

Qualifications Frameworks: Implementation and Impact

**Background case study on Mexico
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Foreword

This report was prepared as one in a series of background studies under an international research project conducted by the ILO Skills and Employability Department in partnership with the European Training Foundation on the implementation of National Qualifications Frameworks (NQFs) and their use and impact. The individual country studies and the subsequent cross-country comparative analysis strengthen the empirical foundation for eventual policy advice on whether and, if so, then how to introduce a qualifications framework as part of a strategy to achieve countries' wider skills development and employment goals.

Whether the emphasis is on increasing the relevance and flexibility of education and training programmes, easing recognition of prior learning, enhancing lifelong learning, improving the transparency of qualification systems, creating possibilities for credit accumulation and transfer, or developing quality assurance systems, governments are increasingly turning to qualifications frameworks as a policy tool for reform. Despite the growing international interest, there is very little empirical research about the actual design process, implementation and results of NQFs as an approach to reform skills development systems where it has been attempted.

This report on Mexico is one of a dozen studies of countries around the world undertaken to examine the extent to which qualifications frameworks are achieving policy objectives and which types of qualifications frameworks seem most appropriate in which contexts. The case studies were conducted through two stages of field work. The first stage generated a description of the qualifications framework, the design process, its objectives and the existing system of qualifications that it was intended to reform. For the second stage, the focus was on implementation, use, and impact of the qualifications framework, including asking employers, training providers, workers, and government agencies about the extent of their use of the qualifications frameworks and the extent to which they felt it was serving their needs.

In addition, five case studies on the early starter qualifications frameworks (Australia, the English NVQs, New Zealand, Scotland, and South Africa) were written on the basis of existing research and documentation only, and published as an Employment Working Paper (Allais, Raffe, Strathdee, Wheelahan, and Young, ILO 2009).

I would like to thank Sra María Luisa de Anda for carrying out the research and preparing this case study report. I would also like to acknowledge our gratitude to the practitioners and stakeholders who made time to respond to the questions and share their views. The paper reflects the views of the author and not necessarily those of the ILO.

Dr. Stephanie Allais, as Research Associate in the ILO Skills and Employability Department, supported the group of researchers in preparing the country studies and wrote the synthesis report (*The implementation and impact of National Qualifications Frameworks: Report of a study in 16 countries*, 2010) which also explains the methodology set out for the country studies. I would also like to thank Judy Harris for editing the case study.

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Introduction

This study focuses on Mexico's labour competence approach to a qualifications framework – the Labour Competence Standardization and Certification Systems. This has been developed through two projects: the Technical Education and Training Modernization Project (PMETyC) from 1994 to 2003; and the Multiphase Skills-Based Human Resources Development Programme (ProFoRHCom) from 2005 to the present time. Although the loan contract to operate the second programme was signed on 9 April 2005 a legal problem and a change of federal administration resulted in an interim impasse between 2004 and 2007. It is important to understand these periods separately because the PMETyC is a completed case from which many lessons can be derived. A historical review of the two projects and the interim period is therefore undertaken to afford the reader a better understanding of the key features of the complex pattern of changes that have occurred in relation to one of the first Latin American qualifications frameworks.

Some problems were experienced in obtaining documents for this research. The main information centre for both the PMETyC and the ProFoRHCom was flooded and many documents were lost. As the researcher, I solved the problem by drawing on personal memoirs and documents gathered whilst acting as a consultant to the project from 1996 to 2004; so in some extent I am an insider. Other important data were obtained from interviews with officers from the qualification authority; government officials involved in the implementation and development of the labour competence approach; an officer from the Inter-American Development Bank (IADB) (one of the financial bodies responsible for the development of the framework); two heads of awarding bodies; and representatives of employers and trade unions using the framework.

The first section of the report deals with the country context and the background from which the national qualifications framework and the Labour Competence Standardization and Certification Systems emerged. It is divided into a subsection concerning general context and a subsection addressing education and training. Section two traces the first approach to a qualifications framework: the Technical Education and Training Modernization Project (PMETyC); from its origins in 1994 to its final evaluation in 2003. The third section considers the impasse period and two cases that managed to continue to benefit from the competence approach. Section four concerns the Multiphase Skills-Based Human Resources Development Programme (ProFoRHCom) from its preparatory stage to the present time.

The fifth section is an analysis of the impact of the whole phenomenon of the Labour Competence Standardization and Certification Systems, of education and training institutions and successful experiences; while section six offers some final comments as conclusions.¹

¹ This case study for the Skills and Employability Department of the ILO reflects what historically happened in Mexico from 2003 until 2007. It does not cover the new developments in CONOCER since the summer of 2008. In 2008 the reform for “A New CONOCER for Mexico” was launched with the key strategic objective of promoting, coordinating and regulating the National Competences System (NCS) for Mexico and turning it into a critical instrument for improving Mexico’s competitiveness, educational development and social progress. The reform of CONOCER and of the NCS launched in 2008 includes three major components: - empowerment of sector competence committees for the definition of the Mexican human capital agenda for competitiveness; - construction of new mechanisms and instruments to ensure knowledge transfer for all workers and employers in Mexico and also to improve education and at the same time link education and training closer to the world of work; - redesign of the assessment and certification structure. In addition, the new tripartite board of CONOCER – consisting of main line ministries in education, labour and economy, representatives of three major employers’ confederations and the general secretaries of the three major trade union confederations in the country – assures the aspect of social dialogue in working towards new structures for qualification frameworks in Mexico. The restructuring is already showing the following quantitative results. The number of competence certifications in Mexico issued by CONOCER in 2007 was 12,000, in 2008 the number increased to 60,000, in 2009, in spite of the impact of the economic and financial crisis on Mexico, 80,000 certificates were issued and the CONOCER goal for 2010 is to grant a total of 120,000 certificates.

1. Country context and background

1.1 General context

Mexico's official name is the Mexican United States. It is a federal, representative, democratic republic of North America.² Based on the Political Constitution of the Mexican United States, people exercise their sovereignty through the Union's three branches: executive; legislative; and judicial.³ The country comprises 31 states and the Federal District, where the federal branches are located. Public administration is divided into federal, state and municipal.

Mexico covers an area of 1,967,183 square kilometres (Australia is 3.9 times larger than Mexico; Mexico is 15 times larger than England, 2.6 times larger than Chile and 1.6 times larger than South Africa). The country extends from the United States of America (USA) in the north to the Central American countries of Guatemala and Honduras in the south. The border with the USA is around 3,326 km long.

In Mexico, federal administrations last six years and no president, governor or senator can be re-elected. Every six years, federal policies and authorities change according to the president in post.⁴ The last two Institutional Revolutionary Party presidencies were 1989-1994 and 1995-2000. Since December 2000, the National Action Party has held federal power. Although different parties have won many elections, political culture remains relatively unchanged at the different levels of public administration.

The third government report (Gobierno de los Estados Unidos Mexicanos, 2009a, p. 394) estimates a population (in 2009) of 107.4 million of which 50 per cent are poor and unable to meet basic needs for food, clothing, footwear, housing, health, public transport and education (Idem, p. 399). Estimates and projections by the National Population Council (Consejo Nacional de Población [CONAPO]) show a decrease in population growth rate and an increase in life expectancy and in migration. This has resulted in a trend towards an ageing population.

The flow of people born in Mexico to the USA reaches hundreds of thousands per year. More than ten million people of Mexican origin currently reside in the USA (Villagómez, 2003). However, the Migration National Institute points out that migration has decreased by some 30 per cent since 2006 on account of stronger border controls and the economic crisis in the USA.

In terms of the labour market, there has been an evolution in the economy as a result of structural changes: demographic and educational; greater participation of women in

² Constitución Política de los Estados Unidos Mexicanos, article 40.

³ Idem, article 41. In Mexico, there are no ministries; there are secretariats of state, for example, the Secretariat of Public Education (SEP).

⁴ There are three main political parties: the Institutional Revolutionary Party (the Partido Revolucionario Institucional [PRI] that held the presidency of the Republic for 70 years); the National Action Party (Partido de Acción Nacional [PAN] that has held the presidency since the end of 2000); and the Democratic Revolution Party (Partido de la Revolución Democrática [PRD] that has governed the Federal District since 1997).

paid activities; the balance of employed and unemployed people; and the role of the informal sector in reducing the demand for formal employment. Moreover, changes in technology and in demand for goods and services have placed an increased emphasis on workers with higher educational levels and qualifications, and have led to growing competition for employment (Villagómez, 2003).

The Mexican labour force multiplied threefold between 1950 and 1990, while jobs decreased, particularly after 1982 (Williams, 1998). In 1993, the labour force reached 33 million, and nearly 45 million by June 2009 of which 35.1 per cent earn less than US\$8 a day (STPS, 2009). This has to be set against a decrease in job creation. As formal employment has been meagre, the informal sector of the economy has therefore continued to grow. As of July 2009, the open unemployment rate was 6.1 per cent, the highest in 13 years (INEGI, 2009).⁵

In terms of Mexico's economic competitiveness within Latin America, in 1995 the country was in second place behind Chile. By 2006, the General Competitive Ranking (GCR) located Mexico in 32nd place behind Chile, Costa Rica, Panama and Brazil (IMCO, 2009). In 2007-08, the World Economic Forum Global Competitiveness Index (GCI) positioned Mexico in 52nd place and in 59th place in 2008-09, after Chile, Panama and Costa Rica (World Economic Forum, 2009). These retrograde developments are due to many economic factors, among them skills gaps, skills shortages and lack of training.

Mexico embarked on a strong free trade agenda in the mid 1980s (Villagómez, 2003) and signed the North American Free Trade Agreement (NAFTA) with Canada and the United States in 1992. At present, the country has free trade agreements with more than 50 countries. In addition, Mexico became a member of the Organisation for Economic Co-operation and Development (OECD) in 1994. This has been very influential especially in education with involvement in the OECD Programme for International Student Assessment (PISA) – a triennial survey of the knowledge and skills of 15 year olds.

Between 1980 and 2000, the Mexican economy was erratic. The mean rate of inflation was high, while real mean rates of Gross Domestic Product (GDP) growth, employment and earnings were low. There were three recessions during the same period, the most important one in 1995 (Messmacher, w/d). The GDP expanded less than the world mean between 2001 and 2008. A major income component has been remittances from workers living abroad. However these are now diminishing because of the economic crisis. Moreover, oil production and exportation are weakening and price and demand are unpredictable (Banco de México, 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002). The influenza epidemic has also seriously affected the economy. During the first semester of 2009, the GDP registered an annual decrease of 9.2 per cent (Gobierno de los Estados Unidos Mexicanos, 2009a, p. 117).

⁵ In Mexico, the unemployment rate includes people (aged 12 years or older) who (a) have not worked during the week of the occupational survey, (b) have been economically inactive for two months (even if they have not looked for job due to the nature of the labour market), and (c) are willing to take up employment immediately.

The Mexican economy is the 11th largest in the world, with GDP per capita of US\$10,211. Mexico has a Gini coefficient of 48.1, and is ranked 53 on the Human Development Index.

1.2 Education and training

Article 3 of the Political Constitution of the Mexican United States establishes every person's right to education and the State's (federal, state, municipal and Federal District) legal duty to offer compulsory basic education (three pre-school cycles, six primary cycles, and three secondary cycles), totalling 12 school years, starting from age three.

The Mexican national educational system covers all schools in the country, public (federal and state) and private. It consists of basic education; upper-middle education (general baccalaureate and technological education⁶ bachelor's degrees; and postgraduate degrees (specializations, master's degrees and doctoral degrees). It also includes training-for-work via technical diplomas. Expenditure on education and training is mainly federal, especially for basic education and training-for-work. Private education, generally for high income earners, comprised 13.5 per cent of total enrolments in the 2007-08 school cycle.

Enrolments in the national education system increased by 12.5 per cent from the 2000-01 school cycle to the 2007-08 cycle, bringing the total number of learners to 33.3 million. During the same period, training-for-work grew by 29.9 per cent to 1,366,199 and participation in upper-medium education expanded by 33.8 per cent overall to 3,471,415 students, although the technological component diminished slightly (by 0.8 per cent to 358,627 students) (table 1, appendix 1). Enrolment reached 33.4 million learners in the 2009-10 cycle (Gobierno de los Estados Unidos Mexicanos, 2009b, p. 283). The ratio of registered learners and numbers in the general population shows an increase in served demand for basic education but lower served demand for upper-medium education (56.3 per cent in 2005) and very low served demand for higher education (20.6 per cent in 2005) (table 1 below).

Table 1. Net enrolment rate per level 1999-2000/2004-2005

Level	Pre-school %	Primary education %	Secondary education %	Upper-Middle Education %	Higher education %*
Cycle					
1999 – 2000	49.2	92.9	79.7	45.8	16.6
2000 – 2001	50.4	92.9	81.6	46.5	17.2
2001 – 2002	51.5	93.0	83.3	48.9	17.9
2002 – 2003	55.8	93.1	85.6	51.5	18.5
2003 – 2004	58.6	93.0	87.0	53.5	19.4
2004 – 2005	61.2	93.0	89.9	56.3	20.6

- Includes postgraduate degrees.

Source: DGPPP-SEP. Statistics from the beginning of the school cycle.

⁶ Upper-medium technological education can be terminal or an introduction to further study.

Employers are legally obliged to provide training: “Companies, whatever their activities may be, are obliged to provide their employees with training and skills development for work”.⁷ Employers are free to decide the orientation of the training: whether to improve workers’ technical qualifications or to provide them with a more general vocational education; or both. Training activities must be coordinated and approved by the Secretariat of Labour and Social Welfare (Secretaría del Trabajo y Previsión Social [STPS]) which registers employers’ plans and programmes.⁸

From 1978 to 2003, employers or institutions offering workplace-based programmes on their behalf, reached 10,639,789 workers and issued 30,413,064 diplomas. This equates to an average of 2.9 learning opportunities per person over six years (appendix 1, table 2). If workers in the private formal sector of the economy (11.5 million in 2003) were to be taken into account, the numbers would be much larger.

From 1998 to 2008, 26,630,998 workers received 64,328,172 diplomas (appendix 1, table 3). This is a very small number over 11 years. Moreover, in 2008, there were 18,750,320 workers in the private formal sector of the economy and only 3,015,845 of them (16 per cent) received an average of three diplomas each. A diploma may comprise updating courses or workshops, of varying length and quality.

It is often the case that employers respond to the letter rather than the spirit of the law, focusing only on fulfilling minimum legal obligations. The majority of employers see training as an expense, not an investment. Generally, large enterprises recognize the importance of vocational education and workplace-based training and allocate a special budget for this purpose; while most medium and small enterprises do not have any training programmes.

