularizing the program on productivity promotion as a national campaign

All training offered by the NPS are directly focused on or indirectly linked to productivity enhancement that target officials/employees at all levels from all sectors. Training programs include diploma, certificate, and short-term courses at their lecture rooms and outside on-demand. Since the NPS is also involved in organizing productivity competitions and awards, they conduct special training programs for members of the judging panel and educate participating organizations.

### *NILS*

This institution was established in 2007 to facilitate tripartite constituents to develop and maintain productive labor relations through education, research, and training. All activities of the NILS are focused on the following three main subject areas:

- Labor laws and industrial relations
- Workplace productivity
- Human resource management

The institution implements a large number of training programs on subjects related to productivity, including diploma, certificate, and short-term courses. In addition, on-demand or tailor-made training programs are conducted at the organizations of clients. Short-term courses are three days, two days, and one day in duration.

Category 1.B: Government training institutions that offer short-term and tailor-made courses, and modules and sessions in regular courses.

### *(a) National Institute of Business Management (NIBM)*

The NIBM was the NPO for Sri Lanka until 2002. Although there was a division dedicated to productivity training at that time, there are now three main divisions, namely, IT, management, and languages. The institute has affiliations with several foreign universities and confers degrees. Its branches are located in main cities because of high demand. However, these branches conduct short-term courses on productivity-related subjects or integrate productivity-related subjects into their regular management training courses.

### *(b) Sri Lanka Institute of Development Administration (SLIDA)*

The SLIDA is established to cater to the training needs of managers and administrators in the public service. The institute conducts training on a wide range of subjects related to general management, project management, and administration. It also conducts short-term courses and integrates modules or sessions into other courses on productivity and quality-related subjects with a view to improving public service performance. In the 1990s, the institute launched a campaign to enhance productivity in selected government offices and generated significant results.

### *(c) SLSI*

The SLSI is established to undertake, promote, and facilitate standardization, measurement, quality assurance, and related activities in all sectors of the national economy. This institution functions as the authority for issuing quality certifications in Sri Lanka. They conduct few short-term training courses on subjects related to productivity and quality.

*(d) Public Service Training Institute (PSTI)*

The PSTI is established to cater to the training needs of non-managerial staff, including clerks, technicians, office aids, and drivers. The institute conducts training on a wide range of subjects related to office management, discipline, and skill-oriented work. They also conduct short-term courses and integrate modules or sessions into other courses on productivity and quality-related subjects with a view to improving public-service performance.

Category 1.C: Government training institutions that offer modules or sessions in regular courses

*(a) Sri Lanka Institute of Local Governance (SLILG)*

The SLILG is established to build the capacity of sub-national (regional/provincial) and local government institutions through advocacy, training, research, and consultancy services to uplift people's quality of life. The institute's training is focused more on subjects related to local government. However, they include one or several sessions on productivity-related subjects within their regular training courses.

*(b) Rural Development, Training, and Research Institute (RDTRI)*

The main focus of RDTRI is the development of rural areas and improvement of living standards of people in rural areas. The RDTRI conducts many training programs for a wide range of subjects related to rural development. In some courses, one or several sessions on productivity-related topics are integrated.

*(c) National Institute of Plantation Management (NIPM)*

The NIPM conducts various kinds of seminars, workshops, and examinations, and provides research and consultancy services to public- and private-sector organizations. It also conducts training for foreign participants. The institute's main focus is on subjects related to plantation management. In their regular training courses, one or several sessions on productivity are integrated.

*NGO-owned Training Institutions*

There are 179 training institutions owned by NGOs that operate in Sri Lanka, including international NGOs, registered with TVEC. The total number of NGOs registered with the Secretariat for NGOs is 1,439. There could be more NGOs that conduct training without any registration. These organizations are set up to promote certain concepts or ideologies, or to address certain social and economic issues. Most of these unregistered organizations conduct training for their members as well as for service recipients. There are not many NGOs established to promote productivity in Sri Lanka.

