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**Status Report on the Education  
Management Information Systems (EMIS)  
of Technical and Vocational Education  
and Training (TVET) in 12 countries in Latin  
America and the Caribbean**

# Status Report on the Education Management Information Systems (EMIS) of Technical and Vocational Education and Training (TVET) in 12 countries in Latin America and the Caribbean

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In recent years, a recurring complaint of the national authorities in Latin America and Caribbean countries refers to the need to consolidate the Education Management Information Systems (EMIS, SINFO in Spanish) to allow timely access to quality information. The implementation of an EMIS in the field of Technical and Vocational Education and Training (TVET) is a strategic factor for improving the planning, design and evaluation of education and training proposals and programmes.

In the countries of the region, an EMIS of this type has not yet been consolidated. The main reasons relate to: a lack of definition of the scope of TVET at the national level, and the absence of a national evaluation method of TVET.

Despite the definition of TVET proposed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2001, the concept has not yet been implemented at the national level. According to the recommendations,

*“TVET covers all aspects of the educational process that, in addition to general education, involve the study of technologies and related sciences and the acquisition of skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic life and social development” (UNESCO, 2002).*

The investigations indicate that education systems provide different scopes of this type of training. Some consider TVET as a guide for secondary education. Others consider it only as a type of secondary education provided specifically in technical institutes.

Moreover, in recent years the growth of TVET has exhausted the administrative capacity in some ministries to be able to host this type of service. EMIS management has not been immune to this process.

In this context, the main objective of the study is to analyze the current situation of the EMIS of TVET in Latin America and the Caribbean. To narrow the focus of the inquiry, we selected a representative sample of twelve countries in the region (Argentina, Brazil, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Paraguay, Peru, the Dominican Republic, and Trinidad and Tobago). Also discussed are the main features of the organization and availability of the programme.

The first part briefly describes the methodology of the present report. The strategies adopted to collect information, and the steps taken to achieve the objectives of the investigation are also discussed in detail.

The second section provides the conceptual framework of TVET and the various terms used in the countries of the region. It also compares the definitions of formal, non-formal and informal education.

The third section is a description of the organization and management of TVET in the countries selected for the study. It also details the involvement of different stakeholders in the actions associated with this type of training.

The fourth section contains a quantitative analysis of the formal offerings of TVET. It describes the evolution of enrollment in the programme and analyzes the participation in all general programmes according to level of education. It also investigates some variables used in studies related to this type of training.

The fifth part describes the characteristics of the EMIS and the offices of statistics of the ministries of education and labour. Also discussed are the initiatives taken in terms of information production and monitoring of activities related to TVET of the selected countries.

The sixth section contains recommendations for the design of an EMIS of TVET. It details the prerequisites to be generated for its implementation. A proposed organization of the system and a set of variables for the programme are also included.

This document should be considered as a first approximation of the status of TVET and the EMIS, since the production and publication of information relating to this type of training is very limited in the region.

## I. Methodology of the Study

First, the available literature on TVET was reviewed and information was collected from various sources (from national and international organizations). To reinforce this action, a general inquiry was made, addressed to various officials of ministries of education in the region through questionnaires and telephone interviews. Then, the information obtained was verified and systematized in order to analyze the cases detected. Specifically, the organization and operation of TVET and its EMIS were analyzed. The UNESCO Regional Bureau of Education for Latin America and the Caribbean (OREALC/UNESCO Santiago) collaborated on issues relating to communications with the countries and with suggestions for developing the research.

As noted, the information contained in this document results from the application of two questionnaires (see Annexes B and C). The first was distributed to all countries in Latin America and the Caribbean and aimed to obtain background information of TVET in the region. This questionnaire was distributed at the UNESCO Regional Workshop on Education Statistics held in Viña del Mar (Chile) in 2011. These questionnaires were completed by the national representatives of the Regional Information System (SIRI by its Spanish acronym). SIRI is a strategy implemented by UNESCO to link education statistics in member countries of the region and to coordinate actions with the Global Programme of Education Statistics. In several cases, the officials consulted gave partial or incomplete answers. However, where it was possible, the answers were complemented using information found on the websites of national government agencies. Thus, the questionnaire responses were verified and the information was expanded. However, the partial responses and the low production

and publication of data can explain the lack of progress in terms of developing information on TVET in the region.

The second questionnaire was sent to the twelve countries chosen for the study which had also participated in a panel discussion on TVET during the Regional Workshop 2011. In the document, data was collected on the organization of TVET and the EMIS. Additionally, statistical information was requested from these countries. However, in both cases the response rate was very low. For example, from the group of countries included in the study, only four responded to the questionnaires. For further information, a plan was drawn up to conduct telephone interviews aimed at countries that had not returned the questionnaires. This allowed for answers to be collected from five additional countries: Brazil, Ecuador, El Salvador, Guatemala and Paraguay.

The actions described permitted a panoramic view of the organization and management of TVET, a quantitative analysis, and the development of a set of recommendations to implement an EMIS. Furthermore, a group of variables was recorded in order to include, if considered necessary, in a future EMIS of TVET.

## II. Conceptual Framework

Given the need to strengthen the links between education and labour, and set common objectives, in 2001 the ILO and UNESCO developed recommendations regarding the scope and definitions of TVET. In this context, TVET is considered as a part of the lifelong learning process. The definition includes:

*“All aspects of the educational process, in addition to general education, involving the study of technologies and related sciences and the acquisition of skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life” (UNESCO, 2002).*

The proposal also defines the method as:

*“(a) an integral part of general education, (b) a means of preparing for occupational fields and for effective participation in the world of work, (c) an aspect lifelong learning and a preparation for responsible citizenship, (d) an instrument to promote sustainable and eco-friendly development, and (e) a method to facilitating poverty alleviation” (UNESCO, 2002).*

Unlike general education systems composed of educational levels that are closely related to the ages of the population, TVET meets the specific training needs of adolescents, youth and adults. The objective of this training is the acquisition or maintenance of skills, to enter or remain in the work force, and thus contribute to increasing the employment rate, eradicate poverty and increase social cohesion (UIS, 2011).

According to national education laws and responses to the questionnaires, the denomination of TVET is quite varied in Latin America and the Caribbean:

- Technical Vocational Education (Educación Técnico-Profesional) (Argentina and the Dominican Republic).
- Secondary Technical Education and Vocational Training (Educación Secundaria Técnica y Formación Profesional) (Aruba).
- Vocational and Technological Education (Educación Profesional y Tecnológica) (Brazil).
- Technical Career Education (Educación Técnica Profesional) (Costa Rica).
- Technical Education and Vocational Training (Educación Técnica Vocacional y Formación Profesional) (El Salvador).
- Technological and Technical-Productive Higher Education (Educación Superior Tecnológica y Técnico Productiva) (Peru).
- Vocational and Technical Education (Educación Técnica y Vocacional) (Suriname).

In the remaining countries it is called Educación y Formación Técnica y Profesional (EFTP), or TVET in Anglophone nations. While the names are different, the definitions set forth are similar.

**Table 1 / Denomination of TVET in Latin American and Caribbean countries.**

Country	Denomination of TVET
Anguila	Technical and Vocational Education and Training
Antigua and Barbuda	Technical and Vocational Education and Training
Argentina	Educación Técnico-Profesional (Technical Vocational Education)
Aruba	Secondary Technical Education and Vocational Training
Bahamas	Technical and Vocational Education and Training
Barbados	Technical and Vocational Education and Training
Belize	Technical and Vocational Education and Training
Brazil	Educación Profesional y Tecnológica (Vocational and Technological Education)
Costa Rica	Educación Técnica Profesional (Technical and Vocational Education)
Dominican Republic	Educación Técnico-Profesional (Technical and Vocational Education)

Country	Denomination of TVET
Ecuador	Educación Técnica y Formación Profesional (Technical Education and Vocational Training)
El Salvador	Educación Técnica Vocacional y Formación Profesional (Technical Vocational Education and Professional Training)
Honduras	Educación Técnica y Formación Profesional (Technical Education and Vocational Training)
Grenada	Technical and Vocational Education and Training
Guatemala	Educación Técnica y Formación Profesional (Technical Education and Vocational Training)
Guyana	Technical and Vocational Education and Training
Cayman Islands	Technical and Vocational Education and Training
Jamaica	Technical and Vocational Education and Training
Mexico	Educación Técnica y Formación Profesional (Technical Education and Vocational Training)
Paraguay	Educación Técnica y Formación Profesional (Technical Education and Vocational Training)
Peru	Educación Superior Tecnológica y Técnico Productiva (Higher Technological and Technical-Productive Education)

Source: Compiled on the basis of the TVET background questionnaire distributed to Latin America and Caribbean countries, and from an information search on the websites of the ministries of education or their equivalent.

## Formal, Non-formal and Informal Education

In the regulatory frameworks of the region, the definition of formal education does not present major differences between countries. A consensus is observed in defining it as a learning activity promoted by establishments that follow the structure of the education system. With regard to non-formal education, according to the rules, it consists of learning actions that take place outside of formal programmes that do not lead to a valid accreditation to move up the educational system. Regarding informal education, there were no definitions, except in the National Education Act of Colombia where informal education is defined as:

*“All knowledge, freely and spontaneously acquired from individuals, organizations, mass media, print media, traditions, customs, social behavior and other unstructured forms” (National Education Act No. 115 Colombia, 1994).*



To promote a consensus when it comes to compare information of this sector, UNESCO defines formal education as:

*“(A) form of institutionalized education that assumes the existence of an organization that provides structured educational activities - for example, those based on a relationship or interaction between students and teachers, which are designed specifically for training and learning. It mainly includes education prior to entering the labour market. Often, vocational education, special needs education and some adult education programmes are considered part of the national system of formal education. Programmes taught partly in the workplace may also be considered as part of formal education if they lead to a certificate recognized by the competent authorities or equivalent bodies” (UNESCO, 2011).*

Similarly, UNESCO has also proposed a definition of non-formal and informal education. In this regard:

*“It is defined as a form of institutionalized and intentional training, organized by an education provider. The defining characteristic of non-formal education is that it represents an alternative or complement to formal education for lifelong education. It is often proposed as a way of ensuring the right to education for all. Informal education is defined as a form of deliberate or intentional learning but that is not institutionalized. Consequently, it is less structured and organized than formal or non-formal education. Also included could be learning activities in the home, workplace, community center or as part of everyday life” (UNESCO, 2011).*

The classification of learning activities by the Office of Statistics of the European Union (Eurostat) includes two aspects that are present in formal education: the first is its relationship to the levels of an educational system, and the second with the dual-learning system that alternates the training period between work and learning to balance between practice and theory. The table below shows three sources indicating the differences between formal, non-formal and informal education.

Table 2 / Definitions of formal, non-formal and informal education.

Source	Education		
	Formal	Non - Formal	Informal
Green, Oketch and Preston, 2004	Organized learning and volunteering leading to a diploma.	Organized learning activities inside or outside a workplace that do not lead to a diploma.	Undertaken unintentionally or as a by-product of other general activity (OCDE, 2003).
Tight, 2002	Formal education is offered by the education and training system organized by the state, and is defined by its objectives and policy frameworks (Groombridge, 1983).	All structured and organized educational activity outside the formal system, which seeks to provide specific education to young people or adults. It includes, for example, training programmes for farmers, literacy education, and vocational training outside the formal system.	A process that lasts throughout life, in which every individual acquires and accumulates knowledge and skills from everyday experiences and their relationship to the context (family, work or leisure).
Eurostat, 2004	Training offered in the school system, college, or other formal educational institutions that provides a continuum of full-time learning for adolescents and youth. It generally begins at 5 to 7 years of age and continues until 20 or 25. In some countries, the top of this scale is organized into educational curricula of the educational system that includes part-time employment. These programmes are called 'dual-systems'.	Any organized activity that does not correspond exactly to formal education. It can either be done within or outside of an educational institution, and is designed for people of all ages. According to the national context, it may include adult literacy programs, basic education for children out of school, or vocational skills for life and general cultural activities. Non-formal programmes do not necessarily follow the scale system and may have a varying length.	Voluntary, but not organized or structured. Developed in the home, work, or daily life of every person on the basis of an autonomous family or social decision.

### III. Organization and availability of TVET in Latin America and the Caribbean

Formal TVET is part of the secondary, post-secondary non tertiary or higher education level in the region. Non-formal education is basically a service of vocational training and is designed for the working-age population. Additionally, to reduce unemployment and poverty, some formal or non-formal training programmes were created and are managed by different organizations (ministries, national agencies, training centers and privately run organizations). Training initiatives also emerged in the manufacturing sector to improve skilled labour. In many cases, new registrants need not be secondary school graduates or have a certifying diploma.

In this case, we illustrate the organization of TVET in twelve countries selected for the study<sup>1</sup>. For the purposes of the description of the structure of TVET, it is divided into two main groups. On the one hand, we distinguish the technical and vocational education programmes that correspond to secondary education, post-secondary non-tertiary and higher education. On the other hand, there are adult education training programs aimed at persons with or without an educational background, of fourteen years of age or older.

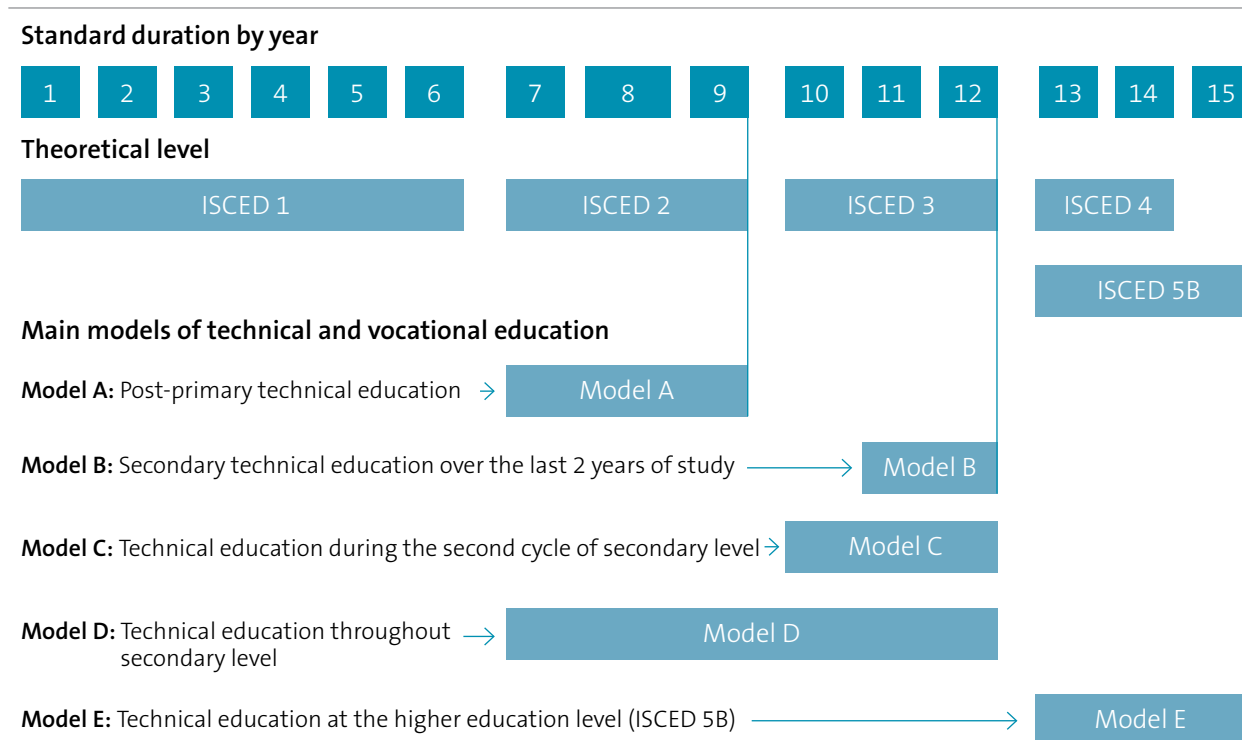
In the first group, the technical education programmes were grouped, for illustrative purposes, according to the International Standard Classification of Education (ISCED). The basic secondary level would be equivalent to ISCED 2, the upper secondary to ISCED 3, post-secondary non-tertiary to ISCED 4 and tertiary with a technical and vocational orientation at ISCED 5B. In the region, the duration of TVET programmes varies in each level and each country. These training programmes are taught in diverse educational institutions (general, technical, vocational and arts) or in schools, specifically technical institutions. The availability of post-secondary non-tertiary technical education is very low in the countries analyzed (ISCED 4). Instead, at the tertiary level (ISCED 5B) this form is more widespread.

The following chart shows the organization of the main TVET programmes of the twelve selected countries. For descriptive purposes, each proposal is classified corresponding to the duration of the programme, in years, in each country. While ISCED is organized according to programme characteristics, in this case, for illustration purposes, it relates to the duration of each educational cycle. It should also be considered that these models are not uniform in each country, as some schools offer programmes with a shorter or longer duration.

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<sup>1</sup> The information comes from national policy frameworks and interviews with officials from the ministries of education (from Brazil, Ecuador, El Salvador and Guatemala) for the UNESCO SIRI program and from the Director of Middle Level Technical High Schools, at the Ministry of Education of Paraguay. The questionnaire responses submitted by Argentina, Mexico, Peru and the Dominican Republic were also used, as well as data published on the websites of the ministries of education and labour and government agencies related to TVET.

Figure 1 / The organization of TVET programs in educational systems in the region.



Source: Compiled on the basis of national education laws and the results of the completed interviews.

According to information gathered:

- In Argentina, the models D and E were observed. However, this country has some training programmes with an additional year of study in each model.
- Peru presents a model similar to the above; however, their model D (secondary level) takes five years of study.
- Mexico has the models B, C and E, with an additional year in each model.
- The Dominican Republic has the models B and E, also with variations in some higher technical programmes.
- Brazil, Ecuador, El Salvador, Guatemala, Honduras and Paraguay have the models C and E, with some programmes with an additional year in each model.
- Trinidad and Tobago and Jamaica have the models A, D and E, with some training programmes with an additional year in each model.

These various forms of organization make the comparison of the methods difficult in a regional context. If these models are broken down by orientation or training proposal, the analysis becomes even more complex, since most countries do not publish this specific information, or do not yet have an official catalog of technical training guidelines.

It is also necessary to consider recent changes in programmes and curricula at the secondary level in some countries of the region (Argentina, Brazil, Ecuador, El Salvador, Guatemala and Paraguay). The purpose of these amendments was to introduce the content of technical and vocational training to the secondary level programmes of recent years.

For example, in some countries there are two orientations in secondary education: academic or general education, and diversified training. The orientation programmes of the latter include technical and vocational training content, as one of its main goals is to quickly insert the graduates into the labour market. Therefore, according to the recent definition of TVET, these programmes should be considered as technical training. However, some countries still consider this as enrollment to the general secondary education level.

In the education laws of some countries, certain definitions obscure the realization of a common definition of TVET in the region even further. For example, the General Law of Education of Peru considers that:

*“the successful completion of a Basic Education (secondary level) in all its forms and programmes, entitles the graduate to a diploma with a mention in a technical area that enables the graduate to be inserted in the labour market and empowered to access an institution of higher level” (General Law of Education of Peru No. 28044, 2003).*

In this case, the entirety of secondary enrollment could be considered as TVET. Something similar happens with standards of this sector in Argentina:

*“Secondary education in all its forms and orientations is intended to enable adolescents and youth to the full exercise of citizenship, for work and for the continuation of studies” (National Education Law No. 26,206, 2006).*

In this sense, there appears a complex scenario, which would create a dilemma in referring to the definition of the target population of TVET in the region.

With regard to the second area of TVET, dedicated to adult education, we distinguish various training programmes for the population over fourteen years of age. These programmes seek to: (i) raise the educational levels of the adult population; (ii) respond to specific labour requirements; and (iii) develop programmes to encourage the inclusion of the population in the labour force.

The duration of these programmes is very heterogeneous. Thus, some job training programmes last only a few months whereas the completion of programmes at primary or secondary level with orientations and technical training content can last several years. These proposals are expanded in the twelve countries selected for the study. As shown in the table below, the name given to training methods also varies according to national education laws.

Table 3 / Methods of training for the adult population in twelve countries in the region.

Country	Denomination/Definition
Argentina	Continuing education for youth
Brazil	Adult and youth education (Educación de jóvenes y adultos)
Ecuador	Adult and youth education and artisan education (Educación para jóvenes y adultos y educación artesanal)
El Salvador Honduras Dominican Republic Jamaica Trinidad and Tobago	Adult education (Educación de adultos)
Mexico	Adult education and vocational education (Educación para adultos y educación para el trabajo)
Guatemala	Accelerated learning for adults and mature learning (Educación acelerada para adultos y educación por madurez)
Paraguay	Continuing education and rural and peasant education (Educación permanente y educación campesina y rural)
Peru	Alternative basic education (Educación básica alternativa)

Source: Prepared on the basis of national education laws and the information posted on the websites of the ministries of education.

In some countries the sector's standards present TVET as a form of education (Argentina, Brazil, Peru and the Dominican Republic), although they do not clearly specify its scope. In the other frameworks, TVET is designated as an orientation of secondary and tertiary education or as an adult training programme (Ecuador, El Salvador, Honduras, Guatemala, Mexico, Paraguay and the Dominican Republic). Only Argentina, Brazil and El Salvador have a specific law for vocational and technical education. The standards of El Salvador regulate only vocational training that is not managed by the ministry of education or higher education institutions.

With the exception of the completion of programmes for primary or secondary education for the adult population, most of these programmes do not produce statistical information. The training programmes are organized according to specific projects which are not linked to the structure or levels of education systems.

This set of programmes corresponds only to the programmes promoted or managed by the ministries of education in the region. There are also a range of TVET programmes promoted by other government sectors in each country. Thus, in the region, several universities promote vocational training programmes through their institutes and extension offices. Furthermore, in most countries, the ministries of labour implement various training programmes to reduce unemployment and promote labour in productive sectors that have

expanded little. Other ministries (such as health, justice, defence, and social development) have also ventured into the area of vocational training to meet specific labour demands.