Turning to the education system, all formal basic education and most upper- medium education is coordinated by the Secretariat of Public Education. However, there are upper-medium education institutions run or recognized by autonomous universities or by the National Polytechnic Institute (Instituto Politécnico Nacional [IPN]). The IPN is a very important higher education decentralized institution after the Mexico Autonomous National University (Universidad Nacional Autónoma de México [UNAM]). In 2008, UNAM was judged the best Ibero-American university. It is internationally ranked over all Spanish speaking universities. Higher education is generally offered by autonomous universities and private higher education institutions, and also through technological universities and higher education technological institutes. The Secretariat of Public Education holds centralized information generated by all education institutions within the national educational system.

The Secretariat of Public Education (SEP) issues formal federal education certificates (valid throughout the country) at the end of primary education, secondary education, upper-medium education (baccalaureate and technological) and higher education.⁹ On behalf of the SEP, the General Directorate of (Liberal) Professions registers and confers titles (títulos) on completion of bachelor’s degrees, master’s degrees or

⁷ Constitución Política de los Estados Unidos Mexicanos, article 123, section (a), item xiii.

⁸ In Mexico, the term training has two different meanings: one related to the preparation and knowledge a person needs to perform an occupation, and another that could be called ‘grooming’ that deals with the technical practical training needed for performance.

⁹ The term certificate is only used in basic and upper-medium education.

doctorates. The SEP confers technical titles on completion of a specialisation in upper-medium technological education.

Through the General Directorate of Accreditation, Incorporation and Revalidation (Dirección General de Acreditación, Incorporación y Revalidación [DGAIR]), SEP distributes the certificate and diploma forms that educational institutions must use to recognize students completing studies according to the curriculum requisites of that General Directorate.¹⁰

Outside the national educational system, diplomas (called “constancias”) are awarded for certain courses and/or non-formal education. These can be recognized by the Secretariat of Public Education (SEP) as equivalent to qualifications within the national education system. In such circumstances, the SEP establishes criteria on a case-by-case basis and sets out procedures to follow for recognition.¹¹

In the mid 1990s, the Secretariat of Public Education had four Under-Secretariats: Educational Planning; Basic Education; Technological Education and Research, and Higher Education and Scientific Research, plus Resources and Information Technology Administration. The Under-Secretariat most involved in the development of the qualifications framework was Technological Education and Research, and to a much lesser extent Higher Education (appendix 2).

These arrangements changed in January 2005. The Under-Secretariat of Educational Planning was replaced by the Unit for Educational Planning and Evaluation. The Under-Secretariat of Technological Education and Research disappeared and an Under-Secretariat of Upper-Medium Education was created. The Under-Secretariats of Basic Education and of Higher Education and Scientific Research remained, but with some changes in their general directorates (SEP, 2009).

The Under-Secretariat of Upper-Medium Education currently has five general directorates: Industrial Technological Education; Farming Technological Education; Marine Science Education and Technology; General Baccalaureate; and a directorate of Training Centres for Work. This Under-Secretariat retained responsibility for gathering and disseminating data and information from the National College of Professional Technical Education (Colegio Nacional de Educación Profesional Técnica [CONALEP]). The Under-Secretariat of Higher Education and Scientific Research has four general directorates: Higher University Education; Higher Technological Education; Higher Education for Educational Professionals; and (Liberal) Professions. There is also a General Coordination of Technological Universities (SEP, 2006).

In the context of the increased emphasis on lifelong learning since the 1990s, Mexico has become interested in the concept of qualifications. In the absence of explicit relationships between different types of learning and education, Morfin produced a schema depicting a potentially integrated system (appendix 3).

National education programmes (1995-2000; 2001-06; 2007-12) have emphasized technological upper-medium education. There has been a concern to address the weak

¹⁰ General Educational Law, article 60.

¹¹ General Educational Law, article 64.

relationship between supply and demand, that is, the gap between provision and the needs of the productive sector, especially the industrial and services sectors, in the context of free trade agreements and NAFTA.¹² An additional concern has been the complexity of upper-medium education; characterized by a diversity of approaches and objectives as well as wide variety in the length, structure and content of institutional curricula.

Moreover, the government has had to address the lack of relation between the Secretariats of Public Education and the Secretariat of Labour and Social Welfare, especially in relation to workplace-based training. This ‘practical divorce’ means that diplomas gained by workers from training courses offered by employers cannot be recognized in the formal educational system, except in the small part of adult basic education provided by the National Institute for Adult Education (Instituto Nacional para la Educación de los Adultos [INEA]) through its Educational Model for Life and Work.

2. The first approach to a qualifications framework: the Technical Education and Training Modernization Project (PMETyC) - 1994 to 2003

2.1 Origin, influences and purposes

In 1994 work began on a new approach to qualifications which aimed to meet the needs of Mexico’s productive sectors through the creation of a transparent set of labour competence standards based on work performance. This was intended to lay the foundations for the reform of technological upper-middle education and workplace-based training (World Bank, 2004, p. 2). The Mexican government, through the offices of the Secretariats of Labour and Social Welfare (Secretaría del Trabajo y Previsión Social [STPS]) and Public Education (Secretaría de Educación Pública [SEP]),¹³ negotiated a loan from the World Bank to develop and implement the Technical Education and Training Modernization Project (PMETyC).¹⁴

Mexico’s industry and services sectors experienced changes after the signing of NAFTA. The World Bank perspective was that the country needed to increase economic productivity and develop a more highly skilled workforce. It also recommended addressing weaknesses in the vocational and technical training system including: poor quality provision; the supply-driven and inflexible nature of the programmes in relation to changing labour market needs; and the lack of an adequate

¹² In Mexico, the term ‘productive sector’ includes industries that produce goods such as cars or clothing, and services such as tourism or commerce. In many English-speaking countries, the most-used generic term is ‘industry’ which embraces ‘industries without chimneys’.

¹³ The General Directorate of Employment and the Labour Fellowship Retraining Programme participated on behalf of Secretariat of Labour and Social Welfare. The General Directorate for Planning, Programming, and Budgeting (Dirección General de Planeación, Programación, y Presupuesto [DGPPP]), the General Directorate for Industrial Technical Education (Dirección General de Educación Tecnológica Industrial [DGETI]), and the National College of Professional Technical Education [CONALEP], participated on behalf of Secretariat of Public Education.

¹⁴ Financial arrangements are always undertaken by the Secretariat of Finance and Public Credit and National Finance Entity (NAFIN) which acts as the intermediary body for all loans.

institutional framework for private sector participation in the design and provision of training (World Bank, 1994, p. 5).

The design of the Technical Education and Training Modernization Project (PMETyC) took into account a study performed by a company called Bush Allen and the evaluation of two previous projects financed partly by the World Bank. The Bush Allen study was an analysis of upper-middle technological educational and training-for-work/workplace-based training and their lack of articulation with other components of the education system which hindered learner progression. The World Bank evaluated the Labour Fellowship Retraining Program (PROBECAT) developed by the General Directorate of Employment (Dirección General de Empleo [DGE]) and the graduate tracer studies undertaken within the National College of Professional Technical Education (Colegio Nacional de Educación Profesional Técnica [CONALEP]) Both projects were considered to have been worthwhile and justified further investment in skills training (World Bank, 1994, p. 11).

When the government decided to embark on the Technical Education and Training Modernization Project (PMETyC), the World Bank suggested a series of international study tours to investigate qualifications systems. A team of five individuals was established comprising: representatives of: the Secretariat of Labour and Social Welfare; the Secretariat of Public Education; the whole technological vocational education subsystem; and the Mexican Republic Employers Confederation (Confederación Patronal de la República Mexicana [COPARMEX]), plus one representative from the World Bank. The representative of the Secretariat of Labour and Social Welfare managed to sway all the participants to his interpretation of the country's and particularly the productive sectors' requirements. This led to a decision to choose England, Wales and Northern Ireland's National Vocational Qualifications (NVQ) model as the basis for Technical Education and Training Modernization Project (PMETyC) – a clear example of policy borrowing.¹⁵ The PMETyC had two official general objectives:

1. To improve the quality of the technical education and training in Mexico, so that it meets the critical needs of the productive sectors in a flexible manner. This objective originated from the need for credit transfer and student progression in upper-medium education.
2. To modernize labour markets through an information system that shows individual qualifications. This objective was a response to the need for communication and transparency among education and training institutions and the productive sectors of the economy (SEP-STPS, 2000).

Over and above these objectives, the then Executive Secretary of the National Council for the Standardization and Certification of Labour Competence (CONOCER) requested that the new system impact on the employment and employability of people; national levels of productivity and competitiveness; and the rational use of resources invested in human capital development. He also expressed a need to raise workers' levels of qualification, so they could increase and improve their income and

¹⁵ According to Raffe (2009, p. 3): "Policy borrowing assumes that 'best practice' can be identified and transferred between countries."

labour market possibilities (Ibarra, 1996c). As far as he was concerned, the Administrative Coordinator of the Technical Education and Training Modernization Project was of the view that one of the main challenges facing the country was the need to adapt the labour force to the changing needs of the productive sectors – a process closely linked to vocational educational systems (Tamayo, 1996a). Tamayo also emphasized the tacit knowledge that can become visible during certification processes (Tamayo, 1996b).

The Technical Education and Training Modernization Project (PMETyC) had four components:

- A. *Labour Competence Standardization and Certification Systems* - the responsibility of the National Council for Standardization and Certification of Labour Competence (CONOCER) which acts as the qualifications authority. Before developing the systems, CONOCER would produce general and particular guidelines to regulate both standardization and certification. These guidelines would define the national qualifications framework and the organizations necessary to operate the systems. These included lead bodies and awarding bodies. Lead bodies were to be made up of employers, workers, sector experts and a CONOCER representative. They would be responsible for selecting job functions derived from functional analysis and producing labour competence technical standards for approval by CONOCER and thereafter location on the qualifications framework. Awarding bodies are third-party agencies approved by CONOCER to accredit and verify the quality of assessment centres (SEP-STPS, 2000).
- B. *Modernizing training programmes to increase their flexibility and relevancy on the basis of labour competence qualifications* - coordinated by the Secretariat of Public Education, through the Council of the Technological National System (Consejo del Sistema Nacional de Educación Tecnológica [COSNET]). Two technological general directorates and the National College of Professional Technical Education (CONALEP) would serve, assess and certify students based on the units of qualifications standardized by the lead bodies. During the lifetime of project other agencies were added.¹⁶ This component also addressed the development of didactic materials and the provision of equipment to some participating schools.
- C. *Stimulating demand for competency-based training and certification to promote private sector initiative and participation in training design and implementation* - under the Secretariat of Labour and Social Welfare, through the Labour Fellowship Retraining Programme coordinated by the General Directorate of Employment and the Multiple Support Service Programme which is the responsibility of the General Directorate of Training and Productivity. These General Directorates established the criteria for selecting participant workers and companies and for providing equipment to education and training centres where the participant workers would undertake courses.
- D. *Project administration, information systems and studies*, with no clear head, but the responsibility of all participants and the Administrative Unit of the Technical

¹⁶ The World Bank approved the addition of upper-middle education agencies: the General Coordination of Technological Universities and the National Institute for Adult Education.

Education and Training Modernization Project (Unidad Administradora del Proyecto de Modernización de la Educación Técnica y la Capacitación, UAPMETyC). This component would be concerned with developing information systems, systematizing the information generated by the other three components, and carrying out specific studies and evaluations to improve implementation of the project as a whole (Tamayo, 1996a).

Responsible bodies for components B, C and most of D already existed. The National Council for the Standardization and Certification of Labour Competence (CONOCER) had to be established to take responsibility for Component A. On 17 September 1994, CONOCER was formally authorized with the status of a public trust to develop the Labour Competence Standardization and Certification Systems (SEP-STPS, 1994) comprising 18 representatives from the public, employer and labour sectors with the following main objectives:

- To foster the development of qualifications based on labour competence technical standards, to be located in a framework of 12 labour competence areas and five levels, by means of organizing and supporting lead bodies.
- To integrate qualifications based on labour competence standards into a unitary framework to inform technical education and training, based on the productivity requirements of the productive sectors.
- To develop the assessment and certification system and the regulatory framework for awarding bodies, in order to recognize individuals' knowledge, skills and abilities, regardless of how, when and where they were acquired.¹⁷ (CONOCER-SEP-STPS, 2000)

Once CONOCER was created, but before the project began, the Executive Secretary decided to study some additional international models. Germany, New Zealand and Spain were selected for this purpose. Individual researchers were also consulted from the International Labour Office (ILO), the Australian National Centre for Vocational Education Research (NCVER) and the British Council. The first two were academic, whereas the British Council embraced a business orientation. The ILO researcher was of the view that the Mexican plans although promising, could run into serious political and operational difficulties. The researcher from the NCVER warned CONOCER about the reductionism of the functional analysis approach to standards generation. He also drew attention to the complexity of learning and educational processes and to the importance of knowledge in competence and standards development.¹⁸

As there was no Latin American regional or national qualifications framework, all of the systems studied were alien to the region. Mexico never intended to undertake

¹⁷ All technological upper-medium education institutions, including the National College of Professional Technical Education (CONALEP), were to base their vocational modular courses on the standards approved by the Labour Competence Standardization System and submit the people who studied those courses to the assessment and certification processes of the Labour Competence Certification System.

¹⁸ There was also an academic relation between the PMETyC and the Inter-American Centre for Knowledge Development in Vocational Training (Centro Interamericano para el Desarrollo del Conocimiento y de la Formación Profesional [CINTERFOR]) and with the Ibero-American States Organization for Education, Science and Culture (Organización de Estados Iberoamericanos para la Educación, la Ciencia y la Cultura, [OEI]), but neither of the two bodies had decision-making influence.

wholesale reform of the educational system during the project. The model closest to the country's purposes was England, Wales and Northern Ireland's National Vocational Qualifications (NVQ) system, which was more related to the productive sectors. An agreement was signed with the British Council, which contracted a group of experts from the United Kingdom (UK) to come to Mexico at the beginning of the Labour Competence Standardization and Certification Systems part of the project, to train CONOCER technical personnel.

To complement the PMETyC, CONOCER negotiated funding for some pilot projects with the Inter-American Development Bank (IADB). Pilots were to be conducted initially in six industries: 1) load auto-transportation; 2) construction (strategic sector); 3) hotel business; 4) supermarkets and departmental stores; 5) railways; and 6) sugar and alcohol industries (CONOCER, 1996).¹⁹ These pilots aimed not only to develop standards, construct assessment instruments and certificate candidates in relation to them, but also to design training materials for modular courses and to train workers. This meant that a complete cycle would be put in place for those workers who were not yet competent. According to one interviewee, a further rationale for this initiative was Mexico's membership of the Organisation for Economic Cooperation and Development (OECD) and the concomitant need to develop objective measures to recognize work experience.

A parallel development was also underway. The ILO was undertaking pilots in a number of Latin American countries, including Mexico. These were mainly in the sugar industry and were concerned to link the competence approach to change with a productivity approach to change that was being tested in several Latin American countries (the Productivity Measurement and Enhancement System [ProMES] and the Self-training/Assessment Guides). According to Mertens (2007, p. 8):

The fundamental proposal of our work is to show that it is feasible and profitable to improve the productivity and working conditions by promoting the ongoing learning of the employed personnel.