Category 2.A: NGO-operated training institutions that offer diploma, certificate, short-term, or tailor-made courses on productivity

There are no NGO-operated training institutions that fall in this category in Sri Lanka.

Category 2.B: NGO-operated training institutions that offer short-term and tailor-made courses, and modules and sessions in regular courses.

*(a) Japan Sri Lanka Technical and Cultural Association (JASTECA)*

Having understood the importance and benefits of productivity enhancement, this NGO was created by business leaders and managers who participated in productivity training in Japan.

JASTECA organizes projects and programs to promote productivity in Sri Lanka, including short-term training courses or workshops on subjects related to productivity or quality.

*(b) Sri Lanka Association for Quality (SLAQ)*

The SLAQ was set up to promote quality in Sri Lanka. It works with industries and the government to educate people on the importance of quality and to bring about better regulations for the process of assessing quality standards. A wide range of activities are implemented by SLAQ to achieve its mission, including quality competitions and benchmarking services. It also conducts a diploma course on quality, short-term training courses on productivity-related subjects, and integrates one or several sessions into its regular training courses.

*(c) Employers Federation of Ceylon (EFC)*

The mission of the EFC is to encourage workers, their organizations, and the government to cooperate with businesses to attain the following objectives:

- (a) To make employees more efficient and quality conscious
- (b) To achieve better terms and conditions of employment
- (c) To prevent industrial strife and to resolve disputes in a fair and expeditious manner
- (d) To generate employment opportunities
- (e) To provide members with services to achieve growth and stability

The EFC implements many short-term training programs to achieve the above-mentioned objectives, including programs related to productivity and quality. In addition, they integrate one or several sessions on productivity-related subjects into their regular training courses.

Category 2.C: NGO-operated training institutions that offer modules/sessions in regular courses

*(a) Sarvodaya Economic Enterprise Development Services (SEEDS)*

SEEDS is Sri Lanka's largest people's organization. It has a network covering 15,000 villages. Sarvodaya has 345 divisional units, 34 district offices, and 10 specialist Development Education Institutes. It implements many training courses, including technical and vocational subjects. For some of its training courses, productivity-related topics are integrated.

*(b) Federation of Thrift and Credit Co-operative Societies of Sri Lanka (SANASA)*

SANASA is the Sinhala acronym for the Federation of Thrift and Credit Co-operative Societies of Sri Lanka. It is the only micro-finance cooperative network in Sri Lanka, covering all provinces with 8,424 primary societies. The membership of the movement consists of persons belonging to all races and religions totaling 805,000. Education and training activities are coordinated by SANASA Campus through five colleges. SANASA implements many training courses that cover a wide range of subjects. Productivity-related subjects are integrated into some of its training courses.

*(c) Sri Lanka Business Development Centre (SLBDC)*

The SLBDC is established to provide a comprehensive package of high-quality professional services in human resources, enterprise development, and general consultancy at affordable prices to private enterprises, NGOs, development organizations, and individuals with a view to improving economic performance and promote sustainable development through a committed, qualified, and motivated professional team. The center integrates subjects related to productivity into some of its regular training courses.

*(d) Start and Improve Your Business (SIYB) Association of Sri Lanka*

The SIYB is an organization created to enhance entrepreneurship skills of small business owners and new start-ups. They have nearly 400 trainers who conduct training on subjects related to business, including technical and vocational subjects. Productivity-related subjects are also integrated into some of their regular training courses.

*Private Training Institutions*

Category 3.A: Private training institutions that offer diploma, certificate, short-term, tailor-made courses

There are no private training institutions that fall into this category in Sri Lanka.

Category 3.B: Private training institutions that offer short-term and tailor-made courses, and modules and sessions in regular courses.

*(a) Lanka International Management Advisory Services (LIMAS)*

LIMAS is an organization that provides training, research, and consultancy services to all sectors. It offers on-demand programs and conducts training on a wide range of subjects, including all productivity-related topics. Even in management training courses, productivity-related subjects are integrated as sessions.