There are also a number of training programmes and proposals promoted by NGOs, private foundations and unions of different sectors. The duration of this training is as varied as the number of programmes proposed in the countries of the region, and may last from only a few hours to a number of years.

### III.1. Offices, institutions and national organizations dedicated to TVET in the region.

In the region, some education ministries have departments that are responsible specifically for promoting technical and vocational education programmes<sup>2</sup>. The other ministries of the sector attribute those functions to secondary, adult or higher education.

For example, the Ministry of Education in Paraguay includes the Directorate of Technical and Vocational High School Degrees (Dirección de Bachillerato Técnico y Formación Profesional) (ISCED 3) and the Directorate of Higher Technical Institutes (Dirección de Institutos Técnicos Superiores) (ISCED 5B), each dependent on a different vice-ministry. In the Dominican Republic and El Salvador, there is a single responsible body for the secondary level (ISCED 2 and 3). Peru has a Directorate of Higher Education and Technical and Vocational Training (Dirección de Educación Superior y Técnico-Profesional) dedicated exclusively to programmes at the tertiary level (ISCED 5B). In Mexico, the Ministry of Education has the Department of Industrial Technology Education (Dirección General de Educación Tecnológica Industrial) within the Vice-Secretary of Secondary Education (ISCED 3) and the Directorate General of Higher Technological Education (Dirección General de Educación Tecnológica Superior) (ISCED 5B), assigned to the Secretary for Higher Education. Only in Brazil and Argentina, both federal countries, are there more autonomous organizations responsible for promoting training in secondary education (ISCED 2 and 3), higher education (ISCED 5B) and non-formal education. These are the National Institute of Technical Education (Instituto Nacional de Educación, INET) and Secretaria de Educação Profissional e Tecnológica (SEPTEC) respectively. The ministries in the region manage adult education or continuing education, and are also responsible for vocational training for youth and adults.

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<sup>2</sup> The information in this section comes from survey data from the websites of the ministries of education and labour, from organizations engaged in education and training, and regulatory frameworks of the above entities. It should be noted that information on this type of training is very limited. Only countries with available data have therefore been presented.

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**Table 4 / Models of TVET management according to the normative frameworks of the ministries of education.**

Specific directorate for technical and vocational education at secondary level	Specific directorate for technical and vocational education at tertiary level	Specific directorate for technical and vocational education at secondary and tertiary level	Department for TVE at the tertiary level under the general directorate in charge of the total supply at the tertiary non-university level	Department for technical and vocational education at secondary level under the directorate in charge of the total supply of secondary education	Directorate for secondary education in charge of both general as well as technical and vocational secondary education
El Salvador Dominican Republic	Peru	Brazil Argentina	Paraguay Mexico	Paraguay Mexico	Ecuador Guatemala Jamaica

*Source: Prepared on the basis of responses to the questionnaires and the information posted on the websites of the ministries of education*

While these offices or departments in each country belong to only one ministry, joint action on TVET is very low. Thus, several countries present a model of organization composed of subsystems with similar goals but with disconnected actions.

With regard to labour ministries in the region, these institutions promote the implementation of national training institutes to meet the demand for training of the population, and from companies with training and continuing education requirements. While these institutes are designed on the basis of different management models, they have certain characteristics that make them similar.

Therefore, on the one hand, training institutes are registered and ascribed to labour ministries operating under a multi-sector management model. These institutions operate with public funds, specific taxes on wages, external financing and tariff contributions from individuals and companies. They have an autonomous management and the power to propose national training policies, as they have a wide national coverage. This group includes the Professional Training Service of Ecuador (Servicio Ecuatoriano de Capacitación Profesional, SECAP), the Technical Institute for Training and Productivity (Instituto Técnico de Capacitación y Productividad, INTECAP) in Guatemala, and the National Vocational Training Institute (Instituto Nacional de Formación Profesional, INFOP) in Honduras.

On the other hand, there are government agencies with greater autonomy, but with features and structures similar to the previous group: the National Institute for Vocational Training (Instituto Salvadoreño de Formación Profesional, INSAFORP) in El Salvador, the National Technical and Vocational Training Institute (Instituto Nacional de Formación Técnico Profesional, INFOTEP) in the Dominican Republic, the Human Employment and Resource Training Trust / National Training Agency (HEART Trust / NTA) in Jamaica and the National



Training Agency (NTA) in Trinidad and Tobago. The latter two have also started to implement actions to improve the quality of technical and vocational education at the secondary or tertiary level.

There is also another group of institutions with profiles similar to those of the previous groups, that are managed specifically by the productive sectors (chambers of commerce and industry associations or private companies): The National Commercial Training Service (Servicio Nacional de Aprendizaje Comercial, SENAC) and the National Service for Industrial Learning (Servicio Nacional de Aprendizaje Industrial, SENAI) in Brazil, the National Industrial Training Service (Servicio Nacional de Adiestramiento en Trabajo Industrial, SENATI) in Peru and the Training Institute for the Construction Industry (Instituto de Capacitación de la Industria de la Construcción, ICIC) in Mexico.

**Table 5/ Models of management of national training institutes.**

Type of Management of the National Training Institutes		
Management under the authority of the ministry of labour and with a consultant or multi-sector directorate	Autonomous management (not dependent on the ministry of labour) with a consultant or multi-sector directorate	Private management (for example, chambers of commerce or private groups)
Ecuador	El Salvador	Brazil
Guatemala	Jamaica	Mexico
Honduras	Dominican Republic	Peru
	Trinidad and Tobago	

*Source: Compiled on the basis of responses to the questionnaires and the information posted on the websites of the ministries of labour and national training institutes.*

As a result of financial and tax incentives, and national policies to promote employment developed by governments, the range of training offered by private operators has significantly expanded. In this context, national training institutions have begun to receive scrutiny due to the dual role they have assumed. In order to track training activities and provide training services to public and private companies, some ministries of labour have begun to set training policies, over-stepping these entities (Inter American Center for Knowledge Development in Vocational Training ILO, 2001). In other cases, ministries have established specific training agreements with these private institutions to implement their own training policies. This situation has led to more complications in the definition of roles and responsibilities.

Currently some ministries also offer education and training programmes managed by private institutions or by individual groups (for example in Paraguay and Brazil). Information available from these cases is very limited. This situation complicates the construction of a national plan for the education and training in countries of the region.

Of all the countries analyzed, four had entities engaged in coordinating the activities of formal and formal TVET (Argentina, Brazil, Jamaica and Trinidad and Tobago). These entities

coordinate, implement and monitor various training programmes. Also, unlike the directorates of the ministry of education or the national training institutes, the entities of these four countries have begun to develop initiatives to produce information and implement an information system to improve the quality of the training options.

The following describes the functions and main activities of the entities mentioned. It should be noted that regardless of this description, published information is still limited.

#### *National Institute of Technological Education (Instituto Nacional de Educación Tecnológica) (INET) – Argentina*

The INET aims to assist the Ministry of Education, and implement national policy development related to technical and vocational education. It also provides technical and financial support for the technical schools at secondary and tertiary levels, and social entrepreneurship training to generate employment through some specific programs.

Currently, the INET promotes or runs the following programmes: training (developed in 15 National Centers of Technological Education (Centros Nacionales de Educación Tecnológica, CENET), strengthening of vocational and technical education (through the design of standards and execution of special projects), training for TVET teachers (through actions to improve the quality of initial training), tax credit (to finance training and equipment acquisition of technical schools), entrepreneurship and social economy (technical assistance and training to social enterprises to promote employment). While its aim is to cover the total supply of TVET in the country, only actions were taken in technical secondary education and a part of the programmes to promote employment.

The INET is also an information unit, which has a record of technical and secondary schools (ISCED 2 and 3) and higher technical schools (ISCED 5B), and a tracking system of graduates from technical secondary education. For the latter case, a national census was conducted in 2009 of students in their senior year at technical secondary schools and a survey of job placement for graduates.

#### *Secretariat of Vocational and Technological Education (SEPTEC) - Brazil*

The SEPTEC is managed by the Ministry of Education. Its function is to direct, coordinate and supervise the implementation of vocational and technological education policies. It also promotes actions to strengthen and improve the quality of such education.

The SEPTEC is implementing the following programmes: One Thousand Women, a vocational training for disadvantaged women; National Program for Access to Technical Education and Employment (Programa Nacional de Acceso a la Educación Técnica y el empleo, PRO-NATEC), which seeks to strengthen the training of students and workers with secondary-level education, through financing of actions in technical schools and with training grants (Bolsa-Formação); Rede Certific, a national programme of certification of acquired skills, which enables 37 schools to validate job skills through training courses; Federal Network of Vocational and Technology Education, which is a network of the official vocational education programmes, science and technology programmes of universities and federal institutes and

centers of the country; Brazil Professionalized, which provides funding to states to modernize and expand the technical programme options at secondary level; Red-e-Tec Brazil, which seeks to promote the actions of distance learning technical education at secondary level; and the Programme of Integration Vocational Education with Basic Adult Education.

*The Human Employment and Resource Training Trust / National Training Agency (HEART Trust / NTA) - Jamaica*

Unlike the previous institutions, the main action of HEART Trust / NTA is to manage the programmes of non-formal technical and vocational training in the country. The actions are funded through a national payroll tax of 3%. The training is aimed at the population aged sixteen years or older, and is only free for the unemployed or the poor.

While the agency had been created to promote, regulate and monitor training in the country, the various transformations of the entity restricted its scope to finance and management training programmes for youth and adults. However, HEART Trust also implemented the National Council for TVET to establish a National Qualifications Framework. Thus, the HEART Trust evaluates and certifies the competences of students and workers, and qualifies them with the Caribbean Vocational Qualifications Framework (CVQ). The certifications of HEART Trust are valid in the Caribbean countries.

The HEART Trust currently manages two-thirds of the total training options it regulates. The remaining programmes are managed by private entities. The agency also has an official accreditation system of professional equivalence at secondary and tertiary level. In terms of information, the agency has a national network of training centers and institutes, and training programmes and courses.

*National Training Agency (NTA) - Trinidad and Tobago*

The NTA is responsible for planning, coordinating and administering the technical and vocational training system in the country. Key actions include: implementing standards for skills training, managing the programmes for the adult population, either employed or unemployed, and engaging with companies in the productive sector.

Through advisory committees of representatives from different productive sectors, the agency promotes a national qualifications system to harmonize and standardize training programmes in the country. Furthermore, the NTA coordinates the national labour skills with the standards of the CVQ.

The NTA also conducts market research and labour surveys to identify supply and demand for labour. On this basis, it proposes the implementation of new developments in training. In terms of information, the agency has a national network of proposals and training programmes organized by institutions certified by the NTA.

### III.2. Policy commitments and actions of TVET in the region

As seen in most countries of the region, the rapid expansion of TVET, and the presence of multiple stakeholders and a diverse range of options requires complex coordination and monitoring of programmes. Various conferences and documents call for action: the Convention of Technical and Vocational Education, 1989; the Second International Congress on Technical and Vocational Education 1999; the UNESCO Revised Recommendation concerning Technical and Vocational Education of Standard Instruments on Technical and Vocational Education (2001), in which, among other things, it was recommended to develop regional qualification frameworks as well as to base TVET planning on statistical information whose existence depends on an EMIS; and the Declaration of Bonn of 2004.

In 2003, OREALC/UNESCO Santiago organized the First Regional Meeting on Technical and Vocational Education to distribute the joint UNESCO and ILO recommendations on TVET, and discuss their adoption and implementation (OREALC/UNESCO, 2003). In 2005, the countries of the region had unevenly followed these recommendations. Of a total of seventeen nations, four had fully adopted them (Argentina, Belize, Brazil and Mexico), and four had focused on developments in the public sphere (Chile, Ecuador, El Salvador and Venezuela). In five countries, the recommendations were at a stage of analysis (Costa Rica, Paraguay, Saint Vincent and the Grenadines and Saint Lucia). The rest had no such plan (Barbados, the Cayman Islands, Jamaica and Panama) (Velasco, 2007). However, according to the survey data, of the group of countries selected for the study, only Argentina, Brazil and Jamaica verified actions.

According to information obtained from questionnaires sent to professionals of the sector, some countries (Argentina, Brazil, Jamaica, Paraguay, and the Dominican Republic) declared the existence of a national plan relating to TVET. They also mentioned that the main strategies of the plans relate to: the implementation of standards for certifications and degrees, coordinating actions with the productive sectors, reviewing the content of the proposed training, accrediting training centers and monitoring graduates (Annex A). However, as noted, evidence was only found in some of the countries (Argentina, Brazil and Jamaica).

## IV. Quantitative analysis of TVET

In Latin America and the Caribbean the main feature observed is the heterogeneity of the organization of TVET between countries and within each country. Programmes are added to this complex structure that do not have connections to the organization of formal TVET and directly seek the insertion of graduates into the labour market. With few exceptions, most of these programmes are run by different ministries and levels of government (local, provincial or regional), and do not relate the training programmes to the completion of a level of

education, or accreditation with a certificate that is valid in the education system. Thus, it is more attractive for young people and teenagers to finish a significantly shorter training programme (no more than two years) than to finish their studies at a technical school at secondary or tertiary level. However, a few organized and accelerated programmes were identified at technical schools, such as the “Programme for the Integration of Vocational Education in the Secondary School” in Brazil, which allows students to finish their school education as well as obtain a job opportunity.

Additionally, a number of different proposals exist in the region for continuing and vocational education for the employed, the unemployed, or those who are in need of retraining. These are promoted by various stakeholders at government or ministry level, by private developers and by civic organizations. Generally, this type of offer responds to specific needs and is not planned or coordinated within a national framework, and is not controlled, tracked or monitored.

In no case was an EMIS found in all of the options of TVET. Census operations were only observed in the educational system, in general, in relation to gathering data on technical education at secondary level and higher education levels. There were also some special operations to collect specific information, for example, in Argentina, where there was a census in 2009 to collect data on the number of students in their senior year of secondary technical education. Similarly, in Brazil, a record was made to determine the number of technical courses offered by high schools.

While all the ministries of education in the region have an office or a unit of planning or statistics, almost none of these agencies publish data on the entire range of TVET. In this context, the present quantitative analysis was made on the basis of information of technical education at the secondary level (ISCED 2 and 3), post-secondary non-tertiary (ISCED 4) and tertiary (ISCED 5B) published by UIS/UNESCO. This source was chosen because its EMIS is the only one available to make comparisons of this kind of information among countries.

#### IV.1. Structure of technical and vocational education at secondary, post-secondary non-tertiary and higher technical

Historically, the Latin American and Caribbean technical school model was driven by increased demand for secondary school education generated by an increase of graduates at a primary level, and from the need to provide semi-skilled and qualified labour (De Ibarola, 2004). In this context, it prompted the development of technical education at secondary level (ISCED 2 or 3) and at tertiary level (ISCED 5B). In parallel, proposals were drawn up to train adults. These programmes sought to increase literacy in a population with no education and, in some cases, provide occupational training.

However, unlike most developed economies, many countries in Latin America and the Caribbean give a secondary role to technical education in the context of national priorities, and the emphasis given to such training is minor compared to that given to the mainstream programmes. Another piece of evidence is the absence of policies related to im-

proving the quality of training methods in several countries (De Ibarola and Gallart, 1997). In order to track the range of technical education, some countries disaggregated specific items from the data gathered from secondary and higher education enrollment, to identify enrollment primarily in the general and technical orientation. For adult education, the various policies implemented (for example, the inclusion of new stakeholders or agencies in the management of these programmes) made it very challenging to monitor this type of education and training. In this sense, no EMIS were implemented to monitor the total range of options for adults and as a result TVET data information is limited to technical education at secondary and tertiary levels.

To analyze this information, it is necessary to first investigate the details of the organization of education systems, given that a part of the technical training opportunities in the region are designed and organized on the basis of programmes and plans for secondary and higher education. Thus, one of the primary factors influencing the expansion of technical education is the duration of compulsory education established in the education laws or national standards. The mandatory condition implies the commitment of governments to provide educational opportunities to the entire population by the theoretical age and corresponding educational level.

These frameworks indicate that for an education to be compulsory, it is necessary for it to be free. In some countries, only the primary and basic secondary education (ISCED 0, 1 and 2) are compulsory. In other countries, mandatory education reaches up to higher secondary level (ISCED 3).

Specifically:

- Argentina, Bolivia, Brazil, Chile, Colombia, Nicaragua, Peru and Uruguay made all educational levels compulsory, with the exception of the top level (ISCED 5).
- In Anguilla, Aruba, Bahamas, Grenada, the Turks and Caicos Islands, Saint Kitts and Nevis and Saint Lucia primary education (ISCED 1), basic and upper secondary (ISCED 2 and 3) are compulsory.
- In Barbados, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Panama, the Dominican Republic and Venezuela preschool, primary and basic secondary are mandatory.
- In Antigua and Barbuda, the Netherlands Antilles, Belize, Bermuda, Cuba, the Commonwealth of Dominica, Guyana, Honduras, the Cayman Islands, the British Virgin Islands, Paraguay, and Saint Vincent and the Grenadines the compulsory requirement is set at primary and secondary school level education. It may be noted that Haiti, Jamaica, Suriname and Trinidad and Tobago have a relatively short period of compulsory education, extending only to primary school level.

Table 6 / Compulsory Education by level of education. Latin America and Caribbean countries.

Required level	Between preschool (ISCED 0) and upper secondary level (ISCED 3)	Between primary level (ISCED 1) and upper secondary level (ISCED 3)	Between preschool (ISCED 0) and basic secondary level (ISCED 2)	Between primary level (ISCED 1) and basic secondary level (ISCED 2)	Only primary level (ISCED 1)
Country	Argentina	Anguilla	Barbados	Antigua and Barbuda	Haiti
	Bolivia	Aruba	Costa Rica	Netherlands Antilles	Jamaica
	Brazil	Bahamas	Ecuador	Belize	Suriname
	Chile	Granada	El Salvador	Bermuda	Trinidad and Tobago
	Colombia	Turks and Caicos Islands	Guatemala	Cuba	
	Nicaragua	Saint Kitts and Nevis	Mexico	Commonwealth of Dominica	
	Peru	Saint Lucia	Panama	Guyana	
	Uruguay		Dominican Republic	Honduras	
			Venezuela	Cayman Islands	
				British Virgin Islands	
				Paraguay	
				Saint Vincent and the Grenadines	

*Note: Information on the compulsory education in Brazil is referenced to in the constitutional amendment No. 59/2009. In the case of upper secondary level of Nicaragua, it is considered by the Presidential Decree 116/2007, which establishes it as mandatory. For pre-school in Costa Rica, the amendments to its 1997 Constitution were taken into account. For levels kindergarten (preschool) and medium (upper secondary) in Chile, the legislation used was Law 19,876 and Law 20,162.*

*Source: National Education Laws, UIS-UNESCO.*

In the region, the number of years of study for technical education at the secondary level is very varied. Even within each country the duration of this type of programme is heterogeneous. In recent decades, various changes in organization, plans or programmes and the management flexibility given to the different levels of government, or exemptions granted to the private sector to avoid discouraging their participation, has resulted in these diverse structures.

As a result, one can only compare the minimum duration of this type of training. According to data available, in eleven countries of the region technical education at a secondary level (ISCED 2 and 3) lasts at least two years. In eight countries it extends to three years and in five countries, it lasts for four years. Only Peru establishes a minimum of five years.

**Table 7 / Theoretical duration of secondary technical education in Latin America and the Caribbean. Countries with available data.**

Theoretical duration of technical education at secondary level			
Two years	Three years	Four years	Five years
Anguilla	Antigua and Barbuda	Cuba	Peru
Aruba	Argentina	Dominican Republic	
Barbados	Costa Rica	Honduras	
Belize	El Salvador	Mexico	
Bolivia	Guatemala	Suriname	
British Virgin Islands	Nicaragua		
Grenada	Panama		
Jamaica	Saint Lucia		
Netherlands Antilles			
Paraguay			
Saint Vincent and the Grenadines			

Source: UIS-UNESCO (2006).

Another observation is the working age population attending a secondary school (ISCED 2 and 3) or tertiary education (ISCED 5), since technical education usually takes place in these age ranges. On this basis, it is possible to differentiate the dimension that represents this group of the population.

In the region, the number of people in this age group is very diverse: in some countries the number is well over three million (Argentina, Brazil, Colombia and Mexico), whereas in others the figure barely reaches three thousand young people and adolescents (Anguilla, Turks and Caicos Islands, British Virgin Islands and Montserrat). Most countries in Latin America have a large population between twelve and seventeen years of age and between eighteen and twenty-two years of age. In contrast, Caribbean countries have a small population of the same age ranges (see Table 6).

Although these differences can be easily distinguished by the size of countries, what is sought is, in fact, to show the population in the context in which they develop and implement the EMIS of the region. As discussed below, these differences also affect the organization of the training programmes in the region, especially in smaller countries.