There were therefore two pilots in the sugar industry; one under CONOCER and one following the ILO specification.²⁰

2.2 Governance and stakeholders

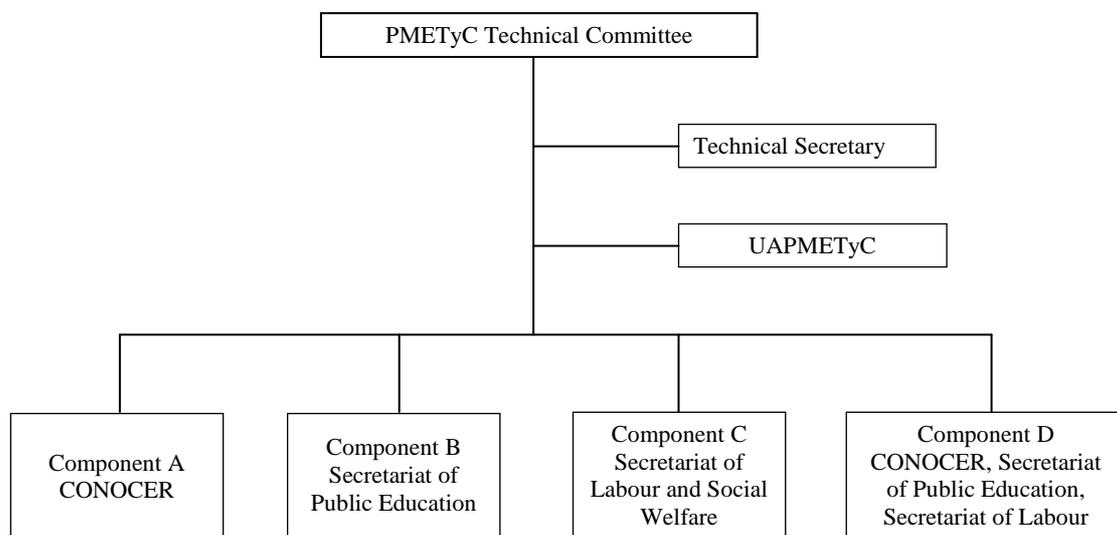
The cornerstones of the governance of the Technical Education and Training Modernization Project (PMETyC) were the secretariats of Public Education (SEP) and of Labour and Social Welfare (STPS) and the Administrative Unit of the Technical Education and Training Modernization Project which was based in SEP (Unidad Administradora del Proyecto de Modernización de la Educación Técnica y la Capacitación [UAPMETyC]) (see figure 1 below).

¹⁹ The number of pilots increased to 13.

²⁰ Although the CONOCER pilot involved the development of standards, the construction of assessment instruments, the design training materials and the assessment and certification of workers; employers' primary interest were training.

The PMETyC Technical Committee consisted of four under-secretaries from three secretariats, and the heads of the Council for Standardization and Certification of Labour Competence (CONOCER), of the National College of Professional Technical Education (CONALEP) and UAPMETyC, plus a representative from the National Finance Entity (the financial intermediary body regarding loans) (SEP-SPC-UAPMETyC, 2002). This complicated arrangement presented many problems. Over and above the inherent complexity of multi-sector and multi-institutional participation, were power struggles between individuals at similar levels in their posts and/or between those who considered themselves to be more competent than others and therefore unwilling to accept authority - especially if that authority emanated from an individual in another secretariat.

Figure 1. Governance of the Technical Education and Training Modernization Project



Source: UAPMETyC, 2004.

There was confusion amongst institutions, organizations and users of the project regarding the role of stakeholders. These roles and relationships were clearly outlined but only in CONOCER regulatory documentation (see appendix 4). Generally, there was inadequate promotion of the recognition system and the qualifications framework to which it was to be linked, resulting in potential users and stakeholders lacking awareness of possibilities.

In a wider sense, high-level (but not the highest level) stakeholders participated well at the beginning of the process, but in a very short time delegated the responsibility to others. In a similar fashion, employers designated mainly human resources specialists to undertake the function. In the case of the labour sector, trade unions were not real stakeholders at the operational level; individual workers participated in technical groups to develop standards, but as individuals not trade union representatives. Finally, the participation of education and training institutions was also very limited.

It is important to emphasize the importance of stakeholder participation in the Labour Competence Standardization and Certification Systems, particularly because the

labour competence standards embraced vocational and technological education, training-for-work and workplace-based training in ways that went beyond assessment and certification. The problem seemed to lie in the paternalistic culture that has prevailed in Mexico for a long time; many people expect the government to provide everything, and many productive sectors prefer to stay on the sidelines. Changing this way of thinking and acting is hard and will take a long time, even though the enterprises that have entered in trade agreements are developing more quickly in this regard.

The first Head of the Labour Competence Standardization System was of the view that lack of engagement in and appreciation of potential benefits of the new system was due to employers' lack of motivation and to workers' lack of interest. Conversely, it can be said that workers' lack of interest is attributable to those trade unions in Mexico that are referred to as "charros".²¹ Legislation is required to reform current promotion practices; these are based solely on seniority. Attempts at reform over many years have been unsuccessful. Until it is possible to address promotion using a wider range of criteria, progress will remain slow.

2.3 Qualification structure, design issues and implementation strategy

The qualifications framework, consisting of 12 competence areas and five levels was designed in 1995. The competence areas were already used by the Secretariat of Labour and Social Welfare to cluster similar occupations, although they did not refer to occupations themselves. Employers and trade unions were unfamiliar with the 12 competence area classification, because the labour market recognizes occupations to hire a worker or an employee, and because official statistics correspond to other occupational classifications recognized by the country and by the ILO. Moreover, in 1999, the Secretariat of Labour and Social Welfare modified them into 11, thus the 12 areas used in the labour competence technical standard grid were used only by the Standardization and Certification Systems, isolated from other systems' classifications.

Following approval by CONOCER, qualifications developed by lead bodies would be located on the grid (table 2 below) (SEP-STPS-CONOCER, 2000).

²¹ This expression means that many trade union leaders look mainly for their own benefit, not for the workers' needs and interests, and are prepared to sell themselves to the government or to employers.

Table 2. Labour competence technical standard qualifications grid

Area	Farming, food and agriculture...	Mining	Construction industry	Mechanical, electric and electronic technologies	Telecommunications	Manufacturing	Transportation	Selling goods and services	Finance and administration services	Health and social protection	Communications	Knowledge development
Level												
5												
4												
3												
2												
1												
Total												

Source: CONOCER, 1996.

Three criteria were used to define qualifications levels. These were almost the same as those used in the NVQ system (see appendix 5): diversity of activities involved; complexity of activities involved and personal autonomy and responsibility (SEP-STPS-CONOCER, 2000).

The first two levels were equivalent to less-skilled productive activities, with level 5 representing specializations equivalent to a bachelor's degree. Upper-medium vocational and technological education institutions based their courses on levels 1 or 2, and occasionally on level 3. Technological universities addressed levels 2 and 3, and occasionally level 4. Training-for-work and workplace-based programmes encompassed levels 1, 2 and 3.

The strategy to link the Technical Education and Training Modernization Project (PMETyC) to the grid was not clear, nor was the way the grid would help to achieve the proposed objectives. However, it was assumed that if workers could perform functions, they would be more productive and contribute to national competitiveness through being able to transfer competences between occupations in the same or similar clusters.

At the outset, the Council for Standardization and Certification of Labour Competence (CONOCER) commissioned sector studies on which to base a framework development strategy. However, the results were not consolidated and analyzed as a basis for ranking sector and level priorities. Instead, as there was a commitment to meet targets; in Component A, CONOCER established lead bodies without taking into account whether they were strategic or not, and most of them were not (except perhaps for the tourism and electricity industries). Without an agreement, most lead bodies opted to standardize level 2, because it is the level most relevant to non-specialized workers.

According to one interviewee, CONOCER should have taken account of the country's economic trends and needs (over the next 25-30 years) as well as those sectors of the economy with most workers. From there, the most transversal and general functions could have been considered from which enterprises themselves could have developed

more specific and customized functions. This would have ensured that (a) the standards were actually required and (b) that education institutions subsequently transformed their curricula to meet the needs of the economy. Instead, each participating education institution selected a few curricular areas and their contents to re-design into competence-based modular courses. Consequently, there was no clear strategy for the modernization of training-for-work training or upper-middle technological education in relation to the qualifications framework.²²

Under Component B (Modernizing training programmes to increase their flexibility and relevancy on the basis of labour competence qualifications) all courses were supposed to be based on the labour competence technical standards, but none of the lead bodies that were established standardized the qualifications selected by education institutions.²³ As a result, institutions had no external reference point for their courses and produced their own standards, called Educational Institution Standards. Only the General Directorate of Industrial Technological Education chose a qualification, which was standardized by a lead body, because it was a transversal function that could serve many industries.

Component C (Stimulating demand for competency-based training and certification to promote private sector initiative and participation in training design and implementation) was the responsibility of the Secretariat of Labour and Social Welfare. This component was characterized by inertia and previous practices were retained, except in the ILO pilot cases. Although some fellowships and incentives were adapted to the standards, this was done without careful consideration of future institutionalization. Although programmes changed in 2002, the institutionalization problems persisted.

In Component D (Project administration, information systems and studies), no research priorities were identified nor any connections made between the different information systems constructed by the other components. Therefore no progress was made towards the establishment of one-stop information centres.

2.4 Procedures and quality assurance

Several procedural changes took place during the life of the Technical Education and Training Modernization Project (PMETyC). There were in fact two generations of labour competence technical standards, which followed different rules.

The first generation followed the rules set out by CONOCER which were in force until 1998 and which stipulated that labour competence technical standards should be expressed as labour qualifications (SEP-CONOCER, w/d). To that end, lead bodies carried out functional analysis, selected functions to be standardized and developed the standards through the services of the Directive Board and technical groups of expert workers and technicians organized according to the function or functions that

²² When students gain a technological baccalaureate they are also awarded the associated certificate and a technician title. Changes in this policy were discussed from 1995- 2000, but it was in 2001-2006 that curriculum reform for technological upper-medium education was established, comprising three components: core, propaedeutic and vocational; these could have been related to competences.

²³ Educational institutions were unwilling to relinquish their traditional models and approaches, so they worked in parallel with the lead bodies responsible for standardization. Moreover, education institutions were rarely represented in the lead bodies.

were going to be standardized (SEP-STPS-CONOCER, 2000). Sometimes professors and/or specialists from education institutions participated in the technical groups even though the procedure was based on labour competence performance outcomes, not learning outcomes;²⁴ and even though previous formal learning was not a prerequisite for certification.²⁵

The development of a labour competence technical standard involved two main steps: functional analysis to develop functional maps leading to the definition of qualification units and elements; and the standardization of labour competence elements in terms of what has to be assessed. For quality assurance purposes, it was recommended that there be some consultation in the sector regarding the standards thus derived. The process of functional analysis was carried over into the second generation of labour competence standards (SEP-CONOCER, w/d).

The second generation involved a change in the labour competence elements. This change was due to a perceived lack of transparency in the standards; in fact, the information contained in the element components was insufficient and not clear enough, above all for users, who found that they had to ask someone to translate the contents of the standards for them.

In both generations, the framework was based on qualifications, but assessment and certification could be undertaken at the level of unit or qualification (CONOCER, 2000b). A problem was that targets for standardization were expressed in qualifications, and targets for certification were expressed in units. This resulted in an unclear relationship between certificates and qualifications in cluster documentation (see appendix 1, tables 4 and 5).

In order to guarantee the impartiality of the assessment and certification processes, all awarding bodies, assessment centres and independent assessors were regulated by the Council for Standardization and Certification of Labour Competence (CONOCER). When the Certification System started, awarding bodies and assessment centres were third-party organizations (SEP-STPS, 1995), but CONOCER experienced pressure to accept education institutions as assessment centres, leaving third-party organizations in the role of awarding bodies only. (SEP-STPS, 2000)

Over and above the role of third parties in assessment, there were several other problems in the Labour Competence Certification System, two of which were very important. Even though each assessment centre developed its own instruments following the manual on developing assessment instruments (CONOCER, 2000a), their quality was uneven when addressing the same labour competence technical standard. An item and instrument electronic bank was planned but did not materialize. To remedy this situation, the second generation of standards introduced general assessment guidelines which went some way towards alleviating the problem (CONOCER, 2001b).

²⁴ If learning outcomes are interpreted as the result of any type of learning including unintended learning or work experience, then performance outcomes could be considered as learning outcomes.

²⁵ Learning can be based on or derived from workplace experience, unintentional learning and self-study, as well as formal training or education. If a person is considered not yet competent, the assessor provides feedback for further learning (formal, non-formal or informal) pending further assessment (CONOCER, 2000a).

The second problem related to the costs of assessment which were high even though they varied between assessment centres and awarding bodies and even though they were reducing. The Council for Standardization and Certification of Labour Competence (CONOCER) ruled prices; but users considered them to be very high.

If assessment is designed to be open to all and conducted on the basis that it does not matter how an individual acquired competence, then cost can become a serious barrier to access. In theory, the most disadvantaged people constituted the largest potential demand for this service. However, actual demand came from enterprises that wanted their workers to be certified (and were prepared to pay for it) and from National College of Professional Technical Education (CONALEP) students who were asked to attain certain labour competence technical standards. If the Labour Competence Certification System wanted to attract workers, it failed:

When making decisions about their participation individuals take into account their ... private costs, including opportunity costs. ... Considerations of subjective expected net benefits of acquiring (additional) qualifications are regarded as the main driving force for individuals (Coles, 2002, p. 7).

The Council for Standardization and Certification of Labour Competence (CONOCER) was in charge of awarding bodies' external quality assurance, whilst awarding bodies were responsible for assessment centres' external quality assurance (CONOCER, 2000d). In both cases, internal quality assurance processes required attention. Regarding labour competence assessment, quality assurance was addressed through checking the validity and reliability of assessment instruments (prior to their usage) and by means of external and internal quality verifications (CONOCER, 2000c). However, according to one interviewee, these became merely bureaucratic processes.

Another way to support quality assurance was the certification of all those involved in standardization, assessment instrument construction, assessing, internal quality assurance and external quality assurance. Certification in this way did not imply that quality was automatically assured, but it was prerequisite to perform the functions outlined. This prerequisite caused some trouble in the beginning because these competences had to be assessed at the same time as assessors and quality assurance people were actually performing these functions in terms of assessing candidates.

When designing competence-based courses, some education and training institutions used the performance criteria (expressed as performance statements and consisting of skills, knowledge and attitudes) as learning outcomes. This despite the fact that the General Coordination for Competence-Based Education²⁶ stated that when formulating learning outcomes, labour standard performances were not the only referent,²⁷ but a referent to be complemented from a knowledge point of view. In addition, some higher education institutions that were contracted to develop competence-based educational materials argued that standards were simplistic and there should be an analysis of the required learning process that precedes

²⁶ This body was part of the Under-Secretariat of Technological Education and Research.