*(b) Kaizen Productivity (Pvt) Ltd*

This training institution has been established based on extensively studied productivity-related principles. Short-term training courses on many areas of productivity are conducted, along with on-demand programs.

*(c) Institute of Lean Management (ILM)*

The ILM is established to strengthen industrial, plantation, and service sectors by improving business processes and developing human resources in order to face local and global competition on quality, cost, and delivery. It conducts short-term training courses on subjects related to productivity.

*(d) Institute of Techno-Management (IITM)*

The IITM provides training on a wide range of subjects that are mostly linked to technologies targeting employees at managerial, supervisory, and technical grades. At the same time, its programs are also geared towards improving quality, productivity, and profitability. It conducts short-term training courses on productivity-related subjects.

Category 3.C: Private training institutions that offer modules or sessions in regular courses

- Sri Lanka Institute of Training and Development
- Sri Lanka Institute of Packaging
- Institute of Supply and Material Management
- Metropolitan College (Pvt) Ltd
- Business Management School (Pvt) Ltd

The above organizations provide training courses on specialized subjects, which includes one or several sessions on basic productivity concepts, tools, and techniques.

### D.2.3 Courses and Programs and their Characteristics

There are three types of training courses: diplomas (long term), certificates (medium term), and short-term training courses or workshops (one to three days in duration). Only two diploma courses on productivity are offered in Sri Lanka. There are substantial similarities and slight differences in curriculum, training delivery methodologies, and evaluation methods between those two courses.

#### Diploma Courses

There are only two diploma-level training courses offered in Sri Lanka:

- Diploma courses offered by the NPS
- Diploma courses offered by the NILS

#### Certificate Courses

Only two institutions offer certificate courses on subjects directly related to productivity.

- Certificate courses offered by the NPS
  - » Certificate on Productivity
- Certificate courses offered by the NILS
  - » Advanced Productivity Tools and Techniques
  - » Consultancy Skill Development for Productivity Experts
  - » Globalization and Productivity Challenges, ISO and Green Productivity
  - » Motivation for Higher Productivity
  - » Occupational Safety and Health for Higher Labor Productivity
  - » Productivity Analysis and Measurements

#### Short-term Courses

Training institutions that fall into the categories of 1A, 1B, 2A, 2B, 3A, and 3B offer one or several of the following short-term courses. Generally, most organizations offer one-day training courses or workshops. Only the NPS and the NILS offer three-day and two-day courses.

• Kaizen Management	• Productivity and 5S
• Quality Control Circles	• 3R Method
• Green Productivity	• Energy Efficiency for Productivity
• Leadership for Productivity Improvement	• Change Management
• Total Productive Maintenance	• Knowledge Management
• Productivity Measurement and Analysis	• Work Study/Method Study
• Six Sigma	• Kaizen Suggestion Schemes
• Strategic Planning	• Seven New Quality Tools
• Balanced Scorecard	• Human Resource Management for Productivity
	• Lean Management

#### Sessions on Productivity-related Subjects

Training institutions that fall into 1C, 2C, and 3C categories incorporate sessions on a wide range of subjects that are related to productivity. In most cases, they are similar to the courses listed under Short-term Courses.