**Table 8 / Population between 12 and 17 and between 18 and 22 years of age, equivalent to secondary level (ISCED 2 and 3) and tertiary (ISCED 5) in Latin America and the Caribbean. Year 2010.**

Nº	Country	Theoretical school-age population	
		Between 12 and 17 years of age corresponding to secondary level (ISCED 2 and 3)	Between 18 and 21 years of age corresponding to tertiary level (ISCED 5)
1	Brazil	23,655,236	16,720,287
2	Mexico	13,157,449	10,420,504
3	Colombia	5,271,448	4,278,581
4	Argentina	4,096,057	3,370,175
5	Peru	2,901,103	2,807,748
6	Venezuela	2,732,627	2,716,728
7	Chile	1,698,545	1,493,724
8	Ecuador	1,683,762	1,349,995
9	Guatemala	1,678,614	1,426,816
10	Haiti	1,568,654	1,025,599
11	Bolivia	1,330,742	985,424
12	Dominican Republic	1,183,233	921,079
13	Cuba	904,957	841,664
14	Honduras	892,089	823,896
15	El Salvador	887,767	639,826
16	Paraguay	826,500	651,634
17	Nicaragua	670,259	631,841
18	Costa Rica	414,964	442,000
19	Panama	382,878	304,107
20	Uruguay	317,826	258,164
21	Jamaica	285,965	246,460
22	Trinidad and Tobago	97,284	123,416
23	Guyana	88,666	66,777
24	Suriname	63,777	46,176
25	Belize	43,812	32,776
26	Bahamas	35,984	30,182
27	Barbados	19,390	20,070
28	Saint Lucia	16,664	17,440

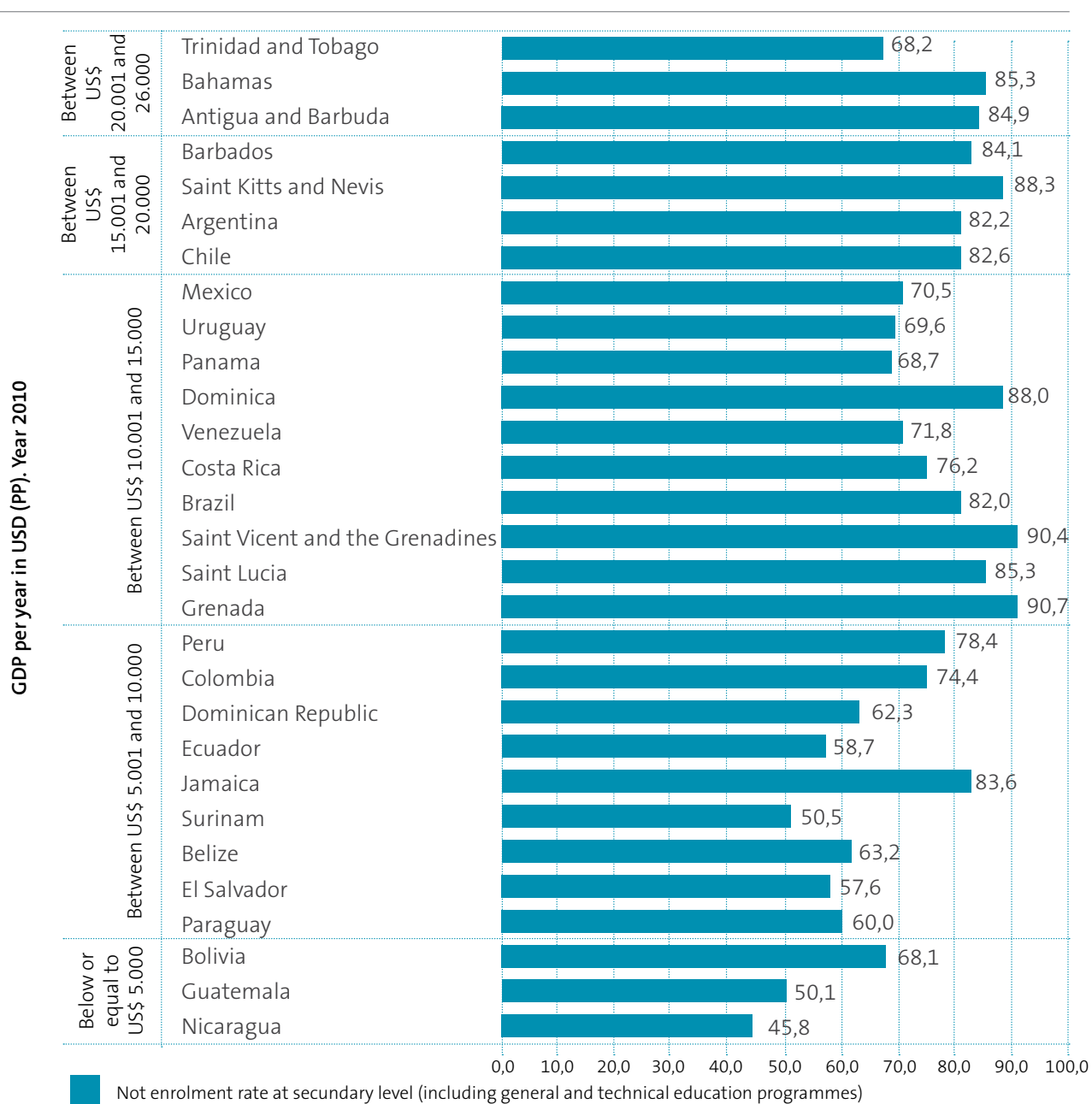
29	Netherlands Antilles	14,741	12,473
30	Granada	10,662	12,275
31	Saint Vincent and the Grenadines	10,630	10,287
32	Aruba	8,191	7,591
33	Antigua and Barbuda	8,001	7,150
34	Commonwealth of Dominica	6,888	6,600
35	Bermuda	5,612	4,255
36	Saint Kitts and Nevis	4,419	4,490
37	Cayman Islands	3,970	3,058
38	Turks and Caicos Islands	2,538	2,630
39	British Virgin Islands	1,989	1,951
40	Anguilla	1,265	1,081
41	Montserrat	340	291

*Note: The data was sorted in descending order according to the group between 12 and 17 years of age.  
Source: Compiled from UIS-UNESCO data.*

However, only a part of this population is within the education system. The tendency being that as students move from one educational level to another, the net enrollment rates drop. A value of 100% of this rate shows a full coverage and indicates that all the population of a certain age range that coincides with the theoretical age of an education level is registered in their corresponding level.

While developed economies see higher enrollment rates, in Latin America and the Caribbean the situation is quite varied. For example, there are countries in the region that are characterized by a high gross domestic product (GDP) per capita in United States dollars (USD) according to Purchasing Power Parity (PPP), such as Trinidad and Tobago, Panama and Uruguay. However, their percentage of enrollment at secondary education level (including in general and technical education) does not follow the same line. It is also noted that countries with fewer resources have low rates at this level (Bolivia, Guatemala, Nicaragua and Suriname). Thus, the positive relationship between high national wealth and a high rate of enrollment has several exceptions in the region.

Figure 2 / Net enrollment rate at the secondary level (including general and technical training). Year 2010.



Note: The countries were ordered by GDP per capita in PPP USD of 2010.

Source: Prepared based on data from the UIS-UNESCO and the data published by the Statistical Analysis Department of the Ministry of Education of Costa Rica.

With regard to higher education (including technical tertiary education), it is not advisable to make comparisons of the net rates due to the fact that the period of training is very diverse in the region. Moreover, in the theoretical age for this level there are new priorities for youth and adolescents. For example, most young people are looking to join the labour market as a priority, in order to achieve economic independence and, if their income permits, finance higher education. Therefore, only one group of youth regularly continues their studies and completes their training in the theoretical age level.

## IV.2. The evolution of enrollment in technical education at secondary and post-secondary non-tertiary and technical higher education

This section develops the analysis of the evolution of the enrollment in training programs for the technical and vocational programs corresponding to ISCED 2, 3 and 5B. For the purposes of the study, the results of ISCED 2 and 3 are grouped together, as information from various countries is not available in a disaggregated way.

### *Secondary level (ISCED 2 and 3)*

Over the past decade, according to available data, enrollment in technical education at the secondary level showed an 18% growth in the region. That is to say, there were almost seven hundred and eighty thousand additional students. The total enrollment of secondary education (ISCED 2 and 3) had a similar trend. For example, in the same period, Mexico alone recorded an increase of 2,400,000 new students in the total number of high school students. Of the latter group, almost 400,000 enrollments were for the technical schools. Conversely, in eighteen countries, enrollment in technical education was significantly reduced. It should be noted that in the same period, in most countries with high enrollment increases in technical education, the governments (Brazil and Ecuador, for example) had extended compulsory education to upper secondary (ISCED 3). Significant growth was recorded as a result.

In the region, for every five students from technical secondary education, four were attending a public school and one a privately run school. In Guatemala, Peru and Chile, participation from the private sector in the total enrollment in the technical field exceeds 50%. Conversely, in most Caribbean countries, there are virtually no private technical programmes. In the latter group, the small population of the age group analyzed and the high costs of implementing technical education would have discouraged, in some cases, private participation.

**Table 9 / Enrollment at the technical secondary level (ISCED 2 and 3). Years 2000 and 2010.**

Country	2000	2010	Percentage variation. 2000 - 2010	Participation of the private sector 2010
Anguilla	50	4	-92.0	0.0
Antigua and Barbuda	700	595	-15.0	0.0
Netherlands Antilles	6,440	6,182	-4.0	n/a
Argentina	n/a	287,305	n/a	10.0
Aruba	939	1,142	21.6	n/a
Barbados	114	73	-36.0	0.0
Belize	964	1,322	37.1	4.1
Bolivia	63,753	49,600	-22.2	18.5
Brazil	1,002,574	1,232,675	23.0	41.3
Chile	377,958	358,291	-5.2	54.2

Colombia	452,460	385,626	-14.8	10.4
Costa Rica	48,892	61,739	26.3	4.2
Cuba	202,286	203,146	0.4	0.0
Dominica	1,130	185	-83.6	0.0
Ecuador	176,179	293,435	66.6	30.3
El Salvador	87,280	105,413	20.8	18.7
Granada	1,253	450	-64.1	n/a
Guatemala	144,758	269,228	86.0	77.5
Guyana	6,210	5,349	-13.9	0.0
Turks and Caicos Islands	123	128	4.1	0.0
British Virgin Islands	162	428	164.2	0.0
Jamaica	457	376	-17.7	n/a
Mexico	1,367,199	1,763,509	29.0	24.6
Nicaragua	17,856	6,880	-61.5	0.0
Panama	99,976	44,932	-55.1	10.5
Paraguay	34,639	55,617	60.6	35.5
Peru	59,658	14,561	-75.6	66.4
Dominican Republic	36,352	38,002	4.5	16.6
Saint Lucia	325	128	-60.6	n/a
Saint Vincent and the Grenadines	1,740	279	-84.0	n/a
Suriname	19,612	21,897	11.7	9.2
Trinidad and Tobago	2,014	892	-55.7	0.0
Uruguay	59,397	47,510	-20.0	35.3
Venezuela	41,129	122,027	196.7	28.7
Latin America and the Caribbean	4,314,579	5,091,621	18.0	26.2

*Note: n/a (not available). To make the comparison between 2000 and 2010 and the participation of countries, the enrollment in Argentina of 2010 is not taken into consideration, in all of Latin America and the Caribbean.*

*Source: Compiled based on UIS-UNESCO data*

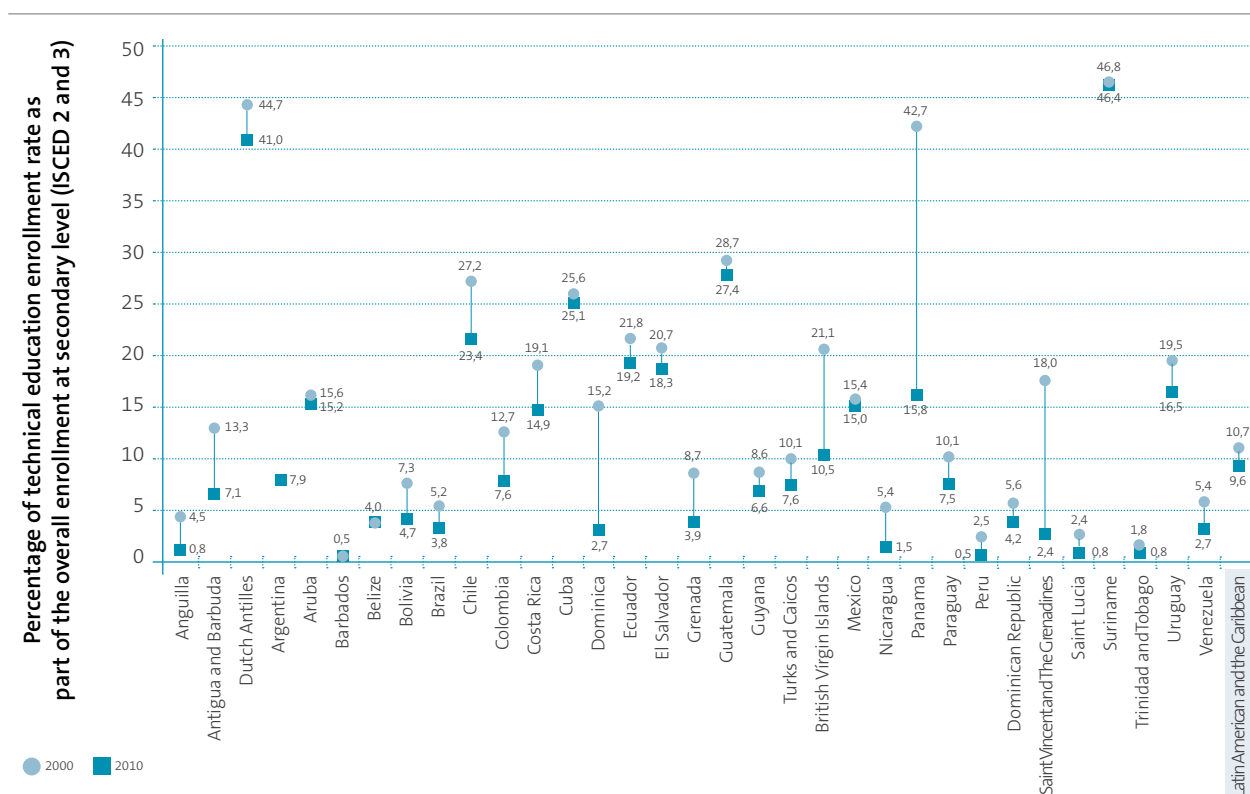
In the last decade, most countries of the region made various efforts to respond to increased demand for further education. Initiatives to improve education services have primarily been focused towards the completion of high school. Thus, virtually all efforts were concentrated on the expansion of general secondary level education towards a future tertiary or university education.

According to available data in the region, during the last decade participation in technical education in the total enrollment at the secondary level (ISCED 2 and 3) showed an increase

of 1%. Thus, of a total of thirty-two countries with available data, twenty-three had a decline in the participation in the technical orientation, seven had a slight increase, and the rest showed no change.

In the period analyzed, Panama registered a significant decline in enrollment in technical education. In order to manage and update the various options for high school, several changes were made to the curriculum of secondary education (ISCED 3). Some programmes were eliminated and others redefined. Thus, several technical high schools considered in previous records became part of the academic orientation. Therefore, variations in technical education enrollment from one period to another period, in fact, the result of the reordering of training programmes. These sparsely distributed changes hamper data analysis and comparisons between countries. In this regard, it is imperative to take note of this fact when interpreting the data.

Figure 3 / Enrollment in technical education in the total of secondary education (ISCED 2 and 3). In percentages. Years 2000 and 2010.



Source: Elaborated by the author based on UIS-UNESCO data

During the last decade, educational policy guidelines in several countries focused on the transformation and restructuring of the general secondary education programmes. Countries such as Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Guatemala, Mexico and Uruguay changed their general secondary education programmes to incorporate specific content that serves as tools to facilitate the entry of graduates into the labour market. Thus, guidelines were implemented at the secondary level or in high schools (of administration, health, arts) whose qualifications give access to tertiary training and certify core professional competencies of graduates. Additionally, in some countries (Brazil, Chile and Colombia, for

example), mechanisms were designed to bring education to the labour force: internships, career counseling and access to vocational training (Jacinto, 2010).

These policy actions show why in several countries technical secondary schools had no further expansion. As seen, the choice was to bring specific skills to some general programmes at the secondary level. These actions behind these actions are based on the following: (i) secondary education is generally the highest level reached by the majority of the school population and (ii) access to tertiary or university level is only possible when combining work and study due to the limited resources of most graduates (Jacinto, 2009).

With regard to EMIS, statistical offices of several countries have not adapted their survey system to the new curricula in several countries. Thus, despite the above changes, this type of enrollment is still considered as general secondary level, in general. So in some countries the development of secondary technical training might present some variations. In this regard, it is advisable to take care in analyzing the data of TVET.

#### *Post-secondary non-tertiary education (ISCED 4)*

According to the interviews that were done for this project, only a few statistical offices of ministries of education collect information on this kind of programme. Of this group, most do not publish that information, since many of the programmes correspond to a range of non formal education. In the Caribbean, for example, most of these programmes relate specifically to the preparation for college entrance. Furthermore, most promoters of this type of training (public and private) do not produce data, due to poor control parameters. Thus, if the analysis focuses only on the post-secondary non-tertiary technical education, information is virtually nonexistent.

#### *Tertiary education (ISCED 5B)*

In the last five years, Latin America and the Caribbean recorded sustained economic growth, except for a slight decrease in 2008 generated by the impact of the global financial crisis. The economic strength shown by most countries bypassed the usual financial crises observed in the region. Thus, the higher activity level positively influenced the creation of jobs in the economies of the region (Economic Commission for Latin America and the Caribbean (ECLAC), 2010). Thus, one of the recurring requirements was skilled labour.

Over the last decade, enrollment in higher technical education (ISCED 5B) in the region significantly increased (122%). Of a total of nineteen countries with comparable data available, fifteen showed an increase in this type of training. Only four (British Virgin Islands, Jamaica, Panama and Paraguay) had a decrease in their enrollments. However it should be considered that in the latter group, two of them (British Virgin Islands and Paraguay) had a major expansion of their range of technical secondary education.

**Table 10 / Enrollment in technical and vocational tertiary level (ISCED 5B). Years 2000 and 2010.**

Country	2000	2010	Percentage variation 2000 - 2010
Argentina	455,158	769,938	69.2
Aruba	1,166	1,728	48.2
Barbados	3,633	5,124	41.0
Bermuda	568	834	46.8
Bolivia	19,703	42,884	117.7
Brazil	114,770	680,679	493.1
Chile	80,475	379,404	371.5
Colombia	153,908	542,358	252.4
El Salvador	19,804	24,035	21.4
Cayman Islands	75	816	988.0
British Virgin Islands	240	100	-58.3
Jamaica	20,454	2,856	-86.0
Mexico	43,750	91,530	109.2
Nicaragua	4,352	4,672	7.4
Panama	18,189	9,767	-46.3
Paraguay	30,318	10,832	-64.3
Peru	359,783	366,286	1.8
Trinidad and Tobago	1,340	5,700	325.4
Venezuela	224,214	509,857	127.4
<b>Total</b>	<b>1,551,900</b>	<b>3,449,400</b>	<b>122.3</b>

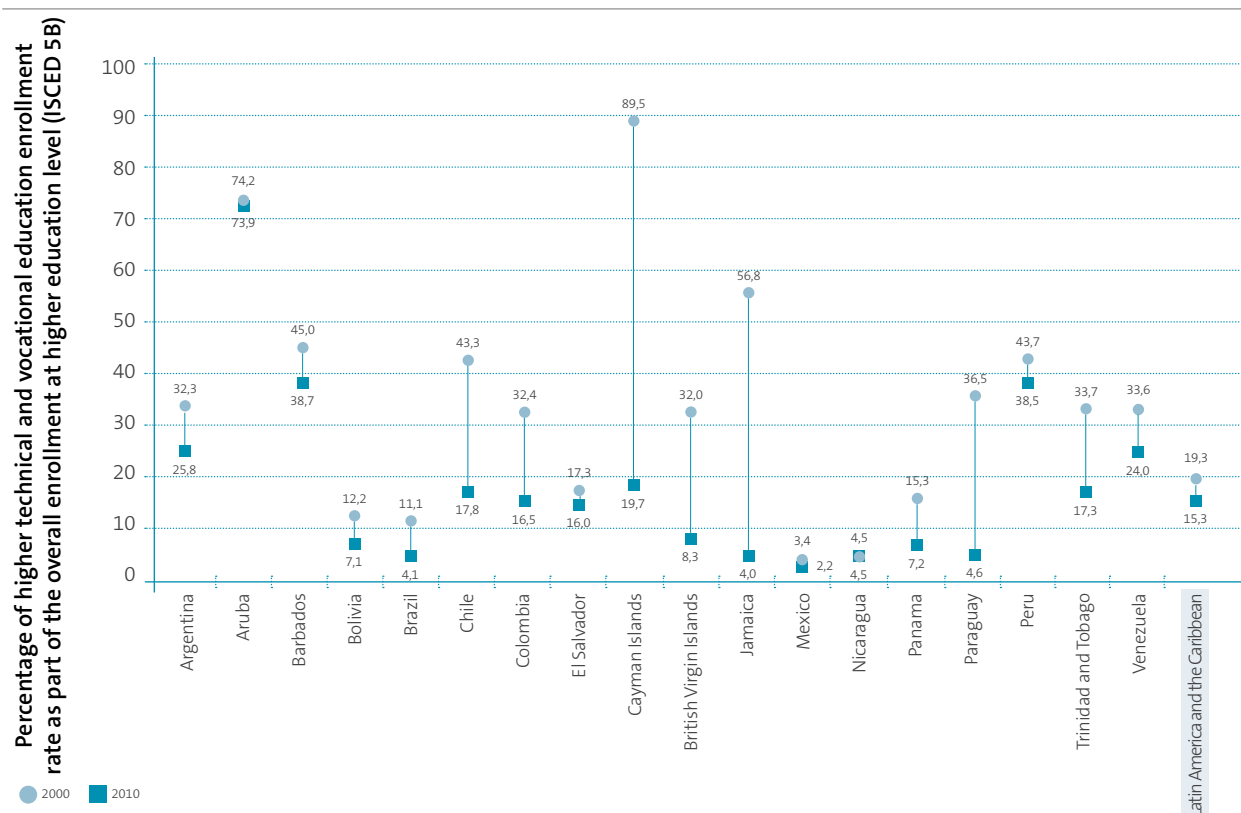
*Note: Countries with available data.*

*Source: Elaborated by the author based on UIS-UNESCO data.*

During the last decade, participation in technical and vocational tertiary education (ISCED 5B), of the total enrollment at the tertiary level, significantly increased from 15% to 19%. Of a total of eighteen countries with comparable data available, ten showed an increase in the enrollment of TVET and 8 showed a decline. It is noted that, in some countries with declining enrollment in technical and vocational tertiary level, such as El Salvador and Panama, rearrangements were recorded in secondary education and diversified high schools were implemented (academic and professional). This influenced changes in higher education enrollment.