²⁷ The term 'referent' refers to an external reference point – that can be a standard or a benchmark or something broader.

performances. Moreover, it was argued that workplace-based training should include an analysis of everyday work and problems found in practice, such that worker performance becomes the object of knowledge and transformation (Anda y Ramos, 1999).

The intention was that CONOCER would develop an integral information system that could be consulted by education and training institutions, employers and workers. In this way, education and training institutions would design courses according to business needs; employers would know the qualifications that were useful for them (in order to train and certificate their workers and employees or request certain certificates when recruiting personnel); and students, workers and employees could learn about the possibilities of being educated or trained in relation to growth areas in labour market. However, that system was not developed.

2.5 Evaluation

When a loan is agreed, the government has to establish targets to be met by certain dates in order to receive monetary allocations.²⁸ That is why during the project's first years, different participant institutions developed their components as they saw fit (and on a piecemeal basis) rather than agreeing the basis to modernize the whole of the technical education and training system. Consequently, the name of the Technical Education and Training Modernization Project became merely rhetorical. The complexity of the project with so many different participant interests became increasingly difficult to manage as time passed.

The main problems originated from the lack of priority ranking and poor timing when establishing targets. The lack of sector and level priorities impacted on all components. Targets were too ambitious in terms of time available; and the general and specific rules were extremely complicated to follow. Bureaucracy was also a big problem that increased yet further when CONOCER entered ISO 9000, because the people responsible persons for designing those processes added more requirements and stages.

The mid-term assessment was not impartial. Nonetheless, it pointed out many critical issues. The Spanish organisation that performed the assessment (the Economy, Employment and Vocational Qualifications Research and Information Centre [CIDE]) questioned the efficiency of the Council for Standardization and Certification of Labour Competence (CONOCER) in incorporating employers and workers in the labour competence standardization and certification systems process and in meeting the needs of the productive sectors. Questions were asked about the impact of workers' certification on productivity, wages, career opportunities, professional mobility and so on (CIDE, 1998).

Most of the participating education institutions fell behind on their targets, because lead bodies had not generated the labour competence technical standards that corresponded to the contents they had chosen to transform to competence-based curricula. In addition, there was no common design procedure for modular courses or for

²⁸ Government must finance expenditures and send the corresponding documentation to the international bank. If the bank considers that they are eligible, it reimburses the agreed amounts.

educational materials, and modular courses had different lengths and content. Consequently, the organisation that performed the assessment could not compare them. (CIDEDEC, 1998).

In Component C, the Secretariat of Labour and Social Welfare component, assessors could find no evidence of any impact of the fellowships and grants for certification provided within programmes developed in this component, in comparison to persons who did not receive those benefits (CIDEDEC, 1998).

To sum up, even if the mid-term assessment was relatively mild, CIDEDEC pointed to problems that were not subsequently taken on board by the participating institutions and organizations as a basis for re-directing their project activities.

By the end of 2003, the Technical Education and Training Modernization Project (PMETyC) had undergone two internal technical amendments. The World Bank also approved ten administrative amendments regarding expenditures, executing agencies, extension of dead lines, and so on (World Bank, 2004, p. 4-5).

From 1995 to 2003, the Council for Standardization and Certification of Labour Competence (CONOCER), the Administrative Unit of the Technical Education and Training Modernization Project (UAPMETyC), the general directorates and education institutions belonging to the Secretariat of Public Education (SEP) and the general directorates belonging to the Secretariat of Labour and Social Welfare spent almost US\$262 million (UAPMETyC, 2004).²⁹ The participating institutions within the secretariats of Public Education and Labour and Social Welfare absorbed current funding and expenditures into their budgets, while CONOCER's expenditure to 2002 was included in the previous sum.

The spent budget was higher than the planned expenditure (UAPMETyC, 2004, p. 67). Around 64 per cent of the expenditure was financed by the World Bank and about 36 per cent by the country (World Bank, 2004, p. 4). Expenditure on equipment for technological schools was valid and in line with their requirements as they have generally suffered of a shortage in this regard. More generally, allocation of expenditure did not relate to the country needs or the project objectives as well as it could have done if priorities had been established.

The participants lack of expertise in this kind of project, not only from the country but also from the World Bank, caused most of the planning, administrative and financial changes referred to above. Although there are amendments in all loans there are seldom so many.

In its Implementation Completion Report (ICR), the World Bank expressed the view that there had been problems since the design of the project and that there was little evidence that the project would achieve its goals. However, the ICR did note some progress in establishing the Standardization and Certification Systems, and some impact on courses and learning materials design and provision, as well as on the provision of equipment to some schools and the provision of competence-based training for unemployed and employed workers (Idem, 7-8).

²⁹ There is no information on the assessment and certification fees paid by those who could afford it.

In quantitative terms, from 1996 to 2003, the Standardization System had registered 601 labour competence technical standards equivalent to qualifications (table 4, appendix 1). From 1998 to 2003, the Certification System issued 256,282 unit certificates (appendix 1, table 5). Of the 601 qualifications registered by 2003; one single qualification generated 29.7 per cent of all of the certificates that were issued, and these were gained mainly by CONALEP students for whom that certification was compulsory. The remaining 80.7 per cent of certificates issued corresponded to 26 qualifications (appendix 6).

During the project, around half of the technological education schools offered at least one competence-based modular course and 392 education or training establishments received equipment (UAPMETyC, 2004, p.24). From the 1995-1996 to the 2002-2003 school cycle, technological education and training institutions within the national educational system served 863, 417 students with at least one competence-based modular course (83 per cent of them were from the National College of Professional Technical Education (CONALEP). However only 62,891 of these students could be assessed for CONOCER certificates (UAPMETyC 2004, p. 30).³⁰ The reason for this was that most courses were based on education institution standards and because in formal education professors and teachers perform continuous assessment throughout a whole course, while labour competence-based assessment responds to outcomes performances and is expensive.³¹

Through the Employment Support Programme, the General Directorate of Employment delivered 80,600 fellowships for unemployed people based on 60 labour competence technical standards (10 per cent of the total qualifications and an extremely small proportion of the 21,106 training programmes that companies had registered with the Secretariat of Labour and Social Welfare [STPS] in 2003 when the project ended). The Employment Support Programme also delivered 34,077 grants for the certification of unemployed people. In addition, the Training Support Programme of the General Directorate of Training and Productivity supported the training of 66,832 workers through competency-based modular courses. This represented only 2.8 per cent of the 2,363,779 workers undergoing workplace-based programmes within companies. The Training Support Programme also delivered 10,123 grants for worker certification. In total, these two programmes accounted for 44,200 of the CONOCER certificates (UAPMETyC, 2004, p. 34).

In conclusion the World Bank stated that:

Even though several components and the procurement procedures were satisfactory, the consistent delays in releasing authorized project-related budget funds, the fact that close to 50% of the approved norms by CONOCER are dormant after project completion, the inefficient implementation displayed by and large in Component C, the lack of effective articulation of many UTS schools³² participating in PMETyC with their respective regional productive sectors, and unsuccessful coordination efforts leads the ICR team to rank the Borrower's overall performance as **unsatisfactory**. (World Bank, 2004, p. 22)

³⁰ Those certificates are included in the CONOCER report. By this time the technological and vocational education and training for-work enrolment was around 2.5 million students.

³¹ The term professor refers to upper-medium and higher education.

³² 'UTS schools' refers to technological universities.

The World Bank decided to discontinue funding the Technical Education and Training Modernization Project (PMETyC). Consequently, Mexico did not transform technological upper medium education within this project. Indeed, there was not even any relationship between most of the education institutions' modular courses based on education institution standards and the productive sectors that chose other qualifications. Following Young and Allias (2009, p. 8), it is fair to ask what will comprise new bases of trust: "if the traditional sources of trust are seen by governments as too powerful and distorting qualifications away for the real needs of modern economies."

It was too much to expect that the project would contribute to the economic competitiveness of the productive sectors, as the government desired, and to poverty alleviation and productivity improvement, as the World Bank had stated. In addition, in spite of advances, it is evident that qualifications based on rigid functional analysis are not appropriate for a large developing country with a complex educational system; no links or equivalences between institutions in the Secretariat of Public Education and the workplace-based and re-training programmes coordinated by the Secretariat of Labour and Social Welfare; and a "blind" promotion ladder (enshrined in law) that considers seniority as the sole basis for advancement in most enterprises.³³

Nevertheless, there were sectors like tourism and electricity and the pilot cases supported and advised by ILO (particularly the sugar industry case) that interpreted the competence and certification approach within the context of training and productivity processes. At the end of the pilots, Mertens (2004, p. 165) concluded:

...that ongoing, all-inclusive learning methodologies and instruments aiming at enhanced productivity and working conditions can be applied in Latin American organisations. Flexibility, adaptability, systematic management and a structure based on competencies have made such training processes functional and have yielded concrete and measurable results. (Mertens 2004, p. 165)

3. An impasse period

3.1 CONOCER's problems

The Technical Education and Training Modernization Project (PMETyC) ended in 2003. The Labour Competence Standardization and Certification Systems struggled to survive for the next two years. There was a serious problem with funding exacerbated by the 2001-06 government's non-acceptance of the legal status of CONOCER (particularly its level of autonomy). This impasse caused big delays in certification. Indeed some certificates pertaining to the the General Directorate of Training for Work Centres of the Secretariat of Public Education (SEP) continue to be delayed to this day.

³³ This is not to deny cases where alternative promotional criteria have been agreed with trade unions.

The secretariats of Public Education (SEP) and Labour and Social Welfare (STPS) continued their activities, because they had already incorporated funding into their own budget and wished to continue some project activities. At the same time, the government negotiated separate loans for SEP and STPS with the Inter-American Development Bank.

There was an impasse period for CONOCER and thus for the Labour Competence Standardization and Certification Systems. It is important to note that the project depended to a great extent on the international bank loans.

3.2 Some exceptional cases

Two interesting developments took place during the CONOCER impasse period and outside of the official Standardization and Certification Systems. These involved very different sized enterprises. In both cases, employers and workers are convinced of the benefits that certification has had for them.

In the first case, an English construction company was interested in contracting with a Mexican plaster company called Taylor Logistic Services (Servicios Logísticos Taylor) for work in London. Around 50 workers were involved and it was necessary for them to be appropriately certificated. As CONOCER was in abeyance at that time, and because the Mexican system had borrowed from the NVQ system, the English company agreed that the Mexican awarding body (Quality and Labour Competence [Calidad y Competencia Laboral], CCL) would assess and issue the certificates for those workers based on the labour competence standards *Installation of plasterboards*. This is an example of policy borrowing having a positive impact. Even though there was no formal agreement between the two countries and their respective framework authorities, the certificates were valued by the international market.

The second case involved the Electricity Federal Commission (Comisión Federal de Electricidad [CFE]), a company with over 90,000 employees of whom 63,546 are unionized and 17,733 non-unionized (CFE, 2009). A agreement was reached between the Training Manager's Office and the Unique Trade Union of Electrical Workers of the Mexican Republic (Sindicato Único de Trabajadores Electricistas de la República Mexicana, SUTERM) to continue to use standards in human resources management.

Since the start of the Standardization and Certification Systems in 1996, the CFE had found functional analysis helpful to give coherence to company training plans and career pathways, which, according to interviewees, were fragmented and repetitive. This repetition was discouraging for workers who had been asked to be more productive on the basis of the company-trade union productivity agreement that had been signed in the early 1990s.

After the standardization of the first labour competence standards, the CFE established a group of technical personnel, called methodologists. With the advice of CONOCER, this group had responsibility for developing the blend of labour competence technical standards and institution standards that the company needed for all its workers and employees. The group also acted as assessors. Interviewees reported that the company emphasized the career pathways of workers based on formal education, training, assessment and certification.

The company had developed a wealth of in-house expertise which it could draw on during the impasse period. Specialists had been trained and certificated across all sections (energy generation, transmission, distribution and control). Interviewees noted that the certification of these specialists did not differentiate between those who were from the enterprise or from the union. It was therefore possible for the company to continue to promote its personnel competence-based training, assessment and certification system in the absence of CONOCER recognition (Anda and Martinez, 2006). The company also had training and higher education needs pertaining to specialized competences that CONOCER was not able to consider. To address these, it developed its own system and methodology. These did not depart dramatically from CONOCER's approach, but did seek to link the company (with a policy of being a world-class enterprise) with international benchmarking exercises.

Another case is worthy of mention – the tourism sector, an important sector that had been committed to the Labour Competence Standardization and Certification Systems. The Head of the lead body for this sector experienced a sense of abandonment and disappointment during the impasse period. However, some international hotel chains and the trade union (the National Union of the Food, Soft Drink, Tourism, Hotel, Catering and Similar Industry Workers [Unión Nacional de Trabajadores de la Industria Alimenticia, Refresquera, Turística, Hotelera, Gastronómica, Similares y Conexos] CROC) maintained an interest in the approach and undertook a promotion campaign to regain the confidence of the main tourism businesses.

4. A new opportunity for the competence approach

4.1 Origin, influences and purposes

When in 2003, the World Bank decided to discontinue funding the Technical Education and Training Modernization Project (PMETyC), the Inter American Development Bank (IADB) agreed to negotiate a new loan directed to another programme: the Multiphase Skills-Based Human Resources Development Programme (Programa para la Formación de Recursos Humanos Basada en Competencias (ProFoRHCom)).

The Inter-American Development Bank had already supported the Labour Competence Standardization and Certification Pilot Project within the PMETyC and had contributed to the creation of the Council for Standardization and Certification of Labour Competence (CONOCER). The IADB team also participated in the last World Bank mission and could therefore incorporate lessons learned into the new project design. (IADB, 2004, p.13). In addition, the IADA benefited from lessons learned in over 17 countries, namely: private sector involvement; adequate marketing; careful sectoral selection; and the need to laminate new developments onto existing infrastructures:

- (i) although the financial participation of the State acts as a powerful catalyst, the fundamental factor in skills standards penetrating the labor and education markets has been the private sector's active participation and financial cost-sharing;
- (ii) publicizing the model's economic benefits provides a powerful incentive that attracts new sectors

and secures their real and lasting commitment; and (iii) the model's success requires that a simplified institutional framework be built and that the process begin with the participation of strategic sectors, such that systems for evaluating and certifying skills can be constructed in accordance with sector demands and utilize available infrastructure that already enjoys the confidence of those sectors." (IADB, 2004, p. 12)

The IADB stressed the need to promote continuity, because the PMETyC had already developed a competence culture infra-structure. Given the natural relationship between upper-medium education and the economy, the IADB was of the view that with a suitable strategy and direction, it would be possible to articulate education and the productive sectors. Furthermore, the IADB was of the view that it was desirable to have objective reference points against which to assess and certificate workplace competence and these had already been developed through the Labour Competence Standardization and Certification Systems. Pending the reorganization of CONOCER, all education institutions were to group their institutional standards into clusters of competences as a step towards the development of common standards. Finally, a change in the governance of the new programme would be required to facilitate stakeholder participation.