TABLE D4

## COMPARISON OF CURRICULA BETWEEN THE NPS AND THE NILS

NPS	NILS
Basic Productivity Tools and Techniques, Definitions of Productivity	Productivity Concepts, Basic Productivity Tools and Techniques
Advance Productivity Tools and Techniques Total Productivity Management, Six Sigma, Manufacturing Management	
Advance Productivity Tools and Techniques, Business Process Reengineering, Technology and Productivity, ICT and Productivity, ISO Standards, Service Innovation	
Lean/Toyota Production System, Lean Principles, Lean Philosophy, Lean Methods, Tools and Techniques, Lean Implementation, Case Studies on Lean	Advanced Productivity Tools and Techniques
Knowledge Management (KM) and Customer Relationship Management (CRM) Introduction of KM, KM Framework, KM Implementation, Introduction of CRM, Implementation of CRM, Success Stories on KM/CRM	
Green Productivity (GP), Introduction of GP, GP Methodology, GP Tools and Techniques, Material Flow Cost Accounting, GP Success Stories (conducted by two international experts from the APO)	Globalization and Productivity Challenges, ISO, and GP
Productivity Measurement and Analysis, Balanced Scorecard, Productivity Indicators, Single Factor Productivity, Multifactor Productivity, Productivity Awards	Productivity Analysis and Measurements
Total Quality Management-TQM Concept of TQM, TQM Philosophy, Quality Management System, Tools of TQM, TQM Implementation	Quality Improvement for Higher Productivity-SLS and ISO
Leadership and Human Resource Management (HRM), Types of Leaders, Roles of Leaders, Introduction to HRM, Principles of HRM, Sharing Best Practices on HRM	Motivation for Higher Productivity Results-based Productivity Project Management
Professional Development of Productivity Practitioners, Presentation Skills, Roles, and Codes of Conduct of the Trainer/ Consultant/Evaluator/Auditor, Communication/Analytical/ Decision-making skills	Consultancy Skill Development for Productivity Experts
Professional Development of Productivity Practitioners, Presentation Skills, Roles, and Codes of Conduct of the Trainer/ Consultant/Evaluator/Auditor, Communication/Analytical/ Decision-making skills	Occupational Safety and Health for Higher Labor Productivity, and Research Methodology

# APPENDIX E - THAILAND

**TABLE E1**

**LIST OF TRAINING COURSES IN DIFFERENT AREAS FROM ENTREPRENEURS' VIEWPOINT**

No.	Areas	Topics
1	HRD	Leadership Skill Executive Coaching Program General Topic in HRD Systematic Thinking Supervisory Skills Kaizen Productivity Mindset Innovative Thinking
2	HRM	Job Family Employee Engagement Work-Life Balance Job Specification Teamwork Performance Evaluation Individual Development Plan Creating a Succession Plan
3	Productivity Management	Safety Quality and Efficiency Six Sigma Standard and Quality Production Management Cost Reduction Energy Saving 5S
4	Customer-specific Management	Customer Service Customer-centric Management
5	IT	e-Learning Blended Learning Gamification Knowledge Management Learning Management
6	Strategic Management	Change Management Business Excellence Productivity Culture Environment Impact Analysis Process Mapping Innovation Management Strategic Planning
7	Other Areas	Business Intelligence and Data Analytics such as Sustainable Corporate Index (SCI) Decarbonize Production Process in Manufacturing Big Data Analysis Climate Change Benchmarking Industry 4.0 Best Practices

**Source:** Interview survey

Table E2. shows a comparison between stages in industrial development and the evolution of productive human capital management in Thailand.

TABLE E2

### COMPARISON BETWEEN THE DEVELOPMENT OF THAILAND'S INDUSTRIAL REVOLUTION AND THE EVOLUTION OF PRODUCTIVE HUMAN CAPITAL MANAGEMENT

Stages in Industrial Revolution	Evolution of Productive Human Capital Management
Thailand 1.0: Agriculture	The agricultural sector does not emphasize a skilled workforce. The nature of work is linear and there is no clear-cut division of duties. Productivity management may not be relevant at this stage. Awareness of the importance of productivity may be missing among agricultural workforce.
Thailand 2.0: Light Industry	The focus is on business-oriented products that are mass produced with appropriate designs. Employees aim for an increased production volume because compensation depends on productivity level. Productivity management is emphasized at the corporate level, including joint ventures with countries such as Japan.
Thailand 3.0: Heavy Industry	Qualified specialists are engaged in work areas. Productivity management system is implemented at the operation and process levels and management evaluation. Employees are considered as valuable resources and knowledge management is emphasized. Talent management and organizational learning and development are the focus.
Thailand 4.0: Smart Thailand Creativity and Innovation	Productivity management is seen as the contributing factor to economic growth. Productivity of complex systems is emphasized. Emerging factors and conditions are looked into. Productivity management is seen as a tool to be used to make the country a wealthy one in the near future.