Figure 4 / Enrollment in higher technical education (ISCED 5B) in the total higher education level. In percentages. Years 2000 and 2010.



Source: Elaborated by the author based on UIS-UNESCO data.

In line with the results observed at this level, it is necessary to take into account the following considerations: (i) the duration of tertiary technical training is quite varied in each country, as most governments set only the minimum number of years of study; (ii) the organization of courses is adapted, in many cases, to the schedules and time constraints of the population (through proposals of full-time or part-time courses, with a minimum of subjects studied annually or through distance learning); (iii) there is the possibility to take more than one training at the same time; and (iv) the different ages and different educational needs of young people and adults, i.e. those enrolled may be graduates of secondary education, graduates of any orientation, seeking a professional retraining, as well as employed or unemployed persons. All these elements are particular to the higher level. In this sense, the available information is insufficient for a regional study and therefore it is recommended to include these considerations in future national surveys.

#### Gender equity in TVET

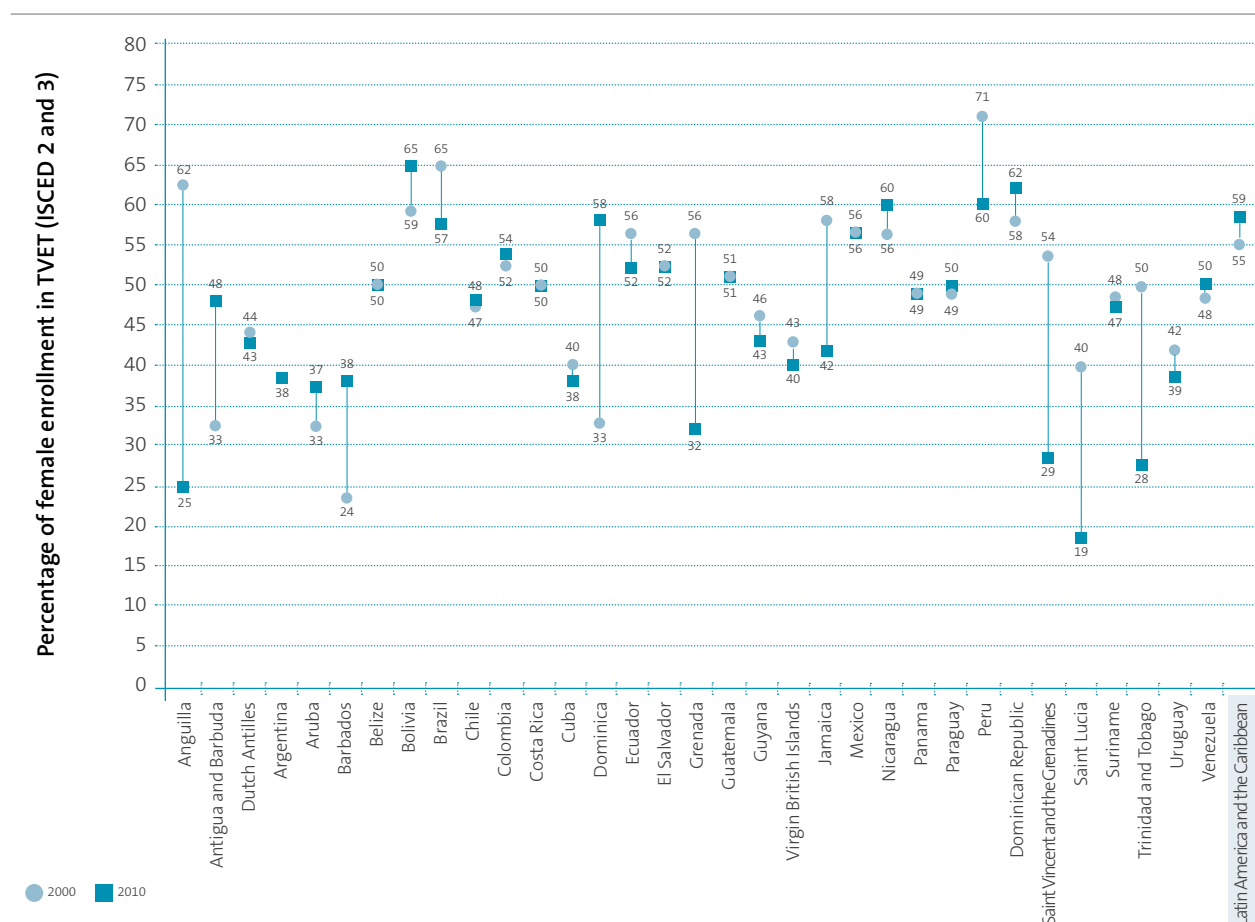
According to available data for the region, during the last decade female participation in technical secondary level enrollment was higher than men; 55% of the participants were male and up-to 59% female. In 2010, of a total of thirty-three countries, sixteen had more male students than female, eleven reported more female students than male students, and six countries presented an exact parity.

However, to complement these results, it is also necessary to analyze the population data corresponding to the theoretical age at the secondary level and of the total enrollment by gender. For example, if in country X with universal education coverage at all levels, in the population between twelve and seventeen years, 60% were male and 40% female, the male participation in enrollment should be greater than that of females.

A high participation rate of women at the technical secondary level was recorded in Bolivia (65%), Nicaragua (60%), Peru (60%) and the Dominican Republic (62%) in 2010. In this regard, the participation of women in the total population of the age range of fifteen to nineteen years of age in Bolivia and the Dominican Republic was recorded. The participation of women in this age group varies between 49% and 50% in these countries. This indicates that changes are related to further expansion of training programmes chosen by women.

Furthermore, in Saint Lucia, low female participation was analyzed in secondary education (18%). Of a total of one hundred and twenty-eight enrollments recorded in 2010, twenty-four students were women. As noted, in countries with small populations, a high or low participation of women or men in enrollment would not be a consequence of gender inequality, but a limitation of the size and scope of the education system itself.

Figure 5 / Percentage of females enrolled in TVET at the secondary technical level (ISCED 2 and 3). Years 2000 and 2010.



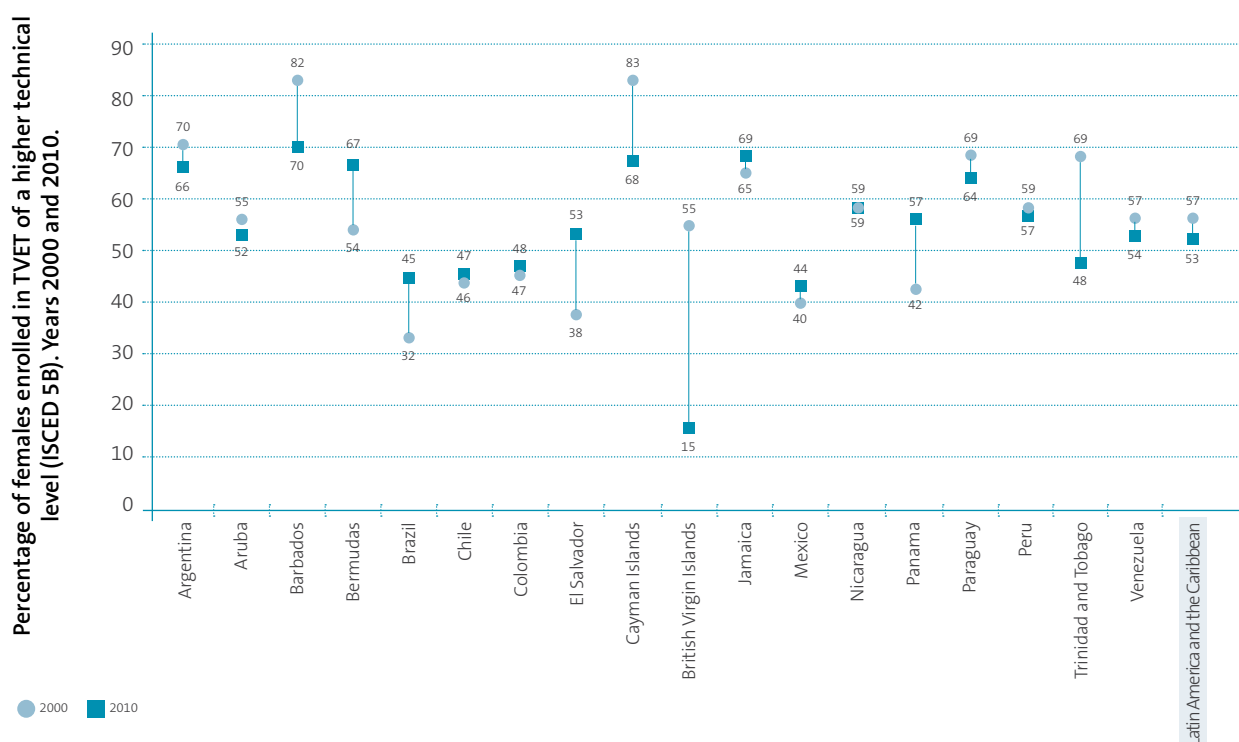
Note: Countries with available data.

Source: Elaborated by the author based on UIS-UNESCO data

With regard to enrollment in higher technical education (ISCED 5B) over the past decade, a trend in gender parity was recorded for the region: women’s participation went from 57% to 53%. However, in 2010, of a total of eighteen countries with comparable data available, seven reported significant increases in the percentages of enrollments for women (Argentina, Barbados, Bermuda, the Cayman Islands, the British Virgin Islands, Jamaica and Paraguay).

It should be noted that at this level there are no age limits for access to such training. Therefore, with regard to disparities involving other specific characteristics of the adult population (income, activity status, time availability) consideration should be given to the fact that participation of the female population as a proportion of the group who have completed secondary education are elements that should not show gender disparities, to avoid influencing the results of gender parity enrollment at that level. Another important element relates to the availability of TVET. Most countries prioritize the implementation of training programmes according to demand from the economic sectors, and not in order to achieve parity. But in a scenario of parity without inequalities of all the above components, the elements related to individual learning preferences is hard to compare, since the choice of TVET programme is usually influenced by a personal decision or vocation.

Figure 6 / Percentage of females enrolled in TVET of a higher technical level (ISCED 5B). Years 2000 and 2010.



Note: Countries with available data.

Source: Elaborated by the author based on UIS-UNESCO data.

There are, however, specific occupations with large gender disparities. In those cases, studies should focus only on the unmet demand for training by gender specific TVET programmes, and certain orientations which are mostly chosen by men or women should not be considered. For example, schools to train future preschool or nursery school teachers enroll almost only women, not because there are access restrictions for men, but because it is a personal training or vocational choice. Similarly, some technical training orientations, for example, in technical schools with specialties in heavy equipment operation or auto mechanics, have a high proportion of male students.

### IV.3. Indicators related to the labour market

The results derived from monitoring labour market trends, and the activity status of the population, are important guiding elements in the planning and implementation of TVET programmes. It is also possible to analyze the impact of different training programmes in certain sectors of the economy. In a more specific area, progress in terms of job opportunities for particular groups (women and youth, for example) can be analyzed.

Thus, through the participation rate, it is possible to analyze the number of persons in the labour market. The result appears to link the economically active population (those with a job or looking for one) and the total population aged fifteen or older (the minimum age for taking up a job). In the region, Barbados and Peru have a high participation, 67% and 70% respectively. On the other hand, Honduras and the Dominican Republic recorded the lowest rates in the group of countries analyzed, 53.7% and 54.9% respectively.

The above information may be supplemented by observing the employment rate. To obtain this rate, the number of employed persons is divided by the working-age population (defined as 15 years of age or older). As a result, certain disparities are observed, for example, employment rates are the highest, again, in Peru and Barbados, and the lowest in the Dominican Republic and Honduras.

Additionally, it is recommended to analyze the level of unemployment in the economically active population. In this case, the unemployment rate is obtained by dividing the population that does not work, but is seeking employment, by the total population. The results show that Bolivia, Honduras and Panama, who show a low income per capita, have the lowest unemployment rates in the group of countries analyzed. In contrast, Colombia, Jamaica and the Dominican Republic have the highest rates of unemployment.

Table 11 / Labour market indicators and annual GDP growth rate. In percentages. Year 2010.

Country	Rates			Annual GDP growth rate between 2009 and 2010
	Participation	Occupation	Unemployment	
Argentina (urban)	59.0	54.4	7.8	9.2
Barbados	67.2	60.1	10.6	0.3
Bolivia	57.3	53.6	6.5	4.1
Brazil	57.1	53.1	7.0	7.5
Chile	58.2	53.2	8.5	5.2
Colombia	62.5	54.9	12.1	4.3
Costa Rica	59.1	54.8	7.3	4.2
Ecuador	57.7	53.0	8.1	1.4
Honduras	53.7	50.3	6.4	2.8
Jamaica	62.5	56.4	12.9	-1.3
Mexico	58.7	55.6	5.4	5.4
Panama	63.5	59.4	6.5	7.5
Peru	70.2	64.5	8.1	8.8
Dominican Republic	54.9	47.0	14.4	7.8
Trinidad and Tobago	62.0	57.8	6.7	2.5
Uruguay	63.0	58.7	6.8	8.5
Venezuela	64.7	59.1	8.8	-1.4
<b>Total countries (*)</b>	<b>59.7</b>	<b>55.1</b>	<b>7.6</b>	<b>5.9</b>

Note: (\*) the change in GDP corresponds to all of Latin America and Caribbean countries.

Note: Countries with available data.

Source: Compiled from the database of Laborsta of the International Labour Organization (ILO).

The observed peculiarities show that the dynamics of the labour market should be analyzed on the basis of other indicators. For example, the growth in GDP is an important element in increasing the demand for labour. Thus, despite the international financial crisis, the region's annual GDP growth between 2009 and 2010 showed an encouraging picture for all national economies (almost 6%). With the exception of the slight decline in GDP growth in Jamaica and Venezuela, the other countries have favourable conditions to improve their employment variables.

In the region, some operations were performed to investigate the situation of the graduates of technical schools (Argentina, Brazil and Peru). However, the results have not yet been published. Nevertheless, in Argentina a census was conducted with students in their senior year of high school in 2009. According to the results, one in four students reported having a job and studying at the same time (although the sector is not specified). Depending on the

orientation of the training, 27.8% of those enrolled in the mechanical specialty claimed to work. Conversely, the training specialty with the least amount of employed students was chemistry (19.5%).

## V. Status of the EMIS of TVET

According to the results of the information gathered, there is no single EMIS that accounts for the organization, management, supply and monitoring of TVET in the selected countries. Thus, at a national level, the lack of definition of the scope of TVET, multiple actors, and the absence of responsible bodies for setting and regulating actions are the main elements that shape this outcome.

As described in previous sections, in all the selected countries, TVET management is divided into two distinct areas with different priorities: the ministries of education on one hand, and the labour departments and national training institutions on the other. The ministries of education have to define and direct the national education policies. The labour departments aim to promote the implementation of equal opportunities and rights. Meanwhile, the national training institutes promote training programmes to enhance the capabilities and skills of the working age population. While these entities mentioned offer some kind of technical and educational training, none has an EMIS to gather data on the total supply of TVET.

Despite the various efforts and international agreements, the low national priority of TVET has further complicated the situation. In this context, a detailed description of TVET in the region is difficult to complete, since the data generated at the national level is scarce.

As a result, the information in this section is derived from interviews with officials from the ministries of education, and the responses from questionnaires sent to the twelve countries selected for the study. Data published on the websites of the ministries of education and labour and government agencies related to TVET was also used.

Note that in the 2011 Regional Workshop on Education Statistics of UNESCO held in Viña del Mar, a questionnaire was distributed to the participants of different countries to investigate aspects of the organization of TVET. According to the responses recorded, several countries reported having an EMIS exclusive of TVET (see Annex A). However, there was no evidence of the existence of an EMIS in those countries. To verify this information, the appropriate officials were consulted. However, no responses were obtained. As a result, only information verified and sent by the consulted ministries was considered.

Of the twelve selected countries, all the ministries of education have an EMIS which collects data from its own supply of education. The offices responsible for the EMIS are intended primarily to track the actions of formal education. Thus, they collect information corresponding to the regular programmes of ISCED 0, 1, 2, 3, 4 and 5B and the completion programmes for primary or secondary education for youth and adults. With the exception of Mexico, countries do not collect data on non-formal education programs offered by the sector. These offices collect data from schools in the initial, primary, secondary, post-secondary non-tertiary and higher technical education registered in the EMIS (in this last educational level, Brazil, Ecuador and Guatemala have an independent statistical office). These surveys are conduc-

ted at the beginning and end of the school year. Thus, management declares the information of their educational institution by loading the data on-line. In cases of limited access to the system, paper forms are used that are completed by the directors.

In these surveys, information is collected on enrollment, repeating students, promoted students and graduated students, in institutions and, in some cases (Brazil, Ecuador, Mexico and Peru), on the number of teachers at each school. It is possible to detect data from facilities with a technical vocational orientation from this information. However, it should be noted that most countries have been implementing several changes in the curriculum of secondary education (ISCED 2 and 3) to introduce technical and vocational content. These changes, which are not covered in some EMIS, restrict the identification of the actual dimension of TVET at this level.

To understand how these EMIS work, their functions were also analyzed. Thus, the selected countries state that they implement specific actions of data collection, data processing and the analysis of information. These offices have specific areas for data analysis, but in practice, their scope is very limited, as most of their work relates to the answers of queries and the development of educational variables. A greater number of publications analyzing information are found in Argentina, Brazil, Mexico, Peru and the Dominican Republic. With regard to TVET, published information is very limited.

Furthermore, one of the main points identified in the interviews and questionnaires were scarce resources (human and IT) assigned to the offices, with the exception of Argentina, Brazil, Mexico and the Dominican Republic. This need, along with the extra work and requests for information, limits the development of these statistical offices. Indeed, in some cases, such as El Salvador and Guatemala, these units rely on internship programs and external funding to function, especially during periods of data collection.

Thus, the results of the investigations show differences in the EMIS of the education sector. While in some countries (Argentina, Brazil, Mexico, Peru and the Dominican Republic) progress in terms of production and dissemination of information was detected, the remaining countries showed some limitations. By focusing the search exclusively on data related to formal or non-formal TVET, the situation is further aggravated due to the fact that there are no officials exclusively devoted to information gathering or analysis of the programme in the relevant offices. Records (enrollment, graduates, faculty positions, personnel or facilities) are only available corresponding to TVET at secondary level on the websites of Argentina, Brazil and Mexico.

However, in Brazil, the SEPTEC of the Ministry of Education has a statistical area responsible for the National System of Vocational and Technological Education. In this case, data is collected from the programmes of the technical training schools run by the country. Data was also collected on the non-formal technical training programmes.

## National Information System of Vocational and Technological Education (Sistema Nacional de Informações da Educação Profissional e Tecnológica, SISTEC) in Brazil

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The SISTEC is the only EMIS exclusively dedicated to TVET in the region. Its main objectives are: to generate information, to validate the training proposals of the educational institutions, and to contribute to monitoring the actions of the programme. The SISTEC has a national registry of students, of accredited high school teaching programmes (for average technical training) and of the initial training or continuing TVET courses.

Through this system, professional, certified councils can verify the validity of a student's training and issue diplomas or degrees more quickly and safely.

The SISTEC creates a registry key for each school according to the training programmes they offer. These keys are renewed after validation issued by an accreditation agency or body (which is the Ministry of Education, or state or municipal boards of education), depending on the dependence of the school.

Likewise, the SISTEC designs a proposal of indicators exclusively for the analysis of TVET. These variables are:

- Ratio of candidates / vacancies
- Ratio of new enrollments / total enrollment
- Ratio of graduates / students.
- Index of academic performance of graduates (percentage of graduates over a period of analysis or duration of the course).
- Index of student flow retention (percentage of drop-outs in the period of one year).
- Ratio of student / full-time teacher.
- Index of faculty qualification.
- Current expenditure per pupil.
- Percentage of personnel costs.
- Percent of investment expenditure (capital expenditures).
- Number of students enrolled according to the household per capita income.

With regard to these EMIS frameworks, only Argentina, Brazil and Peru have specific guidelines on the collection of information on TVET. In these countries, regulation is included in their national laws which describe the type of information to be collected. In other countries, according to responses from questionnaires and interviews, national information laws regulate all surveys conducted by education ministries or national statistical offices.



There were no formal agreements between these ministries and national statistical institutes, however, in most cases, it is stated that there are exchanges of information between statistics offices for specific orders.

The quality control processes of the information gathered was also researched. According to the results, the EMIS of the education sector conduct periodic assessments (by semester or year) of the information in their systems in all countries. In this case, among a representative sample of schools, it verifies the consistency, accuracy and quality of information. If records are incorrect, monitoring is performed to detect the level at which they occurred, as recorded information is a sworn statement.

Only Brazil declares to have a special process of verifying information. In the latter case, the evaluation is executed during the process of ingestion and egression of data. Additionally, continuous evaluations are performed by sampling approximately four thousand schools. These actions are supported by standards relating to quality policies of the information sector.

In recent years, the growth in the supply of non-formal TVET programmes has exhausted the capacity of ministries of education or agencies responsible for monitoring this type of service in most countries in the region. The main reasons are the lack of accreditation systems and the low output of information from the training centers (public and private).

With regard to the ministries of labour, all countries (except Paraguay) have statistics offices that collect information about the evolution of the labour market. Data corresponds to the workforce, employment and unemployment rates by sectors of activity and, in some cases (such as Argentina, Brazil, El Salvador and Peru), the evolution of private sector wages .