As in the case of the World Bank, the Inter American Development Bank funded a seminar drawing in experts from different places: from the Spanish National System of Qualifications and Vocational Education; from the French Validation of Learning Acquired by Experience Mission; from the United Kingdom Qualifications and Curriculum Authority; and from the ILO Inter-American Centre for Knowledge Development in Vocational Training. They provided input into the new programme.

It was reported that in Spain a royal decree ensured that all vocational education and training institutions design similar courses with the same minimum contents that are transferable across education and training services. Designers may extend contents but not reduce them. Everybody has the option to gain an additional certificate in the minimum transferable skills (UAPMETyC, 2003).

In France there is a national catalogue that facilitates establishing equivalences among vocational certificates so that they can be reciprocally recognized. There are referents on which a national commission enhances vocational and training design for modular courses that persons may follow by their own or in formal schools. If a person wants to get a certificate, he/she has to be assessed against the referents with or without course attendance. The high level of political commitment was noted, including a presidential decision in 2002 to promulgate a law for validating learning acquired through experience (Aribaud, 2003).

The representative from the UK noted that although competency standards are heavily promoted by donor institutions as a key component of vocational education and training reform (VET), there is an increasing tension between needs of formal VET systems and other potential applications, such as developing employer friendly systems. The development of a European qualifications system was discussed (Handley, 2003). However, such an arrangement would not be possible in the context of NAFTA because of local autonomy when it comes to defining policies on education, training and certification.

Some persistent challenges regarding Latin American models were identified, such as: education-labour integration; effective short term action versus strategic mid- and long-term change; stakeholder interest; employers' involvement; sustainability; impact; public and private sector articulation; the creation of a national qualifications structure; developing a culture of lifelong learning; and training for teachers, professors and technicians (Vargas, 2003).

The seminar opened discussions that lasted throughout 2004. Even though the new programme had not been approved, education institutions continued designing and offering competence-based courses, training teachers and professors in the competence approach and shifting focus to student-centred learning.

The IADB loan was conditional upon the signature of agreement articles concerning the legal status of CONOCER. This took place on 29 April 2005 which was when the Multiphase Skills-Based Human Resources Development Programme (ProFoRHCom) officially began. Nevertheless, the Inter-American Development Bank (IADB) authorized retroactive financing to cover expenditure related to continuing the labour competence approach after 2003.

The new programme consisted of a Phase I (which would last three or five years depending on mid-term evaluation results) and Phase II, a further three year phase. The outcome indicators for both phases are as follows:

Improvements in the employability of former students who have completed partial studies and graduates of the system:

- Less time for students from each subsystem to find employment after graduation.
- Type of employment found by students from each sub-system after graduation is more compatible with their education.
- Less time spent between jobs (probability of finding employment).
- More time employed in each job.
- Higher starting salary compared to graduates without skills.
- Employer satisfaction with competence-based education graduates is at least 50% starting in year three." (IADB, 2004, annex 1, p. 1)

In contrast to the Technical Education and Training Modernization Project (PMETyC), only the Secretariat of Public Education (SEP) participates in the new programme. The now "National" Council for Standardization and Certification of Labour Competence (CONOCER) has been reconstituted as a public trust with rationalized governance. It falls under the Secretariat of Public Education. The Inter-American Development Bank removed the Secretariat of Labour and Social Welfare project because it had complicated relations among stakeholders.³⁴

The initial programme goal for Phase I was to: "Enhance the employability of workers and vocational education and training graduates in Mexico (IADB, 2004, p. 14). This was changed for Phase II to: "Help improve the skill level of graduates from upper secondary school, vocational school, and technical college, and thus increase their employability." (IADB, 2009, p. 7)

³⁴ The IADB was extremely careful not to ignore those Mexican characteristics that had created problems in the PMETyC.

When the Multiphase Skills-Based Human Resources Development Programme was negotiated, the CONOCER General Secretary expressed the view that (as well as basic competences provided by formal education) labour competence qualifications would enhance employability and that these should be based on the expressed requirements of the productive sectors (Garza Rodríguez, 2003). This goal should be measured in Phase II of the programme. In turn the Inter-American Development Bank (IADB) stated that:

The Bank's strategy with Mexico centers on four basic elements: (i) modernization of the social sectors ... and poverty reduction; (ii) integration; (iii) modernization of the State and sub-national decentralization; and (iv) heightened competitiveness by lowering barriers that limit productivity." (IADB, 2004, p. 3)

Although these ambitious goals were clearly stated, how they will be evaluated is less clear.

The new CONOCER General Director has expressed a concern that stakeholders tend to be overly concerned about their immediate context and less concerned about the strategic view. For this reason, in the Multiphase Skills-Based Human Resources Development Programme he seeking to ensure that the highest level participants remain attuned to the key issue of productive sectors' competitiveness and the role of qualified persons, regardless if there is no sector reference in the framework or there is no framework at all. Once again, it will be very important to plan how to measure the impact of qualifications on competitiveness; it is a variable that has to be isolated.

Phase 1 of the Multiphase Skills-Based Human Resources Development Programme comprises two components (to be continued into Phase II depending on the evaluation of Phase 1). These components are:

A. *Improving the relevance of technical and vocational training*, that will change to *Improve the quality and relevance of technical education, vocational education, and occupational training*. This component is the responsibility of upper-medium education institutions and the National College of Professional Technical Education (CONALEP), coordinated by the Sector Coordination for Academic Development (Coordinación Sectorial de Desarrollo Académico [COSDAC] formerly COSNET) and the polytechnic universities. In Phase II, this component will comprise three subcomponents: 1) Curriculum innovation and integration and articulation of educational offerings; 2) Teacher training and certification (IADB, 2009, p. 7 and p.3); and 3) Business linkages, including student internships in the labour sector and team working between education institutions and productive sectors, among others (IADB, 2009, p. 8).

B. *Consolidation of the Occupational Skills Standardization and Certification System*³⁵ with a name change to *Strengthening of the National Skills System*. This component is the

³⁵ The Inter-America Development Bank refers to the Labour Competence Standardization and Certification Systems as the Occupational Skills Standardization and Certification System on the basis that the labour market recognizes occupations, not competences.

responsibility of CONOCER and has two subcomponents: 1) Sector projects³⁶ to identify and develop standards, assessment and certification systems according to the priorities established by the productive sectors. These new standards registered by CONOCER represent important benchmarks for gradually changing human resources management; and 2) Feedback and information services, concentrated on creating “a portal and a call centre for people who need information on job certification and for industries interested in registering their standards” (IADB, 2009, p. 8).

The Inter-American Development Bank (IADB) had a strong influence on both of the above components, particularly on the role of the productive sectors in subcomponent 1 of component B. The IADB requested that the National Council for Standardization and Certification of Labour Competence (CONOCER) develop criteria to select priority productive sectors. However, for various reasons, this selection process did not work in Phase I and a new selection process was undertaken in Phase II. In both components, the IADB influenced the establishment of outcome indicators and triggers to move to Phase II.

The person at the IADB with overall responsibility for the programme stated that the behaviour of education institutions in Phase 1 was satisfactory. However, CONOCER only partially achieved its outcome indicators in component B. That component was subsequently reorganized. The IADB decided to continue with Phase II of the programme based on the good performance of education institutions; the Integral Reform of the Upper Medium Education (appendix 7); the ongoing success of the OECD PISA programme; and the Mexican National Assessment of Academic Achievement in Educational Centres (Evaluación Nacional del Logro Académico en Centros Escolares [ENLACE])³⁷. According to one interviewee, the IADB is of the view that the OECD and ENLACE instruments provide third-party objective measures of differences amongst students and schools.

4.2 Governance and stakeholders

Three bodies were designated with responsibility for programme execution and management (appendix 9):

- The Programme Directive Committee (Comité Directivo del Programa [CODIPRO]) was the authority initially in charge of coordination and supervising the programme (IADB, 2204). This changed to the Under-Secretariat of Upper-Medium Education (SEMS) which took over control of the programme control in order to guarantee its technical sustainability. In the context of this Under-Secretariat, the Multiphase Skills-Based Human Resources Development Programme (ProForHCom) plays the lead role in the Integral Reform of the

³⁶ Originally there were 10 sectors but only four were really committed: Appliances, Mining, Tyre distribution and Tourism. However Mining left the programme because of internal problems. New sectors are: Automotive, Construction, Electrical Energy, Food Processing, Information Technologies, Logistics, Mining, Oil and Gas, Telecommunications, Tourism, and Trade. Tourism has been the only consistent strategic sector. The sugar industry has been consistent but is not strategic for the country.

³⁷ ENLACE assesses students on their ability to apply knowledge, basic reading and mathematical skills acquired in upper-medium education in real-world situations. It is an instrument that offers society information regarding the degree of preparation of students in the last school cycle of upper-medium education.

Upper Medium Education in relation to technological education. This development was formalized through an amendment to the loan contract made in December 2008.

- The Programme Management and Coordination Unit (Unidad Administradora y Coordinadora del Programa [UCAP]) is independent of the participant institutions and agencies although its operations are intimately linked to them. The UCAP must programme coordinate, monitor and evaluate, as well as perform management and finance functions:

It will provide support for coordinating work plans, executing activities in accordance with Bank procedures, administering the program's consolidated financial and accounting records, performance monitoring and evaluation, and preparing reports on physical and financial management. (IADB, 2204, p. 23)

The Under-Secretariat of Upper-Medium Education (SEMS) also designated the Sector Coordination for Academic Development (COSDAC) to simultaneously undertake technical coordination in order to fulfil the requirements of the Integral Reform of Upper Medium Education. COSDAC plays a key role in approving institutional plans within technological upper-medium education. This includes CONALEP's plans, even though it is decentralized. Without approval, UCAP cannot authorize the requested budgets.

- The technical participating agencies are the general directorates of: Industrial Technological Education (DGETI); Agricultural Technological Education (DGETA); Education on Marine Science and Technology (DGE CyTM); Training for Work Centres (DGCCT); the National College of Professional Technical Education (CONALEP); Higher Education (DGESU) that coordinates Technological Universities (UT) and Polytechnic Universities (UP); and the National Council for Standardization and Certification of Labour Competence (CONOCER). The General Directorate of Training for Work Centres is not an upper-medium education institution, but co-ordinated by the Sector Coordination for Academic Development (COSDAC) because of the technical services that the DGCCT offers. According to one interviewee, COSDAC will be an executing agency for technological upper-medium education curriculum design and didactic material elaboration.

Problems amongst participating agencies have diminished in the Multiphase Skills-Based Human Resources Development Programme. CONOCER, in common with the other institutions, is now under the the Under-Secretariat of Upper Middle Education³⁸. Its General Director can still negotiate with the highest level employers, trade unions and other secretariats' staff members. Interviewees reported that, even with this new arrangement, the General Director of CONOCER was not well respected politically and CONOCER had a scarce budget that limited its actions. A

³⁸ Up to 2003, CONOCER was a public trust independent of any Secretariat of State. It was relocated as a public trust under the Secretariat of Public Education until 17 December 2004. However, it was 24 October 2005 when a new Technical Committee and General Director were installed. Since 2005, CONOCER has had a General Director instead of an Executive Secretariat and funds continue to be allocated through the Secretariat of Public Education.

new era began in 2007 with the change of General Director by the 2007-12 federal administration.

On the basis of the 2007 and 2008 changes, all technological upper medium general directorates and CONALEP are coordinated by the Sector Coordination for Academic Development (COSDAC) to work on the Integral Reform. Likewise, technological and polytechnic universities are coordinated by the General Directorate of Higher Education (DGESU).

Regarding component B of the Multiphase Skills-Based Human Resources Development Programme (*Strengthening of the National Skills System*), stakeholder participation continued as was planned at the start of PMETyC with the addition of project commissions for strategic sectors (which did not fully materialize). The idea now is that employers should co-finance the design of standards (previously financed by CONOCER and donor funding) and ensure that their workers and employees are assessed and certificated. This has not become a reality but progress has been made. According to one interviewee, CONOCER is working hard to secure employer involvement by lobbying at the highest level of employers' leaders.

4.3 Qualifications structure, design issues and implementation strategy

The five-level grid was retained in the new programme. However, the previous 12 area classification was increased to 20 sectors consistent with the North American Industry Classification System (Sistema de Clasificación Industrial de América del Norte [SCIAN])³⁹ and NAFTA. This system is also used by the National Institute of Statistics, Geography and Information Technology (INEGI) to collect and organize information.

The qualifications framework is partial in terms of including productive sectors' classifications but without any explicit relation to educational levels and learning needs. At the present time, technological education institutions have defined 12 priority technical fields that will rationalize the more than 200 often inter-related specialisms that are currently offered in schools. This rationalization process is already underway and may take three years to complete. It will lead to common standards upon which to base courses. The thinking is that education institutions should offer qualifications that are relevant to the labour market. According to one interviewee, there is much to be learned from leader enterprises that have already adopted a certification culture in the context of globalization.

This framework is valid, but it must be related to human resources management knowledge in the widest sense. Interviewees argued that CONOCER should become a clearing house where all stakeholders can get the information they need. The national qualifications framework also needs to be flexible enough for standards to be

³⁹ It is noteworthy that the 12 areas have no equivalent in the new 20 sectors. This is because labour competence technical standards are only valid for a certain period of time, and most of them have now expired, or are due to expire shortly. New labour competence technical standards (NTCLs) are located and will be located in the new sector grid.

implemented in various ways and for non-formal and informal learning to be recognized within the formal qualifications system.⁴⁰

Although the framework seems to be on target in terms of supporting responsiveness to labour market requirements, some very important questions remain: How will the presently defined technological education fields (which do not correspond to the previous framework labour competence areas) fit with the 20 productive sectors that comprise the current labour competence qualifications framework? Does there need to be a bridge between technological upper-medium education and the qualifications framework?

The broad strategy for Phase II of the Multiphase Skills-Based Human Resources Development Programme is to strengthen and develop human capital to create the conditions for greater long-term growth in the productive sectors of the economy. In this context, component A will support the acquisition of labour market competences by students in upper medium and technological education. This implies that upper-medium institutions articulate their vocational education curricula in such a way as to develop the generic competences valued by all of the general directorates concerned with upper-medium education. Phase II will also investigate a common professor training programme, while technological and polytechnic universities continue their transformation. (IADB, 2004)

An important specific strategy is to integrate the Multiphase Skills-Based Human Resources Development Programme (ProFoRHCom) as a component of the Integral Reform of Upper Medium Education. Even though the programme is more related to the vocational competences, it will finance the teacher training programme and grants for the scholarships' programme. However, in the light of the recent poor results of the Mexican National Assessment of Academic Achievement in Educational Centres (Evaluación Nacional del Logro Académico en Centros Escolares [NLACE]), the Secretary of Public Education has announced that another reform of upper medium education will take place.⁴¹

Concerning component B, CONOCER will undertake standards production in at least 10 main strategic productive sectors during Phase II. CONOCER will register those standards and help their promotion in terms of human resources management in its widest sense i.e. beyond certification. Interviewees pointed out that key outcome indicators will be officially released shortly.