**Source:** Stages in industrial revolution and their definition: Seminar on Digital Thailand 2016 (May 28) at the Queen Sirikit National Convention Center by the National Science and Technology Development Agency



# APPENDIX F

## F.1. Questionnaires for Training Institutions

TT	Content	Bachelor's Level	Master's Level	Short Courses	Workshop	Learners
1	Productivity Management					
2	Productivity Measurement and Improvement					
3	Quality Management					
4	Business Process Management					
5	Business - Reengineering					
6	Customer Satisfaction Management					
7	Customer Relationship Management					
8	Standardization					
9	Management standard system such as ISO 9000, ISO 14000, ISO 22000, ISO 25000, ISO 27000, SA8000, OHSAS 18000, ISO 26000, etc					
10	Contents of TQM such as JIT, TPM, 5S, Kaizen, Lean, Six Sigma, Quality Circle, SPC, House of Quality					
11	Service Quality Management					
12	Value Chain					
13	Research and Development Management					
14	Innovation and Creativity Management					
15	Benchmarking					
16	Green Production/Green Service/Productivity					
17	Management skills such as Presentation Skills, Communication Skills, Time Management Skills, Stress Management Skills, etc.					
18	Key Performance Indicator (KPI)					
19	Efficiency Management					
20	National Quality Award					
21	Other (specify): .....					
22	Other (specify): .....					

**Notice:** Take into account the training courses offered by your institutions but not by individuals.

1. Total number of courses: \_\_\_\_\_ courses (one course may include several topics from the table above)

2. Is there a department that specializes in offering productivity courses?

☐ Yes

☐ No

3. Number of trainers that specialize in productivity courses.

\_\_\_\_\_ persons

4. What are good practices and weaknesses of your institution in offering productivity courses?

Good practices

.....  
 .....

Weaknesses

.....  
 .....

## F.2. Questionnaires for Students in Universities

### 1. YOUR FEELINGS ABOUT THE TRAINING PROGRAM (1- TOTALLY DISAGREE » 5 - TOTALLY AGREE)

i. Training program					
1. The training program provides you with the necessary knowledge of productivity management.	1	2	3	4	5
2. The training program has clear objectives.	1	2	3	4	5
3. The knowledge provided in the training program is updated.	1	2	3	4	5
4. The structure of modules is relevant.	1	2	3	4	5
5. The training program is relevant to your work in the future.	1	2	3	4	5
ii. Trainers					
6. Teachers are knowledgeable on training topics.	1	2	3	4	5
7. Teachers have knowledge on business practices.	1	2	3	4	5
8. Teaching method is easy to follow.	1	2	3	4	5
9. Teaching method is modern.	1	2	3	4	5

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10. Evaluation of student performance is relevant.	1	2	3	4	5
11. Teachers are well prepared.	1	2	3	4	5
12. Teachers are friendly.	1	2	3	4	5
iii. Supporting services					
13. Information in the website is sufficient.	1	2	3	4	5
14. Supporting staff are friendly and helpful.	1	2	3	4	5
15. Job consulting activities are helpful.	1	2	3	4	5
iv. Overall evaluation					
16. Overall, I am satisfied with the training program.	1	2	3	4	5
17. If you want to further your studies, will you choose NEU?	1	2	3	4	5

## 2. YOU HAVE RECEIVED NEW KNOWLEDGE THAT WILL BE USEFUL IN YOUR WORK.

Totally disagree	Disagree	Neutral	Agree	Totally agree
1	2	3	4	5

Please list the knowledge that you have gained:

.....

.....

## 3. YOU HAVE DEVELOPED NEW SKILLS.

Totally disagree	Disagree	Neutral	Agree	Totally agree
1	2	3	4	5

Please list the skills that you have gained or developed:

.....