In Brazil, the Secretary of Public Policy employed by the Ministry of Labour has a General Coordination of Labour Statistics. This body conducts surveys of the contractual situation of workers in the private sector. It also has a national register of the employed and unemployed and a database of collective agreements and employment insurance. It also has a record of the Brazilian Classification of Qualifications.

In Paraguay, the Training Unit of the Vice Ministry of Labour and Social Security publishes data on the training programmes it funds (number of participants, training courses, programme costs and number of training centers).

Additionally, the statistical offices of ministries of labour publish yearbooks or newsletters about labour rights and activities:

- Argentina presents data from the Department of Social Security (contributions, retirement).
- Ecuador records information from workshops, factories, companies, workers' associations, and unions.
- El Salvador publishes data on labour inspections, labour unions and employee associations, labour disputes and lawsuits, social security and work accidents.

- Guatemala has information on union labour agreements and reconciliation work.
- Mexico publishes data on union agreements, strikes, social security and labour proxies (judgments and settlements).
- Peru has a directory of statistics related to aspects of union negotiations, union records, strikes, labour training and dissemination, labour disputes, work accidents and occupational diseases.

In addition, national training institutes (SECAP in Ecuador, SENAC and SENAI in Brazil, INSAFORP in El Salvador, INTECAP in Guatemala, INFOP in Honduras, SENATI in Peru and INFOTEP in the Dominican Republic) publish information about their training centers or offices, and in some cases, about their training programmes.

As seen in the region, several stakeholders are involved in the management of the TVET service. This makes it difficult to produce and track information of the service. On the one hand, the ministries of education are responsible for the administration or monitoring of formal TVET. On the other, a group of ministries (such as labour, health, transport, and tourism) promote or manage a number of training programmes to boost the employability of young people and adults who are out of school or in a condition of inactivity. These programmes provide accreditation accepted by the labour market or, in some cases, have agreements with the Ministries of Education to issue an official certificate (as in Argentina, Brazil and Jamaica). In other cases, programmes do not provide certifications and are primarily used for the immediate entry into the labour market. When analyzing private sector ventures, monitoring TVET information becomes even more complex. Of all the countries surveyed, only Argentina, Brazil, Mexico and Peru have a tracking system of graduates or a catalogue of professions and occupations.

With regard to the Caribbean, Jamaica and Trinidad and Tobago, have TVET agencies and councils to organize actions and improve the quality of training and have a qualification system of professional skills, a catalogue of professions and a system of accreditation or evaluation of establishments. The training institutions mainly look for graduates entering the workforce and respond to the demand for skilled labour in the productive sector.

### Official catalog of professions and occupations

Faced with the diversity of TVET programmes, some countries (Argentina, Brazil, Peru and Jamaica and Trinidad and Tobago) have implemented systems of records of occupations and professions. For each approved training programme, the state sets mandatory minimum standards (such as compulsory subjects, credits or hours of study) to be met by training centers. These systems are usually managed by the ministries of education, job agencies or national training agencies.

## Tracking system of graduates

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This is a survey of students in their final year of study at the secondary level (ISCED 3) or tertiary level (ISCED 5) in TVET. The survey investigates the process of integration of graduates into the labour market, their career path and the articulation between TVET supply and requirements of the productive sector. The details of the data collection include these items:

- Location of the respondents (address, phone and e-mail).
- Socio-demographic information (age, sex, place of birth, educational level of family and economic activity).
- Education (repeater, dropout and over-age).
- Working conditions (type of work, working hours, ratio of training to work hours and activity status).
- Occupational and educational expectations (continuation of education, type of training to follow, the kind of job they would like to have).

## System of professional competence or qualification

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The main objective is to establish qualifications for the inclusion of professional graduates in the productive sector. Based on the requirements and changes in the manufacturing sector, standards are set for specific skills that training centers should prioritize during their student training. Thus, the system seeks to manage the supply of training programmes (by professional sectors and level of skill) and coordinate the professional characteristics of graduates with the demands of the productive sector.

For example, Caribbean countries have the Caribbean Vocational Qualification programme (CVQ). This is a system of skills recognition and qualifications for graduates of educational institutions and training centers. The certification validates the skills and abilities of graduates, the mobility of students and in some cases the exercise of labour within countries committed to the agreement.

In short, according to the progress in terms of production of information to implement an EMIS of TVET, it is possible to characterize the selected countries into three groups:

- 1) Brazil is contained within the first group, as it records various surveys, data sources and the design of an EMIS of TVET.
- 2) Argentina, Mexico, Peru, Jamaica and Trinidad and Tobago are in the second group. These countries develop information and initiatives to begin coordinating the activities between ministries and produce information to improve the skills of graduates in TVET.

3) The remaining countries (Ecuador, El Salvador, Guatemala, Honduras, Paraguay and the Dominican Republic) are in the process of planning and designing various actions to generate information related to TVET.

## VI. Recommendations for the design of a TVET EMIS

Given the above condition of TVET in the region, the following questions arise relating to the primary objectives of the study:

- 1) Do the necessary conditions exist to implement an EMIS of TVET, and what type should of EMIS countries have?
- 2) Which agency should gather information, and what information should be collected?
- 3) Should information only be gathered from TVET data obtained by the ministries of education, or in relation to the total TVET provision in the country?
- 4) Is there sufficient data to implement an EMIS?
- 5) Should standards be implemented in the creation of information?
- 6) Which national body would be the main EMIS user?
- 7) In the current context in the region, how does the EMIS help improve TVET in countries?

Until the scope of TVET is defined in the countries, and guidelines and organizations related to the planning, design, monitoring and evaluation of actions are implemented, it will be difficult to answer the several questions that are raised.

### VI.1 Preliminary actions to implement an EMIS of TVET

Theoretically, an EMIS is a coordinated set of procedures that seek to generate and provide information to support decision making and execution of actions of an organization, comprised of the steps of survey, sorting, processing, analysis and evaluation of information. The results obtained should be organized and updated to meet the information needs of users (Aguilera Segura, 2007).

The elements involved in an EMIS are: (i) regulatory frameworks and procedures for information management; (ii) physical and human resources; (iii) inputs; (iv) processes or stages of production; (v) data carriers (reports, web sites, storage units); and (vi) system administrators and users. The proper coordination of these components allows the effective functioning of a system.

It also requires preconditions related to the action framework of the EMIS. In this regard, in most countries of the region, the lack of definition of the scope of TVET and low priority of the programme limits the implementation of an EMIS.

However, from the current organization of TVET and the information produced by the EMIS

analyzed, it is possible to propose guidelines for designing an EMIS. In this case, on the basis of existing information, the following actions could be taken:

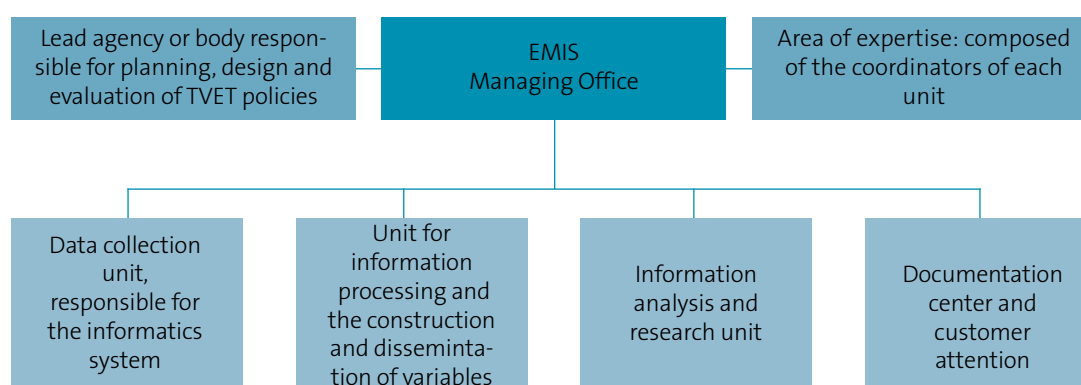
- 1) In the EMIS of ministries of education, the instruments and data recording systems could be modified to detect vocational orientations implemented in the curricula of secondary education (ISCED 2 and 3). This would enable the detection of specific orientation enrollment. To classify these orientations, a national catalog of professions validated by the appropriate bodies is required.
- 2) Similar to the actions of the information system of TVET in Brazil, modifications should be implemented in the EMIS of the ministries of education to collect data from the supply of non-formal training (initial or continuing), programmes in secondary, higher technical institutions or schools registered in the EMIS of the sector.
- 3) With regard to training which is not managed by the ministries of education, a registration system for centers and courses or training programs should be implemented. In this case, the accreditation agencies would be the ministries of education or employment, or national agencies responsible for TVET.
- 4) Guidelines should be designed, or existing laws strengthened, to promote and enhance the production of information in the various organizations that promote TVET programmes.
- 5) On the basis of experiences in Argentina, Brazil and Peru, surveys of graduates of TVET can be conducted to generate information that would serve as a useful tool for designing and evaluating policy actions and national training programmes.
- 6) Virtually all labour ministries have an office that collects labour market information. However, only some perform data analysis. Thus, given the experience of these offices, their capacities should be strengthened in countries with limited information.
- 7) The ministries of education should increase their resources (human, informatics and financial) in the statistical units to provide for data analysis and research support.
- 8) A source of information that is rarely used is the household survey of national statistical institutes. While these surveys seek to analyze the productive activity and earnings of the population, it is possible to obtain data related to education and training of the population depending on the scope of the surveys. Data is available, for example, on education levels of the population, activity status, activity condition (employer, worker or employee, self-employed, unpaid family worker), the type of employment and labour income. In order to generate additional information regarding TVET, specific items could be added to the surveys, such as whether the persons have general or technical training, orientation training (according to the catalog of professions), courses taken (continuing education) and expectations for job retraining. For example, in Brazil these annual surveys have a special focus on a given subject. In 2007, the survey focused on the issue of workforce training.

These modifications would generate inputs and conditions to implement an EMIS of TVET at the national and regional level. However, the EMIS aims to generate information in order to assist institutions or governing bodies in decision making. Therefore there should first be a need for the information, and then, on the basis of the objectives of these specific needs, the functions and operations under the EMIS should be defined.

## VI.2. The model of a structure of an EMIS of TVET

There are several structures of an EMIS. Its organization depends mainly on its objectives, scope and field of action. In TVET, it is possible to outline a model of structure functions of a theoretical EMIS. The following chart shows the main areas that could make up that system.

Figure 7 / Structure model of the organization of an EMIS of TVET.



- The data collection unit is responsible for the census operations and special surveys carried out by the EMIS. It is also responsible for verifying the control and quality of information.
- The information processing unit constructs variables, indicators and elaborates reports on requested information (input) requested by users (external and internal to the EMIS). It also disseminates variables, indicators and statistical series on the website of the EMIS.
- The analysis of information and research unit creates reports, comparisons and studies approved by the management of the EMIS.
- The documentation center surveys data and studies related to TVET. It also disseminates studies by the EMIS and manages the EMIS website and contact email address in order to respond to EMIS feedback from users.

Each unit is under the responsibility of a coordinator who also integrates the area of expertise of the EMIS. The governing body or institution responsible for TVET requests reports and studies from the EMIS in order to propose and plan national policies relating to TVET.

While it is possible to assign specific function, to present a complex structure, and to identify the main tasks of each unit, it has to be considered that the EMIS model is not univocal. Its design depends on the features at a national level, the assigned resources (human and financial) and the type of information to be produced.

### VI.3. Inputs and variables for a TVET EMIS

The construction of variables requires data (inputs) to construct results that serve as a guide in the planning and evaluation of TVET policies. The main inputs are: enrollments (depending on the status of the students, such as promoted, repeaters, or new enrollments), the number of graduates, the number of establishments, programmes or training courses, teaching positions or teachers assigned to schools, and information on the financial expenses. In the case of non-formal programmes, some variables designed for the EMIS of TVET in Brazil can be used. It is also necessary to analyze the labour market situation. In this sense, a set of variables are also proposed in the table below. However, it should be noted that the information is not limited to the proposals described, as special operations can be designed to collect information (such as surveys of graduates, for example) according to supply-driven training in each country.

#### Indicators for formal TVET (regular programmes)

- Students enrolled in TVET, as a percentage of total enrollments in the educational level (ISCED).
- Women enrolled in TVET, as a percentage of total enrollments of TVET of the same educational level (ISCED).
- Distribution of TVET enrollments by training orientation (according to the catalog of professions and occupations).
- Student / teacher ratio in the programme.
- Percentage of repeaters in the programme.
- Percentage of over-age students in the programme.
- Percentage of graduates from the programme.
- Distribution of graduates by orientation.
- Spending on TVET, as a percentage of total public education spending.
- Capital expenditure in TVET as a percentage of total public education spending.
- Expenditure per student in TVET as a percentage of GDP per capita.

The variables are broken down by educational level (ISCED) according to the supply of TVET in each country. These indicators come from the proposals of the UIS and the information system in Brazil. This set of variables aims to cover the dimensions of resources, processes and results.

#### Indicators for non-formal TVET (initial and continuing training)

- Ratio of candidates / vacancies.
- Ratio of enrollments / total enrollment.
- Ratio of graduates / students.
- Percentage of graduates over a period of analysis or duration of a course.
- Percentage of drop-outs in the period of one course.
- Ratio of students / full-time teachers.

- Number of training centers by type of management.
- Ratio of training programmes or courses/training centers.
- Percentage of teachers with a degree or diploma.
- Percentage of instructors with a degree or diploma.
- Current expenditure per student in the national currency.
- Capital expenditure per student, in the national currency.
- Distribution of students by quintile of per capita income.

The variables can be separated by type of management of training centers, sex (in the case of students and teachers), and geographical area (except expenditure data). Similarly to the previous group, in this case the indicators relate to the dimensions of resources, processes and results. The variables come from the proposed information system of TVET in Brazil.

### Labour market indicators

- Distribution of population by age groups.
- Distribution of population by educational level.
- Labour force by age group.
- Distribution of the economically active population by education level.
- Employment rates by educational level.
- Unemployment rates by educational level.
- Distribution of the employed by sector.
- Distribution of the population formally employed by sector.
- Employed who frequent training courses.
- Average years of schooling of the population between 16 and 24 years of age who are working and studying.
- Average years of schooling of the population between 16 and 24 years of age who are working and not studying.
- Average years of schooling of the population between 25 and 60 years of age who are working and studying (following an initial and continuing training).
- Average years of schooling of the population between 25 and 60 years of age who are working.

The above indicators are frequently used and produced by labour ministries and national statistical offices. In this case, the dimension corresponds to the impact of the programmes. While variations of this group of indicators relate to all educational programmes (general and technical-vocational), what is being sought is to have an overview of the status of the population in terms of educational and training needs, in order to focus training actions on certain areas of the economy or specific population groups.



The main feature of Latin America and the Caribbean is the heterogeneity across countries. This is manifested in: the organization of TVET, progress in educational coverage, education levels attained by the population, income distribution, wealth generated and labour market development.

TVET is a tool that helps develop the economy of the country and reduce socioeconomic inequalities in the population. There are numerous studies that explore and point out the benefits of investment in TVET. This paper does not develop on these aspects, nor are those benefits discussed, since the objective of this report is to inquire into the EMIS of TVET in selected countries.

There is also a debate on the definition of TVET and its scope. Until a consensus at national level is reached (especially in the curricula at ISCED 2, 3 and 4), is difficult to define the unit of analysis of an EMIS and therefore make comparisons on a regional basis. With regard to the concepts and different scopes of TVET in the countries analyzed, debate forums should be created to reach a consensus and define standards with regard of TVET in the region.

Similarly, much of the comparability of statistical information is affected by the lack of uniformity of methodologies and concepts, especially in the indicators related to the adult population and the labour market. In addition, geographical differences, the different minimum and maximum thresholds, different reference periods, and the use of different classification manuals make the design and implementation of a common system more complex. Various proposals have been made by international agencies, and agreed upon between countries (for example, ILO efforts to agree upon standards of measuring unemployment, employment and the classification of occupations). However, in practical terms most do not become fully effective at the national level, due to a lack of national agreements, low priority in the generation of information, and especially due to scarce human and financial resources to implement the proposals.

With regard to the existence of information, it appears that the correlation between system and information use seems to be the reverse of what is the common belief, and affirms that the data (input) is not used, not because it doesn't exist, but because there is no organization or individual interested in building the information. There must first be an organization willing to compile, build, analyze and use information at a national level.

As seen in the field of TVET information systems, the needs of the countries of the region are numerous. The first step would be to generate information. For that, UNESCO could (i) support the countries in the process of defining TVET and its implication at the national level; and (ii) promote national TVET diagnoses for a national map of TVET programmes and create opportunities for debate (national and regional meetings) to strengthen the capacity of those responsible of generating statistical information on TVET. While all ministries of education have an information system of all formal programmes (academic and professional), limitations were observed in terms of human and informatics resources. In the latter case, it would be necessary to strengthen these offices or create internal areas dedicated exclusively to the development of TVET information.

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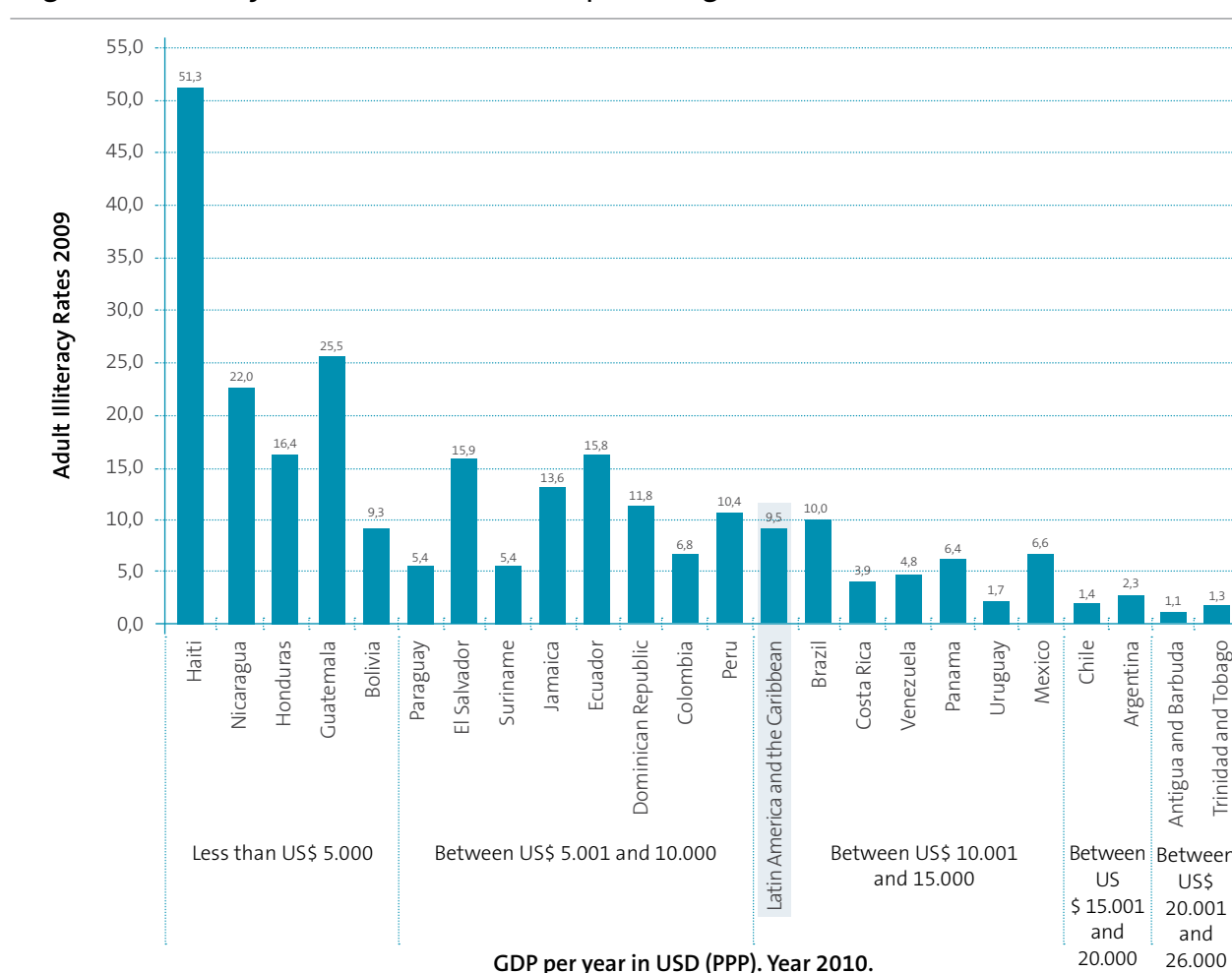
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## Improvements regarding schooling the population in the region

Inequality is one of the salient characteristics of the societies of Latin America and the Caribbean. On the one hand, there are countries where the illiterate population is almost non-existent and where GDP per capita is relatively high; on the other hand, we see other countries with high percentages of illiteracy and low income per person. According to the following figure, Haiti, Guatemala and Nicaragua show a high percentage of illiteracy. Conversely, Antigua and Barbuda, Argentina, Chile, Trinidad and Tobago and Uruguay have practically eradicated illiteracy.

Figure A / Illiteracy rate in LAC countries. In percentages. Year 2009.



Note: Countries with available data ranked by GDP per capita.

Source: Prepared with data from UIS-UNESCO.

The probability of a person attending school is higher in the population in the richest quintile than in the group belonging to the poorest quintile. Indeed, with the exception of the group between six and twelve years old (in which coverage is almost universal) in the population between thirteen and nineteen years, and twenty and twenty-four years, the coverage is directly and positively related to the level of income and educational capital of the household.

It should be noted that the possibility of entering, staying and completing education is significantly higher in urban than rural areas. At the same time, trends show that inequalities increase as one analyzes higher educational levels.