Interviewees also offered a further perspective – that to date CONOCER and the accredited awarding bodies have not been recognized by the labour market. Certificates are perceived as artificial and according low value. Exceptions include the level two old qualification in computing that refers to the competences needed by CONALEP students. The Mexican productive and social sectors still trust the

⁴⁰ Agreement 286 establishes guidelines that determine rules, general criteria and procedures in order to recognise knowledge (that corresponds to educational levels or school grades) acquired in a self-taught manner or through work experience, or based on the certification pattern vocational education for work. This Agreement has laid the foundations for this bridge, but it has not been regulated.

⁴¹ Rumours are circulating that the educational authorities are preparing an eight level comprehensive framework that would include this educational level.

Secretariat of Public Education (SEP) certificates more than those of an independent organisation such as the National Council for Standardization and Certification of Labour Competence (CONOCER). For this reason, new rules stipulate that SEP will endorse all competence certificates. It is hoped that this will promote large-scale worker assessment and certification.

Finally, the possibility of a individual having his/her labour competence recognized depends to a large extent on employment status and employer disposition towards assessment. Cost is a factor, but can be spread over a period of time:

Standards are expressed as units of a qualification and therefore the costs are associated with units rather than the whole qualification. This means the cost of qualification can be spread out over a period of time when units are achieved one by one. (OECD, 2008, p. 12)

4.4 Procedures and quality assurance

Procedures have evolved considerably through generations. Labour competence technical standards were the equivalent of qualifications until 2006. From 2007, standards corresponded to units. On the 11 January 2007, there was a further significant change with the addition of assessment instruments to each unit. The present position is that there are no qualifications any more since a qualification must consist of at least two units, and a unit is equivalent to a Labour Competence Technical Standard (NTCL).

A labour competence technical standard profile must be defined by the Lead Body with one unit and must be related to common occupations in the labour market. CONOCER made a number of changes to labour competence elements, the most important being the elimination of performance criteria and evidence. This means that education institutions must refocus their attention on the learning process that leads a student to competence. Students have to pass their learning assessment as well as their work performance assessment.

As in previous generations, technical groups are responsible for developing standards, while the Lead Body Directive Board reviews and approves the standards and instruments, before sending them to CONOCER for final approval, publication in the Federation Official Diary and incorporation into the data base. The Board is also responsible for maintaining the currency of the labour competence technical standards and for publicizing them in relevant sectors (SEP, 2007).

According to interviewees, third generation standards have not been well received by some employers. They are considered to be somewhat simplistic when compared to former standards and qualifications currently in use. Thus, employers are unwilling to invest in the new forms of certification. However, in some sectors, tourism for example, the view is that units fit well with promotion ladder levels on the same occupational branch.

Another change is prefigured for 2009; a reversion to qualifications is expected. The proposed new regulation introduces 'standards' rather than 'labour competence technical standards' and "cualificaciones" (as used in Spain, to refer to a person's vocational or labour competence in terms of indicative standards) rather than

“calificaciones” (rules for labour competence in terms of productive sector needs). According to interviewees, it is considered to be a demand-led proposal, based on the view that that employers and trade unions know what they need to improve their sector competitiveness. There are claims that the new approach will eliminate bureaucracy and involve the productive sectors in order to assure sustainability and credibility, as well as to generate revenue. Nevertheless, it is not yet clear how this will be achieved.

The actual process of awarding competences under the Labour Competence Certification System has suffered few technical changes. However, there was a kind of selection process during CONOCER impasse. In December 2003 there were 32 accredited awarding bodies, while in 2009 there are 26. The bodies that survived tended to be the strongest ones that also had responsibility for other forms of certification. Interviewees claimed that inefficient monopolies have developed, which if broken, would mean that proces could go down and more workers would be able to access assessment. At the current rate of progress it will take 400 years to certify the Mexican labour force! CONOCER is in favour of relaxing the accreditation criteria for awarding bodies and assessment centres status, but there is are concerns that quality is not lost in the process.

Regarding the educational component, in the technological general directorates under the Under-Secretariat of Upper Medium Education and in the context of the new relationship to the Integral Reform, the process of rationalizing technological specialisms into 12 priority technical fields has started. The goal is for students to be able to transfer between institutions on the basis of standardized curricula. Interviewees were of the view that this would guarantee the portability of certificates, the horizontal mobility of students and a correspondance between curricula and productive sectors’ needs.

Representatives of the upper-medium education general directorates, guided by the Sector Coordination for Academic Development (COSDAC), will undertake a field survey to ascertain which educational standards or combination of standards are relevant to the productive sectors and will also research how those standards are applied in real workplaces. It is important to note that until this point the educational standards have evolved separately from those developed by the productive sectors (although some of the latter have been incorporated). The aim of the above research, therefore, is to match what they have done by themselves with real productive sectors needs. A vocational education competence profile will be established for each technological education field as the basis for the design of competence-based courses, materials preparation and the allocation of equipment to schools.

At the same time and as long as they are being standardized, CONOCER must feed curriculum design for vocational competences, because at present most of the standards used by education institutions have not been standardized by the private sector of the economy.

Third generation standards do not contain learning outcomes – with the exception of the knowledge assessment criteria which are expressed according to Bloom’s levels of classification and refer to the application of knowledge. These criteria usually reflect simple, information knowledge that can be memorized. However, as a result of the

rationalization process currently underway in technological education it will be necessary to express vocational education competences in terms of learning outcomes, including performance outcomes so as to consider learning as a whole:

The CONOCER occupational standards require a professional interpretation by teachers into a form that is useful for coordinating teaching programmes across colleges. These transformations, which produce educational standards, can describe content, pedagogy and the most appropriate evaluation tools. A major effect of developing these educational standards is to express programmes in terms of learning outcomes (to correspond with work place competences) and this has a major positive spin-off in terms of transparency to users. (OECD, 2009, p.23)

4.5 Evaluation

As discussed, the Inter-American Development Bank (IADB) rated the Multiphase Skills-Based Human Resources Development Program (ProFoRHCom) Phase I as satisfactory.

Upper-medium technological education completion rates increased from 51.12 per cent in 2004 to 53 per cent in the second year of the programme to 55 per cent at the end of third year. Composition per institution was: General Directorate of Agricultural Technologic Education (DGETA) up from 53 per cent to 61.1 percent; General Directorate of Industrial Technological Education (DGETI) up from 55.24 per cent to 58.99 per cent (in the 2004-07 cohort); General Directorate of Education on Marine Science and Technology (DGECyTM) up from 46.94 per cent to 55.5 per cent. The National College of Professional Technical Education (CONALEP) saw a decrease from 49.2 per cent to 45.02 per cent. Drop out rates at the end of the third year had reduced from 17 per cent to 15 per cent in technological baccalaureate, and from 25 per cent to 23 per cent in CONALEP (IADB, 2009).

The view of the tourism sector (the most consistent sector since 1996) is that the ProFoRHCom effort must be continued and strengthened in order to use the labour competence standards in human resources management, particularly in recruiting. They also want standards to help to establishing levels for occupations so as to contribute to progression on a future alternative promotion ladder.

As of 2009, there are currently 655 labour competence technical standards in force across the three generations: 595 first and second generation standards equivalent to qualifications (appendix 1, table 6) and 60 third generation standards equivalent to a unit (appendix 1, table 7), of which 15 were recently approved as labour competence technical standards. Across all generations the most standardized functions are remain at level two. In the old classification the *Manufacturing* area continued as the leader, while in the sector classification *Health care and social assistance* had the largest quantity of standards, 11 in levels two and three. It is important to note the first generation standards have already expired, even if they are still in use.

From 2006 to 2009, CONOCER has issued 121,598 certificates in relation to 128 labour competence technical standards (20 per cent of the standards in force not including the third generation ones). The problem of unused qualifications persists; two labour competence technical standards have generated half of delivered

certificates. Fourteen of 128 standards generated almost 83 per cent of total certificates (appendix 9). The level 2 qualification *Document elaboration with computing tools* accounted for 44,940 certificates which is 37 per cent of the total. This was also the most in-demand qualification in the PMETyC because of the large quantity of CONALEP students that undergo this assessment process. Indeed, in the first semester of 2009 all of the certificates issued related to this standard were to CONALEP students.

This was followed by the level 2 qualification *Advising on housing credit* that accounted for the 15,368 (12.63 per cent) of total certificates. The level 2 qualification *Children care in child care centres* generated 9,193 certificates (8 per cent of the total). The level 3 *Training course face to face providing* generated 6,931 certificates (6 per cent of the total) and the level 4 qualification *Training course designing and providing* attained 5,851 certificates (5 per cent of the total). According to one interviewee, up to 2008, 530 of the 630 registered labour competence technical standards, had not had any assessment and certification use.

Education institutions used the labour competence technical standards to a greater or lesser extent. The General Directorate of Education on Marine Science and Technology used 124 labour competence standards as a basis for new or updated modular competence-based courses. This was followed by the General Directorate of Industrial Technological Education that employed 121, and the General Directorate of Training for Work Centres, which utilized 32. Alongside this, all education institutions continued using education institution standards and even continued developing them. For example, the technological universities and the polytechnic universities developed 59 education institution standards, while also using 78 labour competence technical standards (SEP-SEMS-ProFoRHCom, 2008). It will be important to ascertain (in Phase II) the form labour competence technical standards take within education institutions.

According to interviewees, the competence approach has unquestionably impacted on the Upper Medium Education Integral Reform. Its vocational component (40 per cent of the curriculum) now tends to be organized in labour competence-based courses so that students can get a labour competence certificate before entering the labour market, if they wish to.

A mid-term evaluation was undertaken between August and December 2008, by a private company, *GR.TR consultores*, from August to December 2008 performed the mid term evaluation. The report is not yet official however some of the findings were included in a report compiled by the Programme Management and Coordination Unit (UCAP). Concerning component A, the company emphasized the significant progress that education institutions had made in curriculum design, but some risk factors have also been identified, probably relating to ongoing institutional diversity that needs to be addressed (SEP-SEMS-ProFoRHCom, 2009).

Regarding component B, the mid-term evaluation notes that the National Council for Labour Competence Standardization and Certification (CONOCER) did not meet any of the performance indicators that were required to trigger Phase II. However, this problem will certainly be overcome by the new CONOCER administration that has already started to dialogue with the highest levels of employers and trade union leaders to identify the demand for labour competence standards capable of contributing to improvements in enterprises' productivity and competitiveness (SEP-

SEMS-ProFoRHCom, 2009) Once again it is important to think about the way to isolate those variables.

As the IADB expected, the commitment of the 10 established sectors was not achieved. Even the four sectors that were most committed in the first phase could not reach their targets. The Mining Sector has already been discussed in this regard. Part of the problem relates to CONOCER's scarce resources that did not permit adequate promotion and lobbying. It is very important that this commitment is achieved, especially in a context of national and global recession whereby unemployment is increasing and employers are concerned about their survival. According to interviewees, 11 priority sectors have been chosen for the second phase of ProFoRHCom.⁴²

Regarding information services, the mid-term evaluation confirms that there has been good registration of process and outcome indicators. Nevertheless, it suggests better management of information flows to render assessment more accessible thereby improving programme performance overall (SEP-SEMS-ProFoRHCom, 2009).

As an overall appreciation the Inter American Development Bank (IADB, 2009, p.4) in the loan proposal for phase II, stated that:

From a structural standpoint, CONOCER's most significant constraints are related to the sparse use of standards by productive sectors because they do not meet their requirements;⁴³ the high costs associated with registration and certification; and the absence of a strategy to identify priority sectors and relevant standards in view of productive trends. Another consideration is the lack of consistency between CONOCER's standards and revisions to school curricula in order to incorporate the job skill standards. Accordingly, education institutions created their own standards and thus undermined the purpose of having a system of common standards endorsed by the productive sector.

From the OECD (2008, p. 19) perspective:

CONOCER has no single coherent evidence base of impact on people or businesses of the use of workplace competences studies. However CONOCER does have a jigsaw of informal information about impact. There are difficult methodological issues to be addressed before useful and reliable evidence of impact can be produced.

Therefore, even though technical sustainability seems to have been solved for education institutions, financial sustainability remains a priority issue, largely because the national qualifications framework is dependant on external loans. During the first

⁴² Automotive, Construction, Electric Energy, Food Processing, Information Technologies, Logistics, Mining, Oil and Gas, Telecommunications, Tourism, and Trade. Of the 28 existing lead bodies, only six correspond to priority sectors (Construction, Food Processing, Information Technologies, Telecommunications, Tourism and Trade), while the other 22 correspond to sub-sectors, sub-sub-sectors or mere institutions. Even the Food Processing Sector in fact is a sub-sector of the Tourism Sector. The selection criteria are not clear, as was the case in the Mining Sector that abandoned the Standardization and Certification Systems because of intractable internal problems.

⁴³ A speculation to explain the unused standards is that qualifications have been standardized in terms of functions that do not correspond to occupations that are the basis of human resources management. The sectors that have adapted the analysis to their way of proceeding are the ones that have succeeded as well as the ones that follow Mertens methodology that corresponds to occupations.

phase of the programme, around 60 per cent of expenditures was financed by the Inter-American Development Bank. This figure could be increased so the country contribution would be lower. This is particularly important because of equipment maintenance and updating on account of technical and technological changes.

Despite the above, there have been also some remarkably successful experiences in a few sectors or enterprises.

As discussed in the section *An impasse period*, the Electricity Federal Commission (CFE) has been working with the Unique Union of Electrical Workers of the Mexican Republic to create an important human capital infrastructure of specialists and experts at all high-level joint training and productivity committee levels. Methodologists have been concerned with standards development, assessment and the design and provision of training. Retired workers have been involved and trained in these processes too. CFE uses their best workers' performance as a way to inform standards development. The company also benchmarks against a 10-year forecast of future requirements. As one trade union interviewee put it: "The trade union leader's responsibility is to keep our source of work in accordance with the enterprise. We have to boost CFE and keep workers jobs because they are competent and provide a good service".

In the case of lower-level competences, CFE has continued to work with CONOCER-accredited awarding bodies. In relation to higher technical competences they make agreements with universities and expert institutions. For high-level organizational competences they benchmark to international (mainly British) standards. The OECD (2008, p. 23) noted the positive effects of these processes on higher education:

The definition of labour competences can also be a positive curriculum influence on higher education especially where companies are seeking high level training in technical areas, the experience of the national electricity company CFE is relevant here.

The CFE is large enough to operate independently. It has utilized the qualifications model to develop career pathways and promotion strategies without having to work alongside companies that are different in size, have different competence requirements or that organize their production and services differently. Standardized competences have proved to be suitable for this specific world-class enterprise. However, according to one interviewee, CONOCER is still trying to attract CFE to be a key player in the Electrical Sector Lead Body.