.....

## 4. YOU HAVE POSITIVELY CHANGED YOUR ATTITUDE.

Totally disagree	Disagree	Neutral	Agree	Totally agree
1	2	3	4	5

Please list the attitudes that you have changed:

.....

.....

## 5. ACCORDING TO YOU, WHAT WOULD HAVE MADE THE TRAINING PROGRAM MORE EFFECTIVE?

.....

.....

## F.3. Questionnaires for Learners of on-Demand Courses

### TRAINING EVALUATION FORM

Date:

Title and location of training:

Trainer:

Instructions: Please indicate your level of agreement with the statements listed below.

### 1. HOW DID YOU FEEL ABOUT THE TRAINING?

Statement	Totally disagree 1	Disagree 2	Neutral 3	Agree 5	Totally agree 5
1. The objectives of the training were clearly defined.					
2. Participation and interaction were encouraged.					
3. The topics covered were relevant to me.					
4. The contents were organized and easy to follow.					
5. The materials distributed were helpful.					
6. The training experience will be useful in my work.					
7. The trainer is knowledgeable about the training topics.					
8. The trainer was well prepared.					
9. The training objectives were met.					
10. The time allotted for training is sufficient.					
11. The meeting room and facilities were adequate and comfortable.					
12. Your overall evaluation of the course is	Poor 1	Below average 2	Average 3	Very good 4	Excellent 5

**2. YOU HAVE RECEIVED NEW KNOWLEDGE THAT IS USEFUL IN YOUR WORK.**

Totally disagree	Disagree	Neutral	Agree	Totally agree
1	2	3	4	5

Please list the knowledge that you have gained:

.....

.....

**3. YOU HAVE DEVELOPED NEW SKILLS.**

Totally disagree	Disagree	Neutral	Agree	Totally agree
1	2	3	4	5

Please list the skills that you have gained or developed:

.....

.....

**4. YOU HAVE CHANGED YOUR ATTITUDE REGARDING YOUR WORK.**

Totally disagree	Disagree	Neutral	Agree	Totally agree
1	2	3	4	5

Please list the attitudes that you have changed:

.....

.....

**5. ACCORDING TO YOU, WHAT WOULD HAVE MADE THE COURSE MORE EFFECTIVE?**

.....

.....

**F.4. LIST OF SURVEYED TRAINING INSTITUTIONS**

No.	Name of Institution	City/Province
1	National Economics University	Hanoi
2	Hanoi University of Technology	Hanoi
3	Hanoi Industrial Textile Garment University	Hanoi
4	University of Commerce	Hanoi
5	Vietnam Women's Academy	Hanoi
6	University of Economics and Business - Vietnam National University	Hanoi
7	Hanoi University of Industry	Hanoi

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No.	Name of Institution	City/Province
8	Electric Power University	Hanoi
9	Hanoi University of Business and Technology	Hanoi
10	Vietnam Chamber of Commerce and Industry	Hanoi
11	TAC Hanoi	Hanoi
12	Top Man JSC	Hanoi
13	Hanoi Small and Medium Enterprise Association	Hanoi
14	Vietnam Textile and Apparel Association	Hanoi
15	PTI Training Joint Stock Company	Hanoi
16	Thai Nguyen University	Thai Nguyen
17	Hai Duong University	Hai Duong
18	Thai Binh Vocational College	Thai Binh
19	Da Nang University of Economics	Da Nang
20	Duy Tan University	Da Nang
21	Can Tho University	Can Tho
22	Ba Ria - Vung Tau University	Ba Ria - Vung Tau
23	Ho Chi Minh City University of Economics	HCM City
24	Ho Chi Minh City University of Technology	HCM City
25	Saigon University	HCM City
26	TAC Ho Chi Minh City	HCM City
27	Ho Chi Minh City Association of Apparel, Textile and Embroidery (AGTEK)	HCM City

# SUSTAINABLE PRODUCTIVITY

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