In the age group between thirteen and nineteen years, most of the growth in enrollment rates during the last decades is due to the inclusion of students from disadvantaged groups of the society (in terms of position in the structure of income distribution). In particular, those who previously did not have access to secondary general and technical education now tend to stay in the education system for a longer period of time, and reach education levels (such as high school, for example) which were previously reserved exclusively for the richer children.

In this context of highly unequal societies, the increased enrollment in higher educational levels is accompanied by strongly stratified supply of education.

While higher-income families send their children to schools with bilingual curriculum and diversified subjects, low-income groups enroll their children in schools with poor infrastructure, where they learn a more basic and common curriculum. In some contexts, the fragmentation and the stratification has reached such high levels that it is increasingly hard to think of education in traditional terms, as a homogeneous system that performs in a single way and pursues the same goals for everyone. This inequality at the secondary level strongly determines the probability of access to and completion of higher education.

According to the data presented in the following table, Guatemala is one of the countries with the greatest inequities with regard to access to education in all age groups, sorted by level of household income. Not only do the differences in access between the richest and the poorest exceed those observed in other countries, but Guatemala is also among the countries with the lowest attendance rate of the poorest strata in the region.

**Table A / School attendance rate in urban areas of the population aged 7 to 24 years by income quintile and age group. In percentages. Year 2009.**

Country	Quintile 1			Quintile 3			Quintile 5		
	Age Group			Age Group			Age Group		
	7 - 12	13 - 19	20 - 24	7 - 12	13 - 19	20 - 24	7 - 12	13 - 19	20 - 24
Argentina	98.7	75.3	28.6	99.3	82.0	38.1	98.8	90.9	57.8
Bolivia	99.0	83.6	43.3	99.5	83.2	42.2	100.0	85.9	54.3
Brazil	98.2	77.7	15.4	99.3	75.4	22.2	99.4	88.5	51.6
Chile	99.0	77.9	24.1	99.5	79.6	32.2	99.8	88.9	60.3
Colombia	96.7	72.9	15.1	98.6	73.6	25.4	97.7	87.2	55.8
Costa Rica	97.8	74.4	28.2	100.0	81.5	42.4	100.0	93.1	72.1
Ecuador	97.7	76.3	27.2	98.8	76.9	33.1	99.1	91.9	62.3
El Salvador	94.4	69.6	14.3	96.6	76.0	22.9	99.9	88.5	52.7
Guatemala	86.4	55.1	7.4	94.3	67.1	18.6	98.3	87.3	49.2

Honduras	86.6	62.8	17.2	93.1	66.8	25.1	95.6	81.6	50.8
Mexico	97.9	65.9	16.9	99.3	69.9	26.6	99.2	88.0	52.9
Nicaragua	89.5	60.7	13.7	93.2	66.3	21.9	99.6	82.0	41.3
Panama	99.0	77.8	18.9	100.0	82.2	33.2	100.0	91.9	53.9
Paraguay	97.5	74.0	10.8	100.0	76.8	27.3	100.0	85.8	54.4
Peru	81.6	61.2	19.3	81.4	58.5	26.0	83.7	65.4	40.4
Dominican Republic	98.8	84.6	30.9	98.8	83.3	45.0	100.0	84.7	48.5
Uruguay	98.6	67.2	11.8	99.0	80.1	36.8	99.4	93.4	68.6
Venezuela	97.1	76.4	15.6	98.3	76.7	20.0	99.0	83.2	22.3

Note: Countries with available data.

Source: Prepared with data from CEPAL.

The persistence of inequities in access to education according to geographical area are not only reflected in the education of youth and adolescents. In the adult population, there are also significant differences in educational attainment. In fact, adults in rural areas tend to complete fewer years of schooling than urban adults. In both geographical areas, Cuba stands out with a high percentage of the adult population with the most years of education, while Guatemala, Honduras and Nicaragua present a larger proportion of the population with the least amount of years of education.

**Table B / Years of education completed by the population aged 25 to 59 years old by geographic area. Year 2009.**

Country	Years of schooling							
	0 to 5 Years		6 to 9 Years		10 to 12 Years		13 or more	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Argentina	5.6	n/a	25.2	n/a	38.7	n/a	30.5	n/a
Bolivia	23.5	66.7	15.2	14.9	28.1	11.1	33.3	7.3
Brazil	27.8	64.5	20.9	16.7	34.3	15.3	17.0	3.5
Chile	7.5	21.4	19.5	40.3	44.7	30.3	28.3	8.1
Colombia	28.6	74.6	19.0	12.7	26.6	9.9	25.9	2.7
Costa Rica	8.9	22.0	39.5	54.5	22.7	12.4	28.9	11.2
Cuba	2.3	7.0	28.6	50.7	37.1	29.3	32.0	13.0
Ecuador	10.3	32.3	32.8	50.8	27.8	11.8	29.1	5.0
El Salvador	27.3	66.7	29.4	23.5	24.6	7.5	18.7	2.3
Guatemala	39.2	80.0	28.1	15.3	19.7	3.9	13.0	0.9
Honduras	26.2	62.8	38.2	31.8	21.9	4.1	13.8	1.3
Mexico	13.0	37.9	43.0	46.3	21.6	9.7	22.5	6.2

Nicaragua	29.1	74.4	35.2	19.7	19.3	4.0	16.4	1.8
Panama	4.3	24.6	30.9	48.8	32.6	17.4	32.2	9.2
Paraguay	10.3	n/a	30.4	n/a	33.8	n/a	25.5	n/a
Peru	15.5	54.5	13.8	21.9	30.4	15.9	40.3	7.7
Dominican Republic	21.6	44.4	25.6	30.1	27.0	17.9	25.8	7.6
Uruguay	6.8	14.4	43.2	67.3	25.2	12.0	24.8	6.3
Venezuela	12.9	n/a	38.0	n/a	25.4	n/a	23.7	n/a

Note: (n/a) Countries with available data.

Source: Prepared with data from CEPAL

According to ECLAC estimates, the completion of secondary education (ISCED 3) represents the minimum educational threshold that ensures a future out of poverty in the region. A person requires, on average, twelve years of schooling in order to obtain the basic skills that will enable him / her to achieve minimum levels of welfare. However, the previous figure varies for each country: in Chile and the Dominican Republic it is thirteen years; in Honduras it is eight.

If this population wished to have a higher income than the average income of the working population aged between 20 and 29 years old, it would need an average of fifteen years of education instead of twelve. Here also there are variations between countries. In Argentina and Venezuela, for example, seventeen years of education are required. In contrast, in Costa Rica and Honduras the figure is approximately twelve years.

**Table C / Years of education required to avoid falling into poverty and necessary to earn a higher income than the average income of the working population aged 20 to 29 years old. Year 2008.**

Country	Years of study required to have a lower probability of falling into poverty than the average	Years of study required to have higher earnings than the average population
Argentina (Urban)	12	17
Bolivia	12	16
Brazil	11	14
Chile	13	16
Colombia	12	15
Costa Rica	11	12
Ecuador	12	15
El Salvador	10	15
Guatemala	11	13
Honduras	8	12
Mexico	11	16

Nicaragua	9	13
Panama	12	15
Paraguay	12	13
Peru	12	15
Dominican Republic	13	16
Uruguay	10	14
Venezuela	11	17
<b>Regional mode value</b>	<b>12</b>	<b>15</b>

*Note: Data corresponds to those who work 20 or more hours per week. The mode is the value that repeats the most among all the countries with available data.*

*Source: ECLAC (2010).*

### *Gross enrollment ratio (GER) in technical and vocational education*

This indicator shows the system's ability to enroll students in a specific educational level. The result is obtained by comparing the enrollment of a certain level (ISCED) and the population in the theoretical age to attend that particular level. Generally, this variable is used to analyze total enrollment, including the enrollment in general, technical or vocational programmes.

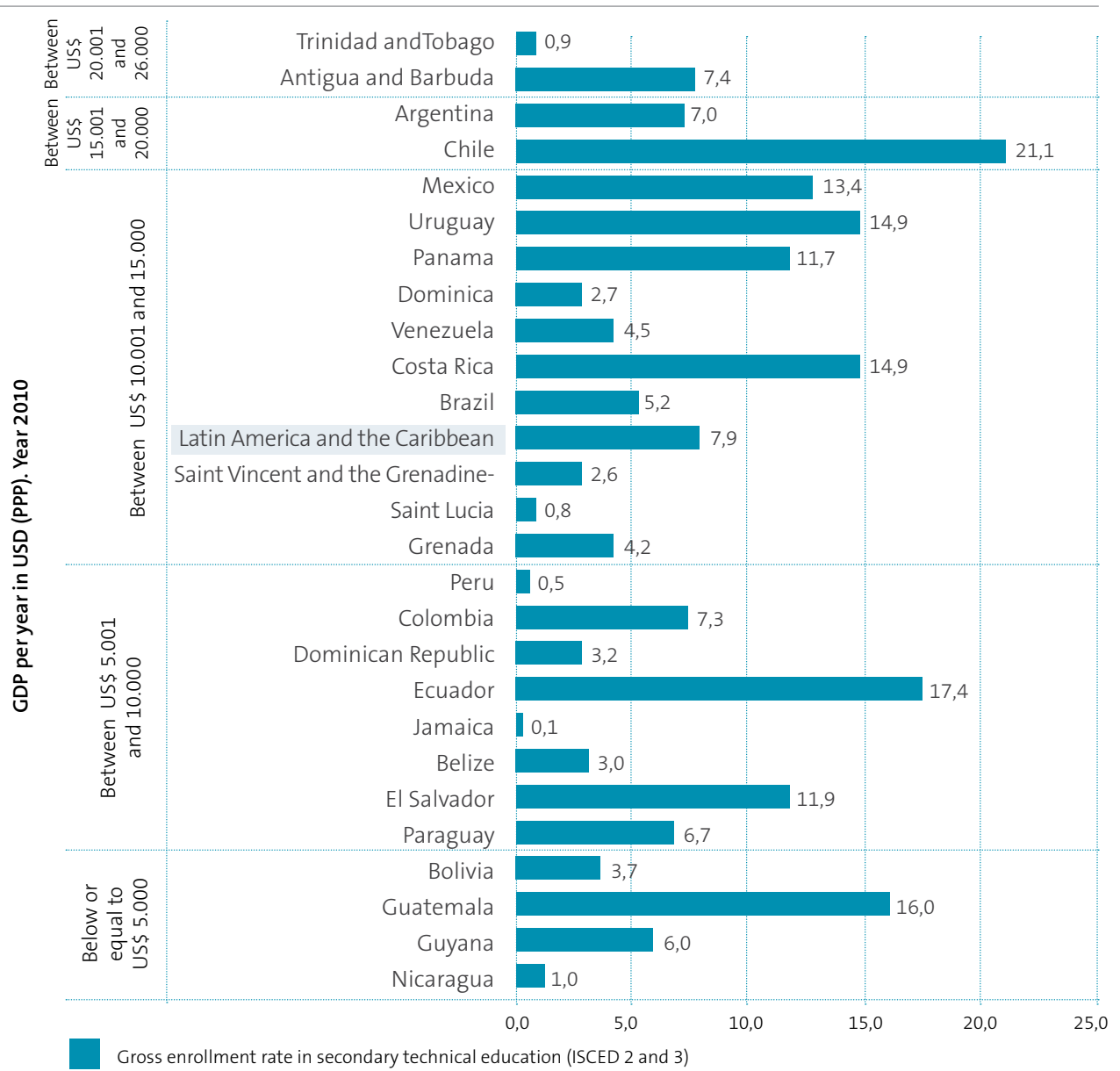
The use of this indicator in technical and vocational educational is unusual, since there are no ideal levels. However, its consideration gives an interesting perspective and it was decided that it should be included in this section. This rate allows for comparisons of technical and vocational education between countries with very diverse populations. As noted, these differences are a feature in Latin America and the Caribbean.

According to the available data, the region's gross enrollment ratio in technical secondary education is 8%. This value on its own does not allow further analysis, since there are no benchmarks that indicate whether an improvement has been made. However, the comparison between countries shows significant differences.

For example, in Costa Rica, Chile, Ecuador, Guatemala and Uruguay there is a high participation in technical secondary education, estimated on the basis of population in the theoretical age of the secondary education level. Of this group, only Chile has a high GDP per capita. On the contrary, Jamaica, Peru, Saint Lucia and Trinidad and Tobago have rates that do not exceed 1%. Of all the countries analyzed, only Trinidad and Tobago has a low enrollment rate in technical secondary education and a high income per person. There is no evidence of a direct relationship between GDP per capita and school enrollment in technical education.



Figure B / Gross enrollment rate of technical secondary education (ISCED 2 and 3). Year 2010.



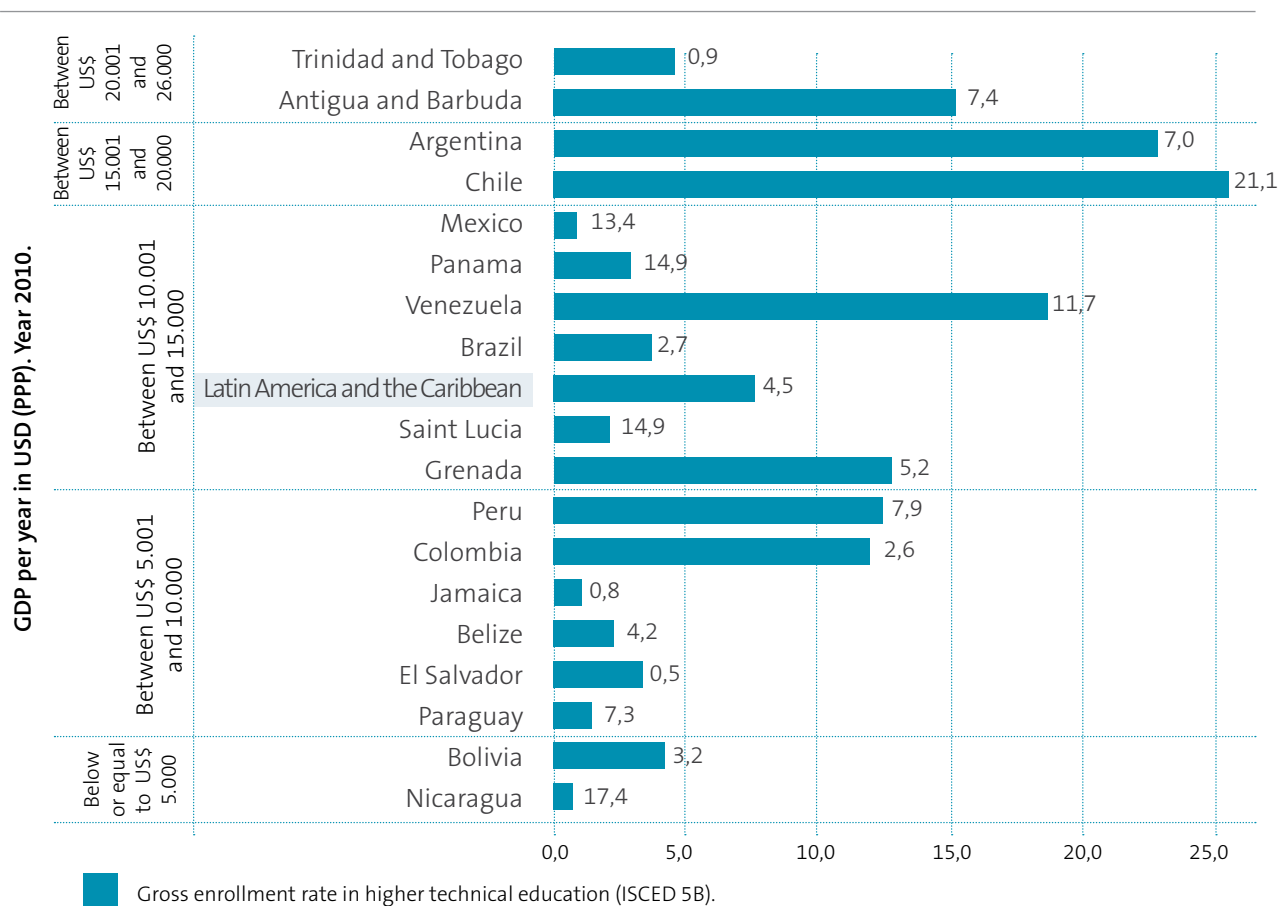
Note: Countries with available data.

Source: Prepared with data from UIS-UNESCO.

The gross enrollment rate of technical higher education (ISCED 5B) is nearly 8% in the region. This average is similar to the one of the previous level. According to the available data, Argentina and Chile have the highest rates. Jamaica, Mexico, Nicaragua, and Panama and Saint Lucia do not exceed 2%. As noted for technical secondary education, Trinidad and Tobago has the highest GDP per capita of this group of countries, and has a rate that is below the regional average.

Although this indicator allows the analysis of data between countries, one must be prudent when it comes to making conclusions in higher education, due to the fact that there are two important elements to consider which affect the results. Firstly, enrollment includes a significant variation in the range of ages. Secondly, the organization and the duration of training are very heterogeneous across countries.

Figure C / Gross enrollment rate of higher technical education (ISCED 5B). Year 2010.



Note: Countries with available data.

Source: Prepared with data from UIS-UNESCO.

## Questionnaire 1 (TVET background)

*UNESCO Regional Workshop on Education Statistics for Latin American and Caribbean Information Systems (EMIS) on Technical and Vocational Education and Training (TVET)*

Dear colleague,

As part of the 2011 Regional Workshop on Education Statistics of UNESCO for Latin America and the Caribbean, on Wednesday the 30th we scheduled a presentation of a project related to EMIS for Technical and Vocational Education and Training (TVET).

In order to organize this activity, we ask you to answer this brief questionnaire on TVET context, so it can be used for this session and the ongoing project.

1. What is the equivalent name of TVET in your country?
2. Which institutions (public and private) or ministries are involved in the provision of TVET? Please name directorate, department or area in charge when necessary.
3. Is there any agency or institution responsible for the coordination and monitoring of TVET related policies in your country? If yes, briefly describe the duties assigned.
4. Is your country equipped with a national TVET legislation? Please give details.
5. Is there any national TVET strategy in your country? If yes, briefly describe the main objectives, proposed actions, the mechanisms for tracking and monitoring the progress and achievements.
6. Is there an agency or institution responsible for collecting data from the TVET sector in your country? If so, please name such institution?
7. Is there a statistical information system (EMIS) currently in place (or a project to create one)? Briefly describe its main functions.
8. Is there a national legislation to support the information system? Please give details.
9. Describe the type of information that is collected and main surveys.
10. Are there variables and indicators to carry out TVET programs monitoring at national and sub-national levels? Please describe.
11. Is this information available on a specific website? Please indicate the name and address of website.

Thank you for your cooperation!

## Questionnaire 2 (organization and management of TVET and EMIS)

*UNESCO Regional Workshop on Education Statistics for Latin American and Caribbean Information Systems (EMIS) on Technical and Vocational Education and Training (TVET)*

Dear colleague,

As part of the “2011 Regional Workshop for Education Statistics in Latin America and the Caribbean” held in Viña del Mar, Chile, we decided to distribute this questionnaire to twelve countries in order to have a regional overview. The answers will be an input for a project that aims at improving the EMIS and TVET statistics in LAC.

Participation from the national statistics office or from members of ministries related to TVET is needed in order to answer to these questions. The following tips might be useful in order to complete the questionnaire. Please read them carefully before starting to answer the questionnaire:

- a. Unify efforts with the colleague from your country who participated in the 2011 regional workshop so you do not duplicate tasks.
- b. Identify possible information providers in your country.
- c. Be sure to write clearly the sources of information.
- d. Please indicate when some information is not available or has not been produced by your country.
- e. Complete only the information that can be checked. If you know that there is available information, but because of a lack of time you could not access it, please let us know this in your answer.

For any doubts or further questions, do not hesitate to contact us: TVETenLAC@gmail.com

### I. Organisation and management of the Technical and Vocational Education and Training System (TVET)

1. By what name is TVET known in your country?
2. Describe in brief the structure of the educational system, the compulsory levels and compulsory age for attending school.
3. List the main functions assigned to TVET in your country.
4. What agencies or ministries are involved in the provision of the TVET? You should also indicate the directorate, department or area specifically responsible.
5. Is there an agency or institution responsible for articulating, observing or monitoring the

policies relating to TVET in your country? If yes, briefly describe the duties assigned.

6. Does your country have a national policy framework in place to support TVET? List the corresponding laws.

7. How are educational establishments or institutions classified in TVET (for example, Technical Schools, Agro-Technical Schools, Technological Institutes, Services for Teaching Commerce)? Also specify to which agency or ministry they belong.

8. Specify the training courses or specialities of TVET and their duration, broken down by type of establishment or institute as in the previous question.

9. Which courses in the previous answer have a curriculum which allows students to go on to specialise in a subject? Also mention the specialised training options.

10. List the degrees and titles in the diplomas awarded within TVET (for example, Mid-Level Technician, Bachelor of Technology, Skilled Worker, Senior Technical Specialist) broken down by the type of establishment or institute under item 7.

11. Briefly describe the characteristics of the curricular programmes within TVET (include, for example, the type of design (competency based or not) the percentage of speciality content or materials in the whole curriculum, the accreditation process of the programmes).

12. Which agencies or practitioners are involved in the development and approval of the plans and curricula for TVET? Describe in brief how these tasks or responsibilities are developed.

13. Is there some kind of involvement by companies or the private sector in planning the curriculum or in practical training (internships) for students? Which courses or specialities have this participation?

14. What percentage of establishments have some kind of cooperation with the private sector? Describe in brief the establishment - company relationship.

15. Have graduate profiles been designed for the different opportunities in TVET? Describe briefly who participated in the process and which courses have a graduate profile.

16. Are there mechanisms for monitoring the graduates of TVET? Describe in brief how they work.

17. Is there any employment observatory or equivalent? If so, briefly describe the functions of this body.

18. Are there programmes to foster the entry of adolescents and youth into TVET? Describe in brief how these function and the results of the actions taken.