The Tourism Sector is another case in point.⁴⁴ Significant progress has been made between companies and the National Union of the Food, Soft Drink, Tourism, Hotel, Catering and Similar Industry Workers' productivity agreements. Nowadays performance incentives are stated in the standards, such as avoiding labour accidents or conserving water or products. According to one interviewee, next year, for some

⁴⁴ A new Lead Body for the Restaurant Sector is now working closely with the Tourism Lead Body (that only considers restaurants located inside hotels). The interest of this new Lead Body is to professionalize workers to develop trained and certified human capital to impact positively on health and environmental care, costs and resource savings, services and keeping and attracting (new) clients. Higher levels of competence will also keep sources of employment. Coordination between these two lead bodies will be important. It may be that the Restaurant Sector becomes a sub sector of Tourism.

occupations the collective bargaining agreement or collective employment agreement will consider a variable additional monetary incentive that will not be included in the salary, but will be awarded according to productivity against performance criteria.

In terms of international hotel training, first of all there is internal training according to international standards. Then the worker passes through an assessment process that is certified according to the Tourism Committee national standards that also take account of the international standards. If a worker is not yet competent, retraining will be organized. To get to a better position when there is a vacancy, the most competent person has rights over seniority. Other impacts of certification are the development of several levels for the same occupation and the portability of certificates between companies. Interviewees were of the view that certification is key to good employment practice because it offers objective backing to competent workers and employees. The impact on performance is measured through client satisfaction indicators when the client (the tourist) leaves the hotel, the restaurant or the service utilized. It is also measured through the annual labour climate assessment.

To solve the problem of the high price of assessment, within the tourism sector employers and the trade union have agreed to exchange internal assessors. Company assessors assess unemployed trained workers and the trade union assessors assess enterprise-trained workers. This means that payment is only required for the certificate. In fact, the trade union has established an assessment centre where they provide integral training and assessment services. As one interviewee put it: “As a Union we participate directly in the assessing and certification process of our guild members, to vertically and horizontally expand their employability, giving them better development opportunities, wages and working conditions.”

In a related development, a hotel and several restaurants have started a pilot with the ILO Mexico. The aim is to influence productivity and to improve work conditions by means of the Productivity Measurement and Enhancement System (ProMES), related to the competence approach.⁴⁵

Another successful experience is a pilot in the sugar industry involving 11 sugar mills. The previous experience with this industry was recovered in 2007, with a new project in the framework of the Agreement for the Modernization of the Sugar Industry and ILO to develop competence standards. In 2009 this was financed with extraordinary resources from ILO Geneva through Lima.

This project became possible, because after 70 years, the Sugar Industry law collective contract between the industry and the Workers Union of Sugar and Alcohol Industries of the Mexican Republic (Sindicato de Trabajadores de las Industrias Azucaera y Alcohólera de la República Mexicana, STIAARM).

A new approach to the management of human resources was agreed with CONOCER. The approach was characterized by a strong dialogic component and was the first of its kind involving the highest level of the industry and the trade union. An important goal was to demonstrate to CONOCER that the competence approach can work in a flexible manner without losing its identity.

⁴⁵ The same approach was adopted in the sugar industry.

The project is based on the methodology validated for Latin America from 1995 to 2002 that links competences to self-training and productivity. As the workers are not interested in the technical part of the standards until they can deal with the social part, it was decided that first competences should generate value for the interest groups. Only around 20 per cent of the time is spent on technical aspects; the majority of the time is used to emphasize social dialogue in order to actively involve not only the industry executives, but also the trade union stakeholders at all levels.

Based on standards for 14 key competences constructed through a rough procedure, they generated Technical and Vocational Education and Training (TVET) manuals or flexible guides with Systematic Curriculum Instruction Development (SCIP). These guides can be adapted to meet the technical circumstances of each sugar mill, so are useful for a heterogeneous industry. To start assessing and certificating workers' labour competences, the sugar industry stakeholders translated to CONOCER's requirements the standard on job security and health, and environment, that is a key transversal and strategic competence.

By November 2009 sugar industry stakeholders expect to certify 600 workers to that standard. Assessment instruments can be adapted and criteria added if competences are more complex in one company than another. CONOCER issues one certificate at the general standard and the company delivers another certificate relating to complementary competences. According to one interviewee, the CONOCER infrastructure of third-party awarding bodies and assessment centres is very important in this context, because it prevents company and trade union being suspicious of one another.

5. Analysis and main impacts

5.1 Intended framework

Following Raffé's (2009) typology, the Mexican framework set out to be a partial, communications, top-down, outcomes model.⁴⁶ Its main aim was to relate upper-middle technological education, training-for-work and workplace-based training to the needs of the productive sectors of the economy as represented in the labour competence technical standards developed by employers and workers or employees who were supposed to know what was required. This aim was only reached in a few sectors or industries usually where other policies and measures were also in place.

5.2 Main problems and negative influences

⁴⁶ "... partial frameworks which cover a single sector of learning such as higher education (HE) or vocational education and training (VET)." (Raffé, 2009, p. 2) "A communications framework takes the existing education and training system as its starting point and aims to make it more transparent and easier to understand" (Idem, p. 5). Such a framework may be "imposed through more top-down processes in which ET institutions are one set of stakeholders among many" (Idem, p. 6). The outcomes model proposes a "tight design" for NQFs "based on a narrow concept of learning outcomes expressed through unit standards" (Idem, p. 11) Young and Allais also argue that many countries have "A common definition of qualifications in terms of outcomes that are treated as independent of the way of achieving them" (Young and Allais, 2009, p. 1). This is the case in Mexico.

Problems associated with policy borrowing were not sufficiently addressed at the outset. Rather, the qualifications framework and the competence approach were seen as panaceas that would solve the problem of chaos in upper-medium technological education (or at least give coherence to the curricula design for vocational education courses and training-for-work) by requiring correspondance to labour market needs. Furthermore, the new approach would also impact on workplace-based training registered by the Secretariat of Labour and Social Welfare.

At the time the framework was designed, there was little expert guidance to suggest otherwise. This came later, for example, from the Skills and Employability Department of the ILO, where careful delineation of the causes of particular national problems is strongly advised:

...what seem to be the main causes of the problem? If it is not clear, it will be difficult to know how it is to be solved and whether an NQF has any role in the process. (Tuck, 2007, p. 14)

There were many dimensions to the problems experienced over 14 years and these impacted differentially on the framework. In addition to the above-mentioned inadequacy of problem analysis and definition, the 1995 economic recession worked against a strong start for the Technical Education and Training Modernization Project (PMETyC). The idea was that it would be based on a hierarchy and strategic selection of productive sectors and the most important transversal competences to be standardized. Over and above this, were difficulties derived from the bureaucracy involved in the introduction and development of standards and qualifications, and an over-estimation of the power of a non-compulsory framework that also impacted on limited social dialogue.

Education institutions did not wait for the productive sectors to determine what they needed, but decided for themselves the courses that should be modified in line with the PMETyC. They made these decisions from their traditional point of view. This led to a proliferation of education institution standards relating to the same or similar functions. This in turn influenced the design of modular courses and student assessment which inhibited credit transfer and the establishing of equivalences across different technological institutions. According to one interviewee, the problem went deeper because of the lack of a more integral learning outcome concept for educational purposes.

In addition, procedural changes to standardize functions to reduce qualifications to only one unit, the change from 12 labour competence areas to 20 productive sectors, and the present way of classifying standards without using the grid meant that the qualifications framework practically disappeared. Standards (rather than a qualification framework) became to dominant discourse. At the present time there is a mixture of all three generations of labour competence technical standards, even though there are many that should have been discontinued because of their date of expiration.

The Certification System has not yet recognized the international systems used by companies such as Microsoft.⁴⁷ Moreover, the expense of assessment and certification has concentrated certification on CONALEP students and workers and employees in big enterprises, leaving aside medium and small enterprises as well as independent workers. It is also the case that formal qualifications have retained their position in the market: “In Mexico the status of qualifications that indicate competences required in work are overshadowed in terms of social currency by more academic qualifications.” (OECD, 2008, p. 16)

The lack of transparency of standards, the changes in procedures and the complexity of regulation has resulted in a situation where everyone interprets them differently. This had led to uneven quality of standards, assessment instruments, assessment processes and modular course design and also to differential quality in courses and certificates based on the same standard. Furthermore, most of the standards that have been developed across all three generations have not been used at all. In the lifetime of CONOCER, only 20 per cent of the standards developed have actually been used to assess and certificate. In the case of competence based courses, during the PMETyC era, around 10 per cent of standards were used while in the ProFoRHCom different education institutions have increased their use of official labour competence standards whilst continuing to generate their own. Unused qualifications represent a wastage of all kinds of resources not only for the Mexican government but also for the stakeholders.

Another big problem is that the proposed information system has not become a reality. This problem has resulted in limited system communication, lack of transparency of standards and reduced use of the standards in education, training and labour competence assessment and certification. The market scarcely ratifies the labour competence standards and the competence-based courses because they are not widely known among employers. (SEP-SEMS-ProFoRHCom, 2009)

As the World Bank reported, in the Technical Education and Training Modernization Project (PMETyC), there were no outcome indicators by which to measure and evaluate impact from 1995 to 2003 and upon which to base value judgments and recommendations for corrective action and improvement. Moreover, it was not clear what stakeholder expectations were in terms of the qualifications framework, the use of standards and the reform of technical education and training. The results of the first project were not satisfactory for the funder. The situation worsened because of the lack of legal status of the Council for Standardization and Certification of Labour Competence (CONOCER).

The first phase of the Multiphase Skills-Based Human Resources Development Programme benefited from clear outcome indicators, not only for component B (*Consolidation of the occupational skills standardization and certification system - Labour Competence Standardization and Certification Systems*) but also for component A (Enhancing the relevance of vocational and technical education). Nevertheless, the most significant impacts on and in the labour market could not be measured because of problems with the legal status of the National Council for

⁴⁷ There should be no need to spend money on qualifications like *Document elaboration with computing tools* if Microsoft continuously certifies people and the market prefers those certificates.

Standardization and Certification of Labour Competence (CONOCER) which were not resolved until 2005 and because of the new political orientation the government wanted to give to CONOCER and the new General Director appointment that were not achieved until 2007.

A representative of the most important Mexican worker confederation considers that the competence approach has not permeated the country's education and labour culture. Nor has it permeated the educational sector, because it is too rigid. It has not permeated the employers' sector, because employers have not realized what the added value of recognized labour competence is. Finally, it has not permeated the workers' sector, because they view it with much suspicion and some ignorance and because the approach has not been adequately publicized. One interviewee claimed that Mexican competence culture is poor, but promising. Another argued that the government should pay for workers' certification.

At present, education and training-for-work institutions are trying to cluster the standards and courses in order to develop vocational competences, while CONOCER is making important efforts to gain prestige and to attract the highest level enterprise and trade union authorities to the competence approach. Two new changes are imminent that is hoped will improve the output of the Standardization and Certification Systems. First, the standardization procedures and the accreditation of awarding bodies and assessment centres will be made more flexible so they can serve more candidates. Secondly, international certification systems will be included in the system, starting with Microsoft.

5.3 Positive impacts and experiences

Since the start of the Systems, there have been two outstanding sectors: the electrical industry and tourism, as well as the ILO pilot cases. Certain conditions account for these successes.

According to interviewees, in all successful cases, productivity agreements were signed between the enterprises and the trade unions. Alternative promotion ladders were considered, and training and education were seen as the main factors to enhance quality and productivity. In the ILO cases and in the context of the Electrical Federal Commission 'soft competences' (such as responsibility, team work, respect for the environment, social responsibility) played a leading role.

The above factors were strengthened further by strong communication processes at all stakeholder levels as well as decision making starting at the highest level. Furthermore, attention was not only paid to current competence needs, but to future requirements derived from strategic planning and ten-year projections undertaken at the highest level by joint committees on training and productivity or by high-level employers' chambers and trade union leaders.

These experiences have had different positive impacts, such as credit transfer, educational promotion, labour promotion and mobility, certification portability and increases in self-esteem.

In terms of credit transfer, the Electricity Federal Commission (CFE) has managed to persuade education institutions to accept workers' certificates as credits towards bachelor's and master's degrees and the company to accept university degrees in relation to workers' career pathways. The primary concerns of the CFE are formal education, training and the assessment and certification of workers and employees in the context of a credit accumulation and progression learning and certification route linked to career pathways. The accreditation of competence also embraces international credits that are backed by Mexican institutions. This applies mainly to competences that cannot be developed in Mexico, for example, some aspects of nuclear technology.⁴⁸

Labour promotion is also quite clear in the CFE and in the tourism sector where certificated competence is the first criterion for promotion when there is a vacancy in the same occupational branch or career pathway. Worker mobility among electrical regions or between enterprises of the same tourism group is backed by the certificate a worker possesses whilst due respect is also accorded to labour seniority.

Regarding the portability of certification, attention has already been drawn to the English company that accepted the Mexican certificates of employees in a plaster enterprise that were going to work in England. In this case, informal policy borrowing had a positive impact. There are also some examples of certification portability in the electrical sector. The CFE has to continuously train its specialized welding workers to international standards. Such workers are very well paid in the United States, and Mexican certificates are recognized. Consequently, Mexican specialized welders migrate to the USA at the first opportunity. In another instance, the CFE has sent eight radiation protection technicians to South Africa who had been certified in the United States and who have had significant experience in Mexico.⁴⁹

It is important to emphasize that trade union leaders in the sectors that have used the competence approach consider that certification has a positive impact on self esteem and employability. Interviewees cited employer preferences for certificated workers. Workers' (and their families') self esteem rises when they discover that they can utilize knowledge they have acquired through experience towards certification. The surfacing of tacit knowledge also has a positive impact on self esteem especially in the context of lower level qualifications. The introduction of objective ways to assess and certificate people who have learnt outside of school or the formal education system is an important motivating factor:

Clearly individuals are motivated to learn more when self-belief rises as a result of accreditation; there is value in finding ways that make people realize they have knowledge, abilities, skills and competences that are amenable to accreditation. (OECD, 2008, p. 27)

⁴⁸ For instance General Electric certifies radiation protection technicians and in Mexico the Commission of Safety and Security issues their licenses under the supervision of the Atomic Energy International Organization. These are recognized by the CFE for employability and career pathway purposes.

⁴⁹ This need for permanent training is certainly a resource problem, but at the same time it promotes pride in the quality of workers on the part of the trade union.

6. Final comments

The Mexican case clearly demonstrates that an orientation process must be followed before adopting or restructuring a qualifications framework or standard system, even if it is partial. Such a process should start with a clear and precise problem and needs analysis, in order to weigh up the advantages, disadvantages and possibilities of this policy instrument as a potential solution (Tuck, 2007, pp. 11-14). If the framework is not going to improve individual assets and increase opportunities for people to have a better quality personal and working life, it is not worth spending scarce resources on this new tool (Cartagena, 2009).

If a qualifications framework is really needed, planning should be medium and long term,⁵⁰ especially when dealing with bureaucratic education institutions. A careful step by step strategy complemented by other policy instruments should be designed before beginning a reform (Tuck, 2007). The strategy should state priorities in accordance with productive sectors' present and future needs and country economic vision, and should focus on levels where the majority of the labour force is concentrated.