19. Within the framework of TVET, do programmes exist to encourage students to stay and graduate? Briefly describe how this works and specify the results obtained.

20. Have there been diagnoses of the characteristics of the pupils or students who choose TVET? Briefly describe the results of the studies; for example, the socio-economic characteristics of the students, their geographical area of residence, the educational level of their family, employment (circumstances).

21. Is there a national plan or strategy for TVET? If yes, briefly describe the principle objectives, proposed actions, methods for tracking and monitoring and the advancements or achievements obtained.

## II. Resources

22. Number of teachers in formal TVET by level of education (secondary education, upper secondary, post-secondary and tertiary non-university), management section (public, private and subsidised private), gender and type of educational establishment or institution and training branch.

23. Formal TVET teachers as a percentage of all teachers, divided according to item 22.

24. Peak education level of formal TVET teachers, divided according to item 22.

25. Percentage of teachers with pedagogical training in formal TVET, divided according to item 22.

26. Students per teacher in formal TVET, divided according to item 22, save for by gender.

27. Number of exclusively formal TVET educational establishments or training institutions, divided according to item 22, save for by gender.

28. Number of formal TVET educational establishments or training institutions also offering general education or other training, divided according to item 22, save for by gender.

29. Total number of formal TVET education establishments or institutions, divided according to item 22, save for by gender.

30. Percentage of formal TVET education establishments or institutions with computer equipment, divided according to item 22, save for by gender.

31. Percentage of formal TVET education establishments or institutions with internet access, divided according to item 22, save for by gender.

32. Percentage of formal TVET education establishments or institutions with specific equipment (machines, tools, or electronic equipment) to develop its training methods, divided according to 22, save for by gender.

33. Number of formal TVET sections, divided according to item 22, save for by gender.

34. Describe in brief how the TVET is financed, the method by which public funds are distributed and which ministries or dependencies administrate them.

35. What is the cost of TVET? What is the distribution of educational expenditure by the object of expenditure?

36. What is the cost of TVET as a percentage of the total spending on education?

37. What is the cost of TVET as a percentage of the total public spending on education?

38. What is the cost of TVET as a percentage of the total private spending on education?

39. What is the distribution of funds between the distinct subjects and courses?

40. What is the spend per student in formal TVET by level of education (secondary education, post-secondary, tertiary non-university)?

### III. Amount of supply and demand

41. Evolution of formal TVET enrolment of the last available ten years, divided according to item 22.

42. Evolution of formal TVET enrolment of the last available ten years, separated by quintile of per capita income and as per item 22.

43. Evolution of formal TVET enrolment for single years of age, divided according to item 22.

44. Evolution of the gross enrolment rate of the available ten most recent years for technical education at secondary and tertiary non-university levels.

45. Evolution of the net enrolment rate of the available ten most recent years for technical education at secondary and tertiary non-university levels.

### IV. Internal Efficiency

46. Percentage of repeaters in formal TVET, divided according to item 22.

47. Percentage who abandon a course in formal TVET, divided according to item 22.

48. Average rate of secondary education and technical education at the secondary level, divided by management sector of the establishments and gender.

49. Promotion rate of formal TVET divided according to item 22.

### V. Results

50. Graduation rate of formal TVET divided according to item 22.

51. Average length of stay for graduates of technical education at the secondary and tertiary non-university levels.

52. Results of national assessments of secondary education and technical education at the secondary level.

## VI. Impact

53. Population over the age of 24 by type and highest level of education attained (no education, primary incomplete, primary complete, secondary incomplete, secondary complete, secondary technical incomplete, secondary technical complete, post-secondary incomplete, post-secondary complete, post-secondary technical incomplete, post-secondary technical complete, tertiary non-university incomplete, tertiary non-university complete, university incomplete, university complete). In percentages.

54. Graduates of technical education at secondary level of between 18-25 years of age actively working by sector of the economy. In percentage.

55. Graduates of technical education at tertiary non-university level older than 24 years of age actively working by sector of the economy. In percentage.

56. Active employment rate refined by level of educational attainment.

57. Average years of schooling of the population according to the quintile of per capita income.

58. Evolution of the rate of unemployment.

## VII. Non-formal TVET

59. Describe in brief the supply of informal TVET in your country. What agencies are responsible for regulating and evaluating the supply? Are there branches or special priorities set by the state? Is there a body responsible for the evaluation of course content or skill of the graduates? How are the course contents or graduates skills evaluated? Who participates in the evaluations? Is there a process to validate the courses and accreditation of diplomas? Does the productive sector participate in the above actions? What are the entry requirements, or how do you select participants? Which institutions offer the service? Is there a body responsible for accrediting these institutions? Is there a system of accreditation for training institutions? How many training institutions are there (divided by public administration, private and subsidised private)? How do you determine the percentage of grants awarded to institutions which receive them? How are internships handled in this type of offer? Which ministries or agencies funded the formation of the courses? What is the percentage of expenditure of the ministries or agencies for this type of training? What is the average cost per participant of this training at a public establishment? List the proposed training for the country and its duration.

60. Is there a unified registry to monitor non-formal TVET enrollees and graduates in the country? If so, describe in brief.

61. Are there incentive programs to promote enrolment in priority branches or specialities determined by the state? If so, describe in brief.



62. How does the productive sector participate in the provision of non-formal TVET in the country?

63. Number of establishments or entities making up non-formal TVET which also offer formal TVET by management section (public, private and subsidised private) and type of educational establishment or institution and training branch.

64. Number of establishments or entities making up non-formal TVET which are equipped with computers, divided according to item 63 (SIC).

65. Number of establishments or entities making up non-formal TVET which have internet access, divided according to item 63 (SIC).

66. Number of establishments or entities making up non-formal TVET with specific equipment (machines, tools) to fulfil its training functions, divided according to item 63 (SIC).

67. Number of non-formal TVET teachers divided according to highest educational attainment, gender and as item 63 (SIC).

68. Number of non-formal TVET teachers with degrees relating to their teaching position or assigned duties, divided according to gender and as item 63 (SIC).

69. Enrolment or registration in the last ten years of non-formal TVET, divided according to gender and as item 63 (SIC).

70. Enrolment or registration in the last ten years of non-formal TVET for single years of age, divided according to gender and as item 63 (SIC).

71. Number of students or enrolments in the last ten years of non-formal TVET by quintile of per capita income, divided according to gender and as item 63 (SIC).

72. Number of students or enrolments in the last ten years of non-formal TVET who combine work and study, divided according to gender and as item 63 (SIC).

73. Number of students or enrolments with more than one course or training offered in non-formal TVET for the last ten years, divided according to gender and as item 63 (SIC).

74. Number of students or enrolments in the last 10 years of both non-formal and formal TVET, divided according to gender and as item 63 (SIC).

75. Number of graduates in the last ten years of non-formal TVET, divided according to gender and as item 63 (SIC).

76. Number of graduates in the last ten years of non-formal TVET who are now employed, divided according to gender and as item 63 (SIC).

77. Number of graduates in the last ten years of non-formal TVET who are now working within the subject or speciality which they studied, divided according to gender and as item 63 (SIC).

78. Number of courses/sectors in the last ten years of non-formal TVET, divided according to gender and as item 63 (SIC).

79. Average number of students or enrolments per class in the last ten years, divided according to gender and as item 63 (SIC).

80. Percentage who abandon their non-formal TVET studies in the last ten years, divided according to gender and as item 63 (SIC).

### VIII. TVET Information systems.

81. Which agency or entity is responsible for survey data of non-formal and formal TVET?

82. Is there a functioning information system or project to create one? Describe in brief its principle functions.

83. Is there a legal framework in respect to the information system? List the corresponding laws.

84. Which areas or departments make up the information system?

85. Describe in brief the type of information gathered and the surveys made.

86. How frequently is the information updated?

87. Are there agreements in place for the interchange of information with institutions or official data providers? Describe in brief any agreements.

88. Are mechanisms in place to control and validate collected data? What are they?

89. Is there a human resources facility to manage information systems?

90. Is information technology used to manage the information systems?

91. Is the budget allocated to the information system sufficient to fulfil all duties?

92. Are variables and indicators available to carry out observation and monitoring of the programmes at national and local levels? Provide a brief description.

93. Is the information available on a website?

94. Will analysis be performed of the type of collected data? How frequently? Are the results published?

## Matrix of responses to Questionnaire 1 (TVET background) in Latin America and the Caribbean

Country	What is the equivalent name of TVET in your country?	Which institutions (public and private) or ministries are involved in the provision of TVET? Please name directorate, department or area in charge when necessary.	Is there any agency or institution responsible for the coordination and monitoring of TVET related policies in your country? If yes, briefly describe the duties assigned.	Is your country equipped with a national TVET legislation? Please give details.	Is there any national TVET Strategy in your country? If yes, briefly describe the main objectives, proposed actions, the mechanisms for tracking and monitoring progress and achievements.	Is there an agency or institution responsible for collecting data from the TVET sector in your country? If so, please name such institution.	Is there a statistical information system (EMIS) currently in place (or a project to create one)? Briefly describe its main functions.	Is there a national legislation to support the information system? Please give details.	Describe the type of information that is collected and main surveys.	Are there variables and indicators to carry out TVET programs monitoring at national and sub-national levels? Please describe. Is this information available on a specific website? Please indicate the name and address of website.
Anguilla	Technical and Vocational Education and Training	The Ministry of Social Development through its Education Department. The following institutions have TVET programs: The Albena Lake-Hodge Comprehensive School, Anguilla Community College and North Hill Comprehensive Learning Centre (private).	The Ministry of Social Development and the Education Department establish and implement TVET policies in the country through the Five Year Plan for Educational Development. The main strategy was the creation of a TVET Council to coordinate the actions of this type of programme. However, the specific functions of the Council are being defined.	The TVET Council seeks to develop and implement standards to improve the service.	TVET strategies are set out in the Education Development Plan 2010/2011. The goals are: to put into action the TVET Council, to certify the total technical courses in the country, to set standards for certification, to coordinate with the different economic sectors for the recognition of certificates, and to implement the unit that will certify skills and qualifications.	The Education Department gathers data of the educational system. There is no specific information system for TVET.	No	No	It does not exist. There is only employment data that is gathered in the census operations.	No

Antigua and Barbuda	Technical and Vocational Education and Training	<p>The Ministry of Education provides the service through technical secondary schools, the Antigua and Barbuda Institute of Continuing Education (ABICE) and the Antigua State College (ASC). The Ministry of Tourism is responsible for the Antigua and Barbuda Hospitality Training Institute (ABHTI). In the private sector (NGOs), the Gilbert Agricultural Rural Development Centre (GARD Centre) is an important actor.</p>	<p>The National Training Agency (NTA) created by Law No.8/2008 has the following functions:</p> <ul style="list-style-type: none"> <li>- To establish and promote rules and national labour standards.</li> <li>- To implement the Antigua and Barbuda National Vocational Qualifications system (ABNVQ).</li> <li>- To monitor the ABNVQC system administrator.</li> <li>- To certify the institutions which provide training in order to ensure service quality.</li> <li>- To promote lifelong learning through continuous education and training programmes.</li> <li>- To promote and participate in the development of the Caribbean Vocational Qualifications system (CVQ).</li> </ul>	<p>The legislation that creates the National Training Agency supports actions concerning TVET.</p>	<p>The National Training Agency of TVET follows two strategies:</p> <ul style="list-style-type: none"> <li>- To articulate the secondary and postsecondary educated in order to improve the quality of TVET.</li> <li>- To increase coverage of TVET.</li> </ul>	<p>The Ministry of Education gathers data from the general education system. There is no specific information system for TVET.</p>	<p>The Ministry of Labour is developing the Labour Market Information System.</p>	No	<p>Number of students in TVET programmes. Number of graduates sorted by professional group.</p>	No
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Argentina	Technical Vocational Education (ETP according to its name in Spanish)	<p>Ministry of Education. National Institute of Technical Education (INET, according to its name in Spanish). Province ministries of education and their technical education areas.</p> <p>The Ministry of Labour, Employment and Social Security.</p>	<p>National Institute of Technical Education (INET). Its main objectives are:</p> <ul style="list-style-type: none"> <li>- To coordinate and to promote national and federal programs aimed at strengthening technology education, technical and vocational training, articulated with the different levels and cycles of the education system.</li> <li>- To implement cooperation strategies and actions with different entities, and institutions in order to seek for consensus among the provinces regarding policies and guidelines for the development of the supply of education.</li> </ul>	<ul style="list-style-type: none"> <li>- Technical and Vocational Education Law No. 26.058/05.</li> <li>- National Education Law No. 26.206/06</li> </ul>	<p>INET carries out the following strategies:</p> <ul style="list-style-type: none"> <li>- To develop pedagogical instruments for various fields of technological education.</li> <li>- To improve the link between institutions, training programmes, sector networks of vocational training and the different economic sectors.</li> <li>- To consolidate the technical training at the secondary and post-secondary levels through the elaboration of norms, projects and programmes at the federal level to develop different training paths.</li> <li>- To strengthen initial teacher training through specific TVE programs.</li> <li>- To certify and train teachers who work in TVE programs</li> <li>- To provide resources for the improvement plans of educational institutions (equipment, infrastructure and training).</li> <li>- To manage the Tax Credit used for subsidizing the training of human resources and acquisition of equipment for educational institutions.</li> <li>- To carry out actions for the integration and inclusion of vulnerable populations to job training programs that have place in TVE institutions through the Education Program for Labour and Social Integration (Pretis).</li> <li>- To manage the information and documentation center that collects data and information on TVET.</li> </ul>	<p>National Office of Information and Evaluation of Educational Quality (DINIECE, according to its name in Spanish) and the National Institute of Technical Education (INET).</p>	<ul style="list-style-type: none"> <li>- DINIECE is in charge of the annual primary and secondary education survey.</li> <li>- INET manages the Technical and Vocational Education Alumni Tracking System at the secondary level (Sistema de Seguimiento de Egresados de al Educación Técnico Profesional)</li> </ul>	<p>Professional Technical Education Law No. 26.058/05. - National Education Law No. 26.206/06</p>	<p>DINIECE's Annual Survey includes an overview of the education system (and ETP), enrollments, repeaters, promoted, graduates sorted by educational programs, teaching positions and teaching hours. The INET's Technical and Vocational Education Alumni Tracking System tracks employment data of graduates of ETP programs at the secondary level.</p>	<p>DINIECE elaborate more classical or traditional indicators. INET's indicators are related to graduates (i.e. employment rates of graduates).</p>
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Aruba	Basic Technical High-School and Professional Programme, and Senior Secondary Technical and Vocational Programme.	The Ministry of Education, Ministry of Labour and private institutions subsidized by the government.	The Inspectorate of Education Policy and the Coordination of School Boards of the Ministry of Education.	TVET is regulated through rules for the secondary level education. However, training programs are currently in the process of reformulation.	The Inspectorate of Education Policy and the Coordination of School Boards set the goals of technical and vocational training and monitor the actions of schools.	The Department of Education of the Ministry of Education is responsible for collecting TVET data in the education sector.	No response.	The Secondary Education Ordinance, in Article 100, establishes that schools are obliged to report data of students, teachers and programmes.	- Enrollment, repeaters and graduates disaggregated by grade, age, gender and maternal language.	Among the monitoring activities of the national education plan 2007-2017, there is tracking of those students enrolled in the secondary level and the number of courses offered for the adult population disaggregated by sector (health, tourism, industry, etc.).
Bahamas	Career and technical education.	Ministry of Education, Bahamas Technical & Vocational Institute and College of the Bahamas.	Currently, the Ministry of Education is responsible for TVET. However, there is a project to create the Workforce Development Council (WDC).	There is a bill elaborated by the Ministry of Education in consultation process.	There are no long-term strategies. Currently the project is called Investing in Students and Innovative Program for Reform in Education (INSPIRE), funded by the IDB. Its first component is the creation of a national framework for technical education and vocational training.	The Planning and Research Unit of the Ministry of Education.	The INSPIRE programme has a course of action. The goal is to create an information system of the educational system	No	Enrollment data.	National framework of professional skills and qualifications (INSPIRE programme).
Barbados	Technical and Vocational Education and Training.	The Ministry of Education and Human Resources Development through The Samuel Jackman Prescod Polytechnic and The Barbados Community College. The Ministry of Labour and Social Security and The Barbados Vocational Training Board. There are also private training institutions registered with the Barbados Accreditation Council (BAC).	The National TVET Council is responsible for the National Training Agency which is responsible for: Developing plans for TVET, advising the Ministry of Education on issues related to TVET, coordinating actions related to TVET in tertiary education, establishing professional standards of TVET and providing scholarships.	Law No. 11/1993 on the implementation of the National TVET Council sets out the functions and powers of the National TVET Council.	The National Training Plan 2011 and the Human Resources Development Strategy 2011-2016 include strategies related to TVET that are based on five pillars: creating an appropriated environment for the development of human resources, national vocational qualification framework, education system demands, knowledge management system, and research and innovation management system.	The Manpower Research and Statistical Unit (MRSU) and the National TVET Council	The MRSU publishes information through the website of the Ministry of Labour.  The Barbados Statistical Service.	The Barbados Statistical Service Law from 1959 supports the actions of surveying information.	- Enrolled students and graduates.  - Statistics on employment, trade and business. - Continuous surveys.	No

Belize	Technical and Vocational Education and Training.	The Ministry of Education and Youth and the TVET National Council. Employment Training & Education Service (ETES).  TVET National Council.	The TVET National Council advises the government on policies related to TVET and proposes plans and training programmes.  Employment Training & Education Service (ETES) monitors the quality of TVET institutes, conducts research on TVET, creates links between the economic sectors, education and training, and participates as secretary in the TVET National Council.	Education and Training Law 2010.	Strategies that seek to improve the quality of the service were defined through the implementation of the TVET National Council and the regulation of functions of TVET institutions.	Policy Planning Unit of the Ministry of Education and Youth.	The information system of the education system generally includes TVET data.	Education and Training Law 2010.	Data of enrollment, dropping-out rates, alumni, faculty, description of facilities and courses offered.	No response.
Brazil	Vocational and Technological Education (Educação Profissional and Tecnológica in Portuguese).	Secretary for Vocational and Technological Education of the Ministry of Education. There are also public entities of the various ministries involved in training and professional development (for example, the national learning services in: industry, trade, transport and rural areas).	The Secretary for Vocational and Technological Education at the Ministry of Education is responsible for: planning, coordinating and monitoring the implementation of policies related to vocational and technological education, promoting the expansion and improvement of vocational and technological education, monitoring the compliance of norms related to vocational and technological education. The Federal Network of Vocational Education, Science and Technology.	National Education Law, the National Education Plan. The national guidelines for vocational education.	The strategic goals of the National Education Plan (2010-2020) are: to achieve at least 25% of enrollments in adult education in TVET at ISCED 2 and 3 levels, to duplicate TVET enrollments for the ISCED 3. The Brazilian Classification of Jobs. The 'Learning' ('Aprendisagem' in Portuguese) programme established in 2002 seeks to improve professional skills and ensure integration into the labour market of the population between 14 and 24 years old through an internships programme in different companies.	The National Institute of Educational Studies and Research Anísio Teixeira (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (INEP)).  Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística)  Monitoring of national labour market of the labour ministry	The INEP carries out an annual survey of students, teachers and TVET institutions (formal education). Employment data are estimated from household surveys.  The area of information and statistics from the Ministry of Labour collects labour market data.	Through the national decree on the implementation of the Educational Census all schools are required to provide information.	Data of students, faculty, facilities and courses.	Access to education indicators calculated for the national and sub national levels.

Costa Rica	Technical and Vocational Education	Department of Technical Education and Entrepreneurship Skills of the Ministry of Education. The Ministry of Labour and Social Security promotes and administers employment programmes and training for adolescents and youth. Programs 'Empleate' and 'Por mí'.	The Department of Technical Education and Entrepreneurship Skills carries out the following actions: - Planning, analyzing, formulating and evaluating policies related to technical education. - Promoting projects and programmes aimed at linking the education and training with the productive sector.	- Law No. 7,372 of funding and development of the Career Technical Education. - Basic Education Law No. 2298, Article 17.	Presidency of the Republic's Project to strengthen technical education. Its main goals are to strengthen technical education, expand coverage and to assess and monitor the Annual Operating Plan of the education sector.	The department 'Business and Community Links' of the Directorate of Technical Education and Entrepreneurship Skills.	Yes, in the design process.	Yes, in the design process	Statistics of the facilities, programs, students, alumni staff and the employability of graduates.	The respondent included a response unrelated to the question.
Ecuador	Technical Education Vocational Training.	Directorate of Technical Education Ministry of Education (MOE).  Ministry of Production Coordination, Employment and Competitiveness promotes and administers training programs specifically targeting inactive youth (Productive Youth Program).	No	The respondent included a response unrelated to the question.	The respondent included a response unrelated to the question.	The Master File on Educational Institutions (Archivo Maestro de las Instituciones Educativas (AMIE)).	The Master File on Educational Institutions (Archivo Maestro de las Instituciones Educativas (AMIE)).	The Organic Statute of organizational management by processes of the Ministry of Education. Ministerial Agreement 75/2010. (Norm not available.)	Student data, human talent and facilities through an annual survey.	No response.
El Salvador	Technical Education Vocational Training.	- Technical Education and Technology Management Office at the Ministry of Education for secondary school. - Directorate of National Higher Education at the Ministry of Education for the tertiary level. - Salvadoran Training Institute (Instituto Salvadoreño de Formación Profesional (INSAFORP)) of the Ministry of Labour.	No	General Education Law, Higher Education Law and Vocational Training Law.	No	The Monitoring, Evaluation and Statistics area of the Ministry of Education collects general information through the school census.	No, there is a project to build a system of geo-referenced statistical information that includes some TVET data.	No	No, the data is limited to enrollment and school performance in the education system.	No



Grenada	Technical Education and Vocational Training.	<ul style="list-style-type: none"> <li>- The Ministry of Education and Human Resources Development.</li> <li>Marryshow Community College and New Life Organization (Private).</li> <li>The National Training Agency and the TVET National Council.</li> </ul>	The National Training Agency develops standards related to training and skills, develops national vocational qualifications, certifies the quality of the training institutions and assesses the actions of TVET in the country and their relationship with the labor market.	The law creating the National Training Agency.	No response.	The Ministry of Education and the National Training Agency.	The National Training Agency has a database related to the provision of training and facilities.	Yes	The answer does not correspond to the question.	Indicators on the evaluation of training institutions.
Guyana	Technical and Vocational Education and Training.	<ul style="list-style-type: none"> <li>- The Ministry of Education at the secondary and higher education level.</li> <li>- Ministry of Labour, Services and Social Security through the Board of Industrial Training (BIT) that runs learning programmes.</li> <li>- The Ministry of Culture, Youth and Sport offers short programmes in the Burrows School of Arts and the National Dance School aimed primarily at young people who are out of school.</li> <li>- The Ministry of Agriculture through its School of Agriculture.</li> <li>-Some public agencies prepare people for employment through short training programs (for example, the Guyana Sugar Corporation, the Guyana Power and Light Company, the Guyana National Industrial Corporation).</li> <li>-The private sector also offers specific courses of learning for organizations and companies.</li> </ul>	<p>The Council for Technical and Vocational Education and Training (CTVET) is a semi-autonomous institution guided by the Ministry of Education. Its main functions are:</p> <ul style="list-style-type: none"> <li>- To coordinate and to monitor policies related to TVET.</li> <li>- To monitor the quality of service of post-secondary TVET institutions.</li> <li>- To promote the improvement of teacher education and training for TVET instructors.</li> <li>- To evaluate in the institutions in order to improve the relationship between training content and market needs.</li> <li>- To establish, implement and manage training standards and learning evaluations.</li> </ul>	The Education law regulates TVET (Chapter 39). The Law of Learning. The 2004 law creating the TVET Council.	<p>The TVET national goals are: to articulate the TVET programmes and labour market needs, and to improve service quality of TVET.</p> <p>In order to achieve these goals there are plans to expand the Basic Competency Certificate Program (BCCP) to 70 schools, to improve the basic training of TVET teachers, to give equipment to the facilities and to evaluate TVET programmes.</p>	The TVET Council is responsible for collecting data on TVET programmes and for evaluating training institutions. The Planning Unit of the Ministry of Education monitors the actions of TVET.	The TVET Council plans to implement an information system in the medium term to meet market needs.	No	The Planning Unit of the Ministry of Education data collects the amount of training courses, number of students by sex and age, and number of graduates by program and sex.	No response.

Cayman Islands	Technical and Vocational Education and Training. Technical and Vocational Education and Training.	Ministry of Education, Training and Employment, the Human Capital Development Agency (HCDA), Cayman Islands Further Education Centre (CIFEC), Clifton Hunter High School, John Gray High School, Layman Scott High School, University College of the Cayman Islands (UCCI).	The Agency of Human Capital Development seeks to: - Issue and monitor norms to ensure quality of institutions. - Manage the registration of training institutions. - Perform quality control of training courses.	Currently, the articles concerning TVET in the Education Law are being amended. The regulatory framework for the implementation of the Agency of Human Capital Development regulates the TVET actions in the country.	It is in the design process.	The Agency of Human Capital Development.	There is no general system. However several institutions gather data and information according to its area. For example, the Bureau of Statistics and Economics, the Department of Labour Relations, the Human Resources Office (responsible for public administration statistics	The regulated functions of the Bureau of Statistics and Economics. The Statistics Law (1996).	The Planning Unit of the Ministry of Education data collects the amount of training courses, number of students by sex and age, and number of graduates by program and sex. The Bureau of Statistics and Economics is responsible for labour surveys. The Department of Labour Relations compiles salary data. The Ministry of Education collects data on students, schools and results.	It is in the design process.
Jamaica	Technical Education and Vocational Training.	The Ministry of Education and the Vocational and Technical Education Unit, Human Employment and Resource Training (HEART) Trust / National Training Agency (NTA) are responsible for the provision of training courses at the post-secondary level. University of the West Indies (UWI), the University of Technology (UTECH) and Mico University College.	The Ministry of Education and the technical-vocational teaching unit. The National Council on Technical and Vocational Education and Training (NCTVET) is in charge of developing training and skills standards. HEART Trust / NTA.	A legal framework referred to TVET is currently under consultation.	The Ministry of Education and HEART Trust / NTA. The strategies are based on improving access to TVET, certification of graduates' skills and the articulation between market demand and content and training.	- HEART Trust / NTA - Statistical Institute of Jamaica (STATIN)	The information system of HEART Trust / NTA collects and publishes data on TVET enrollment, facilities and training. It also has a geographical information system with the location of the institutes.	No	Information on the labour market, employment and impact studies.	Unanswered

Paraguay	Technical Education and Vocational Training.	Directorate of Lifelong Learning and Directorate of General of Higher Education of the Ministry of Education and Culture (MEC). Ministry of Justice and Labour. Ministry of Agriculture and Livestock. Ministry of Industry and Trade, in charge of the Career Development National System (Sistema Nacional de Promoción Profesional (SNPP)) and the National Labour Training System (Sistema Nacional de Formación y Capacitación Laboral (SINAFOCAL)). Ministry of Public Health. Ministry of Public Works and Communications. Ministry of Interior. Ministry of National Defence. Universities. The different economic sectors.	No	General Education Law No. 1.264/98	The Technical and Vocational Education National Improvement Plan 2011-2013 creates an inter-ministerial committee chaired by the Ministry of Education to develop jointly coordinated actions (currently under implementation).	The Planning Unit of the Ministry of Education is responsible for the administration and monitoring of the National Assessment of Education (Sistema Nacional de Evaluación del Proceso Educativo (SNEPE)), and also for managing the Statistical Information System (Sistema de Información de Estadística Continua (SIEC)) and the Management System of Human, Financial and Academic Resources (Sistema de Gestión de los Recursos Humanos, Financieros y Académicos) in the Ministry of Education	The SIEC elaborates on the information sent by the schools.	The legal framework of the functions of the SIEC was enacted through Resolution No.779/07.	The SIEC processes data of the whole education system. The processed data includes: enrollment, repetition, dropout, teachers (educational attainment, training, hours of work), facilities and ICT equipment.	The respondent included a response unrelated to the question.
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Peru	For Technical Education: Higher Education Technology. For training: Productive Technical Education.	Ministry of Education - Public and private educational institutions. Ministry of Housing, Construction and Sanitation - National Training Service for Construction Industry (Servicio Nacional de Capacitación para la Industria de la Construcción (SENCICO)). Ministry of International Trade and Tourism - Tourism Training Center (Centro de Formación en Turismo (CENFOTUR)). National Institute for Research and Training in Telecommunications (Instituto Nacional de Investigación y Capacitación de Telecomunicaciones (INICTEL)) under the orbit of the National Engineering University. Ministry of Labour - Projoven Program (job placement program). Ministry of Defence - National Center for Advanced Studies (Centro de Altos Estudios Nacionales (CAEN)).	No The Directorate of Higher Technological and Technical-Productive Education at the Ministry of Education has the following functions: to plan and to coordinate policies related to technological and technical-productive higher education jointly with decentralized units, to design the curriculum structure of the productive technical education in line with labour market requirements and regional and local needs, to guide, monitor and evaluate the technical and pedagogical actions of vocational training, to monitor institutions, to coordinate actions with the economic, social, educational sectors (public and private) and enterprises bodies so the business requirements in human resources regional and local needs can be met, to provide technical criteria for implementing occupational and professional profiles, to develop guidelines and strategies for technology management and entrepreneurship in technological and technical-productive institutions.	Education Law No. 28044. General Education Law. Articles 40 and 49. Law No. 29394 Institutes and Schools of Higher Education Law.	There is a proposal that aims at improving management processes, strengthening institutions and funding programs. It's being reviewed.	Unit of Statistics and Directorate of Technological and Technical-productive Higher Education of the Ministry of Education. National Institute of Statistics and Information.	The Information System of Education for Work for the Directorate of Technological and Technical-productive Higher Education. The aim is to unify and update the information related to labour supply and demand and professional education art universities and non-universities.	Law No. 28340 - Information System Education for Work Law	In the implementation process. Nevertheless, a survey of graduates was carried out. This was used to design professional profiles.	Under construction.
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Dominican Republic	Technical and Vocational Training.	<p>Ministry of Education. Vocational and Technical Training Institute (Instituto de Formación Técnico-Profesional (INFOTEP)).</p> <p>The Ministry of Labour promotes and administers employment programmes for youth and adolescents out of school (Programa Juventud y Empleo (PJE)).</p>	No	INFOTEP was created by Law 116 of 1980 and regulated by the 1894 regulations the same year.	INFOTEP performs the following actions: Qualifies and recognizes training programmes, certifies the quality of the training institutions, offers technical assistance and advice on administrative and technical and pedagogical aspects of the training process, and certifies training institutions according to the curricula and their responsiveness to the demands from the economy.	INFOTEP institutional statistics.	INFOTEP collects data on: enrollment, graduates, hours and actions of non-formal TVET.	Yes, the law of the transparency of information system.	<ul style="list-style-type: none"> <li>- Enrolled in vocational-technical training, by sex, age and courses.</li> <li>- Coverage rates related to the economically active population (EAP).</li> <li>- Number of participants who drop out before completion of training.</li> <li>- Number of enrolled students according to their vulnerability.</li> <li>- Graduates by age, sex and courses completed.</li> <li>- Graduates inserted into the labour market.</li> <li>- Number of workers who improved their employment status as a result of training.</li> </ul>	<ul style="list-style-type: none"> <li>- Percentage growth of the enrollment in professional technical training.</li> <li>- Rate of coverage related to the EAP.</li> <li>- Dropout rate.</li> <li>- Percentage coverage of the vulnerable population.</li> <li>- Percentage of graduates working in the labour market.</li> <li>- Percentage of employees who improved their employment status as a result of training.</li> </ul>
Saint Kitts and Nevis	Technical and Vocational Education and Training.	The Ministry of Education, Advanced Vocational Education Center (AVEC), Clarence Fitzroy Bryant College (CFBC), National Skills Training Program (NSTP), Project Strong and KVK Enterprises. With the exception of the latter, the other institutions are associated with the education ministry.	The TVET Council coordinates and oversees the actions of TVET in the country. It also advises the ministry on issues of planning and implementation of TVET programmes.	The National Education Act of 2005.	There is a road map for the TVET objectives that seeks to improve management, develop mechanisms to improve service quality, improve the skills of graduates and track progress.	The Secretary of the TVET Council designated as UNEVOC International Centre collects some data on TVET.	There is no system, however UNEVOC plans to implement one.	Not available.	Not available.	Not available.

Saint Vincent and the Grenadines	Technical and Vocational Education and Training.	The Ministry of Education and the division of technical and vocational education through high schools, colleges and adult education programs and continuing education.	Ministry of Education.	No response.	<p>Through the development project 2000-2003, Jamaica University of Technology was appointed to redesign and improve the quality of the programmes offered at technical colleges. This proposal seeks to improve the skilled labour force to support the country's economic growth.</p> <p>Also, to demonstrate the skills of the population (especially those who are outside the education system) learning institutes conduct evaluations in various occupations and educational levels.</p>	Ministry of Education.	Invalid response.	No response.	Enrollment by age, level and sex. Teachers for level of educational attained, sex and educational level. Participation of TVET students in the total enrollment.	No response.
Suriname	Technical and Vocational Education.	Vocational Education Department of the Ministry of Education and Community Development. The Ministry of Labour develops training programmes for the population over 16 years of age to achieve their integration into the labour market. NGOs.	The Ministry of Education and Community Development and the Department of Vocational Education are responsible for monitoring and evaluating the service quality of TVET establishments. They also develop standards and TVET programmes and propose actions of teacher education.	There is only one project in the design process to establish comparable standards in TVET at national and regional levels.	In the process of reformulating the content and curricula of TVET to improve the quality of service. In addition, establishments are implementing a management information system to accredit the skills of its graduates.	The department of technical and vocational education and the research, planning and supervision department, of the Ministry of Education and Community Development.	The research, planning and monitoring department has an information and education management system. It makes surveys and data analysis and monitoring of policy actions.	No.	Enrollment, teachers, efficiency of the education system, test scores and financial resources. It also conducts qualitative studies.	No response

Trinidad and Tobago	Technical Education and Vocational Training.	Ministry of Education. Ministry of Science, Technology and Tertiary Education. La Agencia Nacional de Formación (The National Training Agency).	Ministry of Education. Ministry of Science, Technology and Tertiary Education. La Agencia Nacional de Formación (The National Training Agency). The National Training Agency is responsible for: -Implementing and developing the National Plan for TVET. -Establishing a system to harmonize and monitor formal and informal TVET. -Promote and support the development of training programmes to meet the demand for human resources in the market.	There is not a specific legislation for TVET.	No response.	Agencia Nacional de Formación. (The National Training Agency)	The National Training Agency has an online database to collect and store data related to the distribution of training in public and private institutions, training programs, trainers and instructors and students and graduates.	No	The research department of the National Training Agency collects TVET personnel data, pay scales and level of education. It also collects data on the number of courses, hours, curricula and certifications.	Assessments are conducted on the competencies of the TVET training programmes according to the certification system of the Caribbean Association of National Training Agencies (CANTA).
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Table D / The management and organization of the EMIS of TVET in the region.

Nº	Country	Office, unit or area responsible for collecting TVET data	There is an online database for TVET information
1	Anguilla	Departamento de Educación del Ministerio de Desarrollo Social	No
2	Antigua and Barbuda	Ministerio de Educación	No
3	Argentina	Dirección Nacional de Información y Evaluación de la Calidad Educativa (DINIECE) y el Instituto Nacional de Educación Técnica (INET)	Yes
4	Aruba	Departamento de Educación del Ministerio de Educación	No
5	Bahamas	La Unidad de Planificación e Investigación del Ministerio de Educación	No
6	Barbados	The Manpower Research and Statistical Unit (MRSU) y la Agencia Nacional del Consejo de la TVET.	No
7	Belize	Unidad de Planificación de Políticas del Ministerio de Educación y Juventud.	No
8	Brazil	Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (INEP), Instituto Brasileiro de Geografia e Estadística y el Observatorio del mercado de trabajo del Ministerio de trabajo.	Yes
9	Costa Rica	Departamento 'Vinculación entre la Empresa y la Comunidad' de la Dirección de Educación Técnica y Capacidades Emprendedoras	No
10	Ecuador	Archivo Maestro de las Instituciones Educativas AMIE. del Ministerio de Educación	Yes (limited access)
11	El Salvador	Gerencia de Monitoreo, Evaluación y Estadística del Ministerio de Educación	No
12	Granada	Ministerio de Educación y Agencia Nacional de Formación.	No
	Guatemala	Subdirección de estadísticas del Ministerio de Educación	No
13	Guyana	Consejo de TVET y Unidad de Planificación del Ministerio de Educación	No
15	Honduras	Dirección General de Evaluación del Ministerio de Educación	No
14	Cayman Islands	Agencia de Desarrollo de Capital Humano y Oficina de Estadísticas y Economía.	No
15	Jamaica	Human Employment and Resource Training (Heart) Trust/National Training Agency (NTA)	Yes
	Mexico	Dirección General de Planeación del Ministerio de Educación Dirección de Estadística Educativa del Ministerio de Educación	Yes
16	Paraguay	Dirección General de Planificación Educativa del Ministerio de Educación y Cultura	No
17	Peru	Unidad de Estadística y Dirección de Educación Superior Tecnológica y Técnico Productiva del Ministerio de Educación	Yes
18	Dominican Republic	Oficina de Planificación y Desarrollo del Ministerio de Educación y Departamento de Estadística del Instituto de Formación Técnico Profesional (Infotep)	Yes



19	Saint Kitts and Nevis	Ministerio de Educación Consejo de TVET	No
20	Saint Vincent and the Grenadines	Ministerio de Educación	No
21	Suriname	Departamento de Educación Profesional y Técnica y Departamento de Investigación, Planificación y Supervisión del Ministerio de Educación y Desarrollo Comunitario.	Yes
22	Trinidad and Tobago	Agencia Nacional de Formación	Yes

Source: Prepared based on questionnaire 1 responses on the TVET background applied to the countries of Latin America and the Caribbean and interviews with the countries selected for the study.

Table E/Formal TVET information collected by the EMIS of the region.

N°	Country	Registrations or enrollments	Repeats	Drop-outs	Graduated	Establishments	Personnel	Construction of indicators from the data gathered
1	Anguilla	No	No	No	No	No	No	No
2	Antigua and Barbuda	Yes	No	No	Yes	No	No	No
3	Argentina	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Aruba	Yes	Yes	No	Yes	No	No	No
5	Bahamas	Yes	No	No	No	No	No	No
6	Barbados	Yes	No	No	Yes	No	No	No
7	Belize	Yes	No	Yes	Yes	Yes	Yes	Yes
8	Brazil	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	Costa Rica	Yes	No	No	Yes	Yes	Yes	No
10	Ecuador	Yes	Yes	Yes	Yes	Yes	Yes	No
11	El Salvador	Yes	Yes	Yes	Yes	Yes	No	No
12	Granada	Yes	No	No	Yes	Yes	No	No
13	Guatemala	Yes	Yes	Yes	Yes	Yes	Yes	No
14	Guyana	Yes	No	No	Yes	Yes	No	Yes
15	Honduras	Yes	Yes	Yes	Yes	Yes	Yes	No
16	Cayman Islands	Yes	No	No	Yes	Yes	No	No
17	Jamaica	Yes	Yes	Yes	Yes	Yes	No	Yes
18	Mexico	Yes	Yes	Yes	So	Yes	Yes	No
19	Paraguay	Yes	Yes	Yes	Yes	Yes	No	No
20	Peru	Yes	Yes	Yes	Yes	Yes	Yes	Yes

21	Dominican Republic	Yes	Yes	Yes	Yes	Yes	No	Yes
22	Saint Kitts and Nevis	Yes	No	No	No	Yes	No	No
23	Saint Vincent and the Grenadines	Yes	No	No	No	No	Yes	Yes
24	Suriname	Yes	No	No	Yes	Yes	Yes	Yes
25	Trinidad and Tobago	Yes	No	Yes	Yes	Yes	Yes	No

Source: Prepared based on questionnaire 1 responses on the TVET background applied to the countries of Latin America and the Caribbean and interviews with the countries selected for the study.

Table F / Non-formal TVET information collected by the EMIS of the region.

N°	Country	Data collected on the total supply of non-formal TVET	Data collected on only a part of the total supply of non-formal TVET	Registrations or enrollments	Graduated	Establishments	Teaching personnel or instructors	Construction of indicators based on information gathered
1	Anguilla	No	No	No	No	No	No	No
2	Antigua and Barbuda	No	Yes	Yes	No	No	No	No
3	Argentina	No	No	No	No	No	No	No
4	Aruba	No	No	No	No	No	No	No
5	Bahamas	No	No	No	No	No	No	No
6	Barbados	No	No	No	No	No	No	No
7	Belize	No	Yes	Yes	Yes	No	No	No
8	Brazil	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	Costa Rica	No	No	No	No	No	No	No
10	Ecuador	No	No	No	No	No	No	No
11	El Salvador	No	No	No	No	No	No	No
12	Granada	No	Yes	Yes	No	No	No	No
13	Guatemala	No	No	No	No	No	No	No
14	Guyana	No	No	No	No	No	No	No

15	Honduras	No	No	No	No	No	No	No
16	Cayman Islands	No	Yes	Yes	No	Yes	No	No
17	Jamaica	Yes	Yes	Yes	No	Yes	No	No
18	Mexico	Yes	Yes	Yes	Yes	Yes	Yes	No
19	Paraguay	No	No	No	No	No	No	No
20	Peru	No	No	No	No	No	No	No
21	Dominican Republic	No	Yes	Yes	Yes	No	No	No
22	Saint Kitts and Nevis	No	No	No	No	No	No	No
23	Saint Vincent and the Grenadines	No	No	No	No	No	No	No
24	Suriname	No	No	No	No	No	No	No
25	Trinidad and Tobago	Yes	No	Yes	Yes	No	No	No

Source: Prepared based on Questionnaire 1 responses on the TVET background applied to the countries of Latin America and the Caribbean and interviews with the countries selected for the study.

Table G / Tracking systems and control of the TVET service in countries in the region.

N°	Country	There exists a catalog of professions and occupations	The country has a system for tracking graduates	The country has a system for tracking graduates
1	Anguilla	No	No	No
2	Antigua and Barbuda	No	No	No
3	Argentina	Yes	Yes	No
4	Aruba	No	No	No
5	Bahamas	No	No	Yes
6	Barbados	Yes	Yes	Yes
7	Belize	Yes	No	Yes
8	Brazil	Yes	Yes	Yes
9	Costa Rica	No	No	No
10	Ecuador	No	No	No
11	El Salvador	No	No	No
12	Granada	Yes	No	Yes
13	Guatemala	No	No	No
14	Guyana	Yes	No	Yes
15	Honduras	No	No	No

16	Cayman Islands	No	No	No
17	Jamaica	Yes	No	Yes
18	Mexico	Yes	Yes	No
19	Paraguay	No	No	No
20	Peru	Yes	Yes	No
21	Dominican Republic	No	No	No
22	Saint Kitts and Nevis	Yes	No	Yes
23	Saint Vincent and the Grenadines	No	No	No
24	Suriname	No	No	No
25	Trinidad and Tobago	Yes	No	Yes

*Source: Prepared based on Questionnaire 1 responses on the TVET background applied to the countries of Latin America and the Caribbean and interviews with the countries selected for the study.*