If a comprehensive framework is considered in a country like Mexico, it should be statutory and enshrined in law as is the case in Spain and France, taking full account of the characteristics of the national educational system. Strong stakeholder dialogue and participation is a prerequisite. If the framework is going to deal only with workplace-based training, it should be directly connected to productivity and a promotion ladder related to labour competence levels and career pathways. If it will also be related to training-for-work, it should be guaranteed that certificates will be valued by the labour market and will increase the employability of those who are competent to enter an occupation. In either case it should be a policy learning dynamic framework rather than based on policy borrowing.⁵¹

So far, the Mexican labour competence standardization has been quite artificial and consequently corresponding certificates are not highly valued in the labour market. Until standardized qualifications truly express enterprises' needs to recruit workers or assign them better salaries or occupations, assessment and certification will not become a worthwhile process. Moreover, in this context, CONOCER and awarding bodies are not recognized by the main productive sectors even though do need meaningful certificates. Likewise, education institutions also need meaningful standards upon which to base the specific competence-based modular courses that are common to different education institutions, which subsequently allow students horizontal mobility and opportunities for vertical learning progression.

⁵⁰ "...the insight that NQFs are dynamic entities, whose introduction is a lengthy process and whose impacts will only emerge over time, carries a further implication: that it will take a long time to assemble an adequate evidence base on their implementation and impact." Raffe, 2009, p. 2)

⁵¹ "Policy learning is a broader concept which recognises that cross-national comparison may serve a variety of policy-related purposes including understanding one's own ET system better by contrasting it with other systems, identifying common trends and pressures, clarifying alternative policy strategies and identifying practical issues likely to be raised by each strategy. ... Policy learning is associated with constructivist models of learning by policy-makers and aims to help policy-makers devise their own country-specific solutions rather than import solutions from elsewhere..." (Raffe, 2009, p. 3).

A qualifications authority such as CONOCER has to design an aggressive campaign to reach leaders in the productive sectors and trade unions, on the basis of a strategy that is firmly located in the educational and training, political, social and economic context. In the middle of a recession, employers and workers have immediate concerns, and will not be interested in standards and certificates unless they are convinced of the benefits to be gained from investing time and money in the associated processes. The Standardization and Certification Systems will be successful if employers, workers, students and education institutions are aware of their potential value and their relationship to other measures designed to improve workers' productivity in decent jobs. Promotion should take into account not only the real advantages of meaningful certification, but also the minimization of barriers such as cost and time.

The new world trend is to transit to a qualifications framework that prioritizes the concept of measuring a person's levels of competence, knowledge and skills against objective parameters, alongside learning from the productive sectors about the kind of standards and certification they really need. It is entirely appropriate to continue with a Multiphase Skills-Based Human Resources Development Programme that emphasizes the importance of homogeneous and orderly implementation by all participating agencies (SEP-SEMS-ProFoRHCom, 2009). If there were to be new reforms hard lobbying processes would be necessary to build on what has already been done.

Acronyms⁵²

BC	British Council
CBE	Skills-based Education
CE	Assessment Centre
CGEBC	General Coordination of Competence-Based Education
CIDEC	Economy, Employment and Vocational Qualifications Research and Information Centre
CONAPO	National Population Council
CONALEP	National College of Professional Technical Education
CONOCER	National Council for Standardization and Certification of Labour Competence
COSDAC	Sector Coordination for Academic Development
COSNET	Council of the Technological Education National System
DGB	General Directorate of Baccalaureate
DGCCT	General Directorate of Training for Work Centres
DGCP	General Directorate of Training and Productivity
DGE	General Directorate of Employment
DGECyTM	General Directorate of Education on Marine Science and Technology
DGETA	General Directorate of Agricultural Technological Education
DGETI	General Directorate of Industrial Technological Education
DGESU	General Directorate of Higher Education
DGPPP	General Directorate for Planning, Programming and Budgeting of Secretariat of Public Education
GDP	Gross Domestic Product
IADB	Inter-American Development Bank
INEGI	National Institute of Statistics, Geography and Information Technology
IPN	National Polytechnic Institute
NAFIN	National Financing Entity
NAFTA	North American Free Trade Agreement
NTCL	Labour Competence Technical Standard
NVQ	National Vocational Qualifications

⁵² By acronyms in Spanish.

OC	Awarding Body
OECD	Organization for Economic Cooperation and Development
PMETyC	Technical Education and Training Modernization Project
PI or PU	Polytechnic Institutes (Universities)
PROBECAT	Labor Fellowship Retraining Programme
ProFoRHCom	Multiphase Skills-Based Human Resources Development Program
SCIAN	North American Industry Classification System
SEN	National Educational System
SEP	Secretariat of Public Education
SHCP	Secretariat of Finance and Public Credit
SCCL	Labour Competence Certification System
SEIT	Under-Secretariat of Technological Education and Research
SEMS	Under-Secretariat of Upper Medium Education
SICAT	Training for Work System
SICNO	Occupation National Catalogue Information System
SNCCCL	Labour Competence Standardization and Certification Systems
SNCL	Labour Competence Standardization System
SPC	Under-Secretariat of Planning and Coordination
STPS	Secretariat of Labour and Social Welfare
UP	Polytechnic Universities
UT	Technological Universities
UAPMETyC	Administrative Unit of the Technical Education and Training Modernization Project
UCAP	Programme Management and Coordination Unit
UNAM	Mexico Autonomous National University

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Appendix 1. Tables

Table 1. Student enrolment per level 2000-2001/2007-2008

SCHOOL CYCLE SERVICE	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Grow rate
Pre-school	3,423,608	3,432,326	3,635,903	3,742,633	4,086,828	4,452,168	4,739,234	4,745,741	38.6%
Primary school	14,792,528	14,843,381	14,857,191	14,781,327	14,652,879	14,548,194	14,585,804	14,654,135	-0.9%
Secondary school	5,349,659	5,480,202	5,660,070	5,780,437	5,894,358	5,979,256	6,055,467	6,116,274	14.3%
Technological education	361,541	356,251	359,171	359,926	362,835	357,199	352,511	358,627	-0.8%
Baccalaureate	2,594,242	2,764,224	2,936,101	3,083,814	3,185,089	3,301,555	3,390,432	3,471,415	33.8%
Teacher bachelor's degree	200,931	184,100	166,873	155,548	146,308	142,257	136,339	132,084	-34.3%
Bachelor's degree	1,718,017	1,830,502	1,931,631	2,023,604	2,087,698	2,150,562	2,230,322	2,317,001	34.9%
Post-graduate degrees	128,947	132,473	138,287	143,629	150,852	153,907	162,003	174,282	35.2%
Training for-work	1,051,702	1,092,299	1,232,843	1,179,676	1,121,275	1,227,288	1,304,471	1,366,199	29.9%
T O T A L	29,621,175	30,115,758	30,918,070	31,250,594	31,688,122	32,312,386	32,956,583	33,335,758	12.5%

Source: DGPPP-SEP. Statistics from the beginning of the school cycle.

Table 2. Plans, programmes and training diplomas according to enterprise size 1978-2003

Enterprise size per number of workers	Plans and programmes			Training diplomas issued	
	Registered	Enterprises	Workers	Enterprises	Training certificates
1 to 15	157,504	155,779	667,325	32,679	389,652
16 to 100	83,974	47,717	1,854,515	49,994	4,631,514
101 to 250	19,065	9,164	1,454,950	18,669	3,836,805
More than 250	16,690	7,071	6,662,999	24,977	21,555,09
Not specified	3,883	2,684	0	31	0
Total	281,116	182,415	10,639,789	126,350	30,413,065

Source: Secretariat of Labour and Social Welfare-DGCP. 2.9.

Table 3. Registered plans and programmes, trained workers and delivered training diplomas 1998-2008

Year	Registered programs	Participant workers	Delivered diplomas
1998	19,057	1,945,546	2,465,631
1999	19,109	2,143,476	3,032,552
2000	18,068	2,336,248	3,962,245
2001	19,169	2,297,155	4,999,825
2002	17,516	2,345,265	5,658,654
2003	21,106	2,363,779	5,485,757
2004	19,807	2,745,476	6,360,686
2005	20,394	2,357,963	7,483,146
2006	18,069	2,319,863	7,421,592
2007	20,993	2,760,382	8,221,332
2008	21,875	3,015,845	9,236,752
Total	215,163	26,630,998	64,328,172

Source: Secretariat of Labour and Social Welfare-DGCP-SICAPE. 2.4

Table 4. Approved labour competence qualification technical standards per area and level. 1996-2003

Area \ Level	Farming, food, agriculture and forestry	...	Mining	Construction	Technologies	Telecommunications	Manufacturing	Transportation	Selling goods and services	Finance and administration services	Health and social protection	Communications	Knowledge development	Total
5					1				3	1				5
4	2		2	4	1	1	4	3	8	8	1		1	31
3	22		5	23	15	13	30	11	23	13	11	2	2	151
2	45		29		62	5	111	17	44	12	14	10		372
1	6		4		2		22	2	4		1	1		42
Total	75		40	27	81	19	167	33	82	34	27	13	3	601

Source: CONOCER.

The areas that had qualifications in all levels were *Technologies* and *Selling goods and services*. The ones that had in four levels from 1 to 4 were *Farming, agriculture and forestry*; *Mining*; *Manufacturing*; *Transportation*; and *Health and social protection*. The area with four levels from 2 to 5 was *Finance and administration services*. *Telecommunications* had in levels 2, 3 and 4. *Communications* had in levels 1, 2 and 3. And the ones with levels 3 and 4 were *Construction* (in spite it is a strategic area and has many two level workers) and *Knowledge development*.

Table 5. Labour competence unit certificates issued per area and level. 1998-2003

Area \ Level	Farming, food, agriculture and forestry ...	Mining	Construction	Technologies	Telecommunications	Manufacturing	Transportation	Selling goods and services	Finance and administration services	Health and social protection	Communications	Knowledge development	Total
5				26				6,202					6,228
4				18		48		231	9,228			8	9,533
3			77	230	131	3,574	556	11,207	395	644		7,484	24,298
2	11,371	8,200	908	6,318		5,913	9,618	32,077	83,846	10,872	3,002		172,125
1	4,539	4,018				30,214	1,019	4,308					44,098
Total	15,910	12,218	985	6,592	131	39,749	11,193	54,025	93,469	11,516	3,002	7,492	256,282

Source: CONOCER.

Table 6. First and second generation qualifications in force up to 2009

Area \ Level	Farming, food, agriculture and forestry ...	Mining	Construction	Technologies	Telecommunications	Manufacturing	Transportation	Selling goods and services	Finance and administration services	Health and social protection	Communications	Knowledge development	Total
5				1				4	1				6
4	2	3	1	2	1	4	3	8	7	1		1	33
3	19	5	4	20	13	27	11	19	13	7	2	4	144
2	47	29	23	65	5	111	16	33	15	15	10		369
1	6	4		2		22	2	4		2	1		43
Total	74	41	28	90	19	164	32	68	36	25	13	5	595

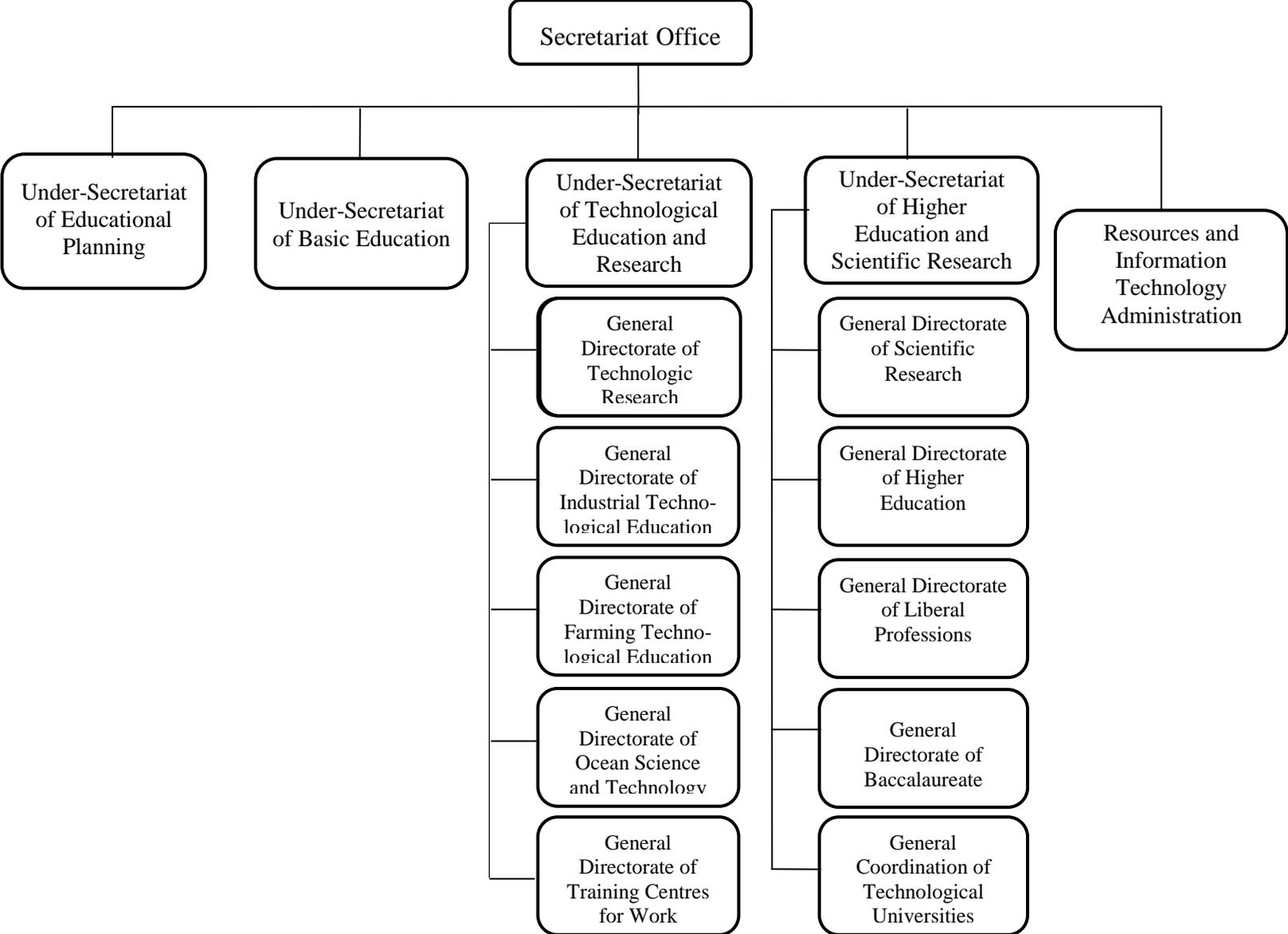
Source: CONOCER.

Table 7. Third generation labour competence technical standards per sector and level. 2006-2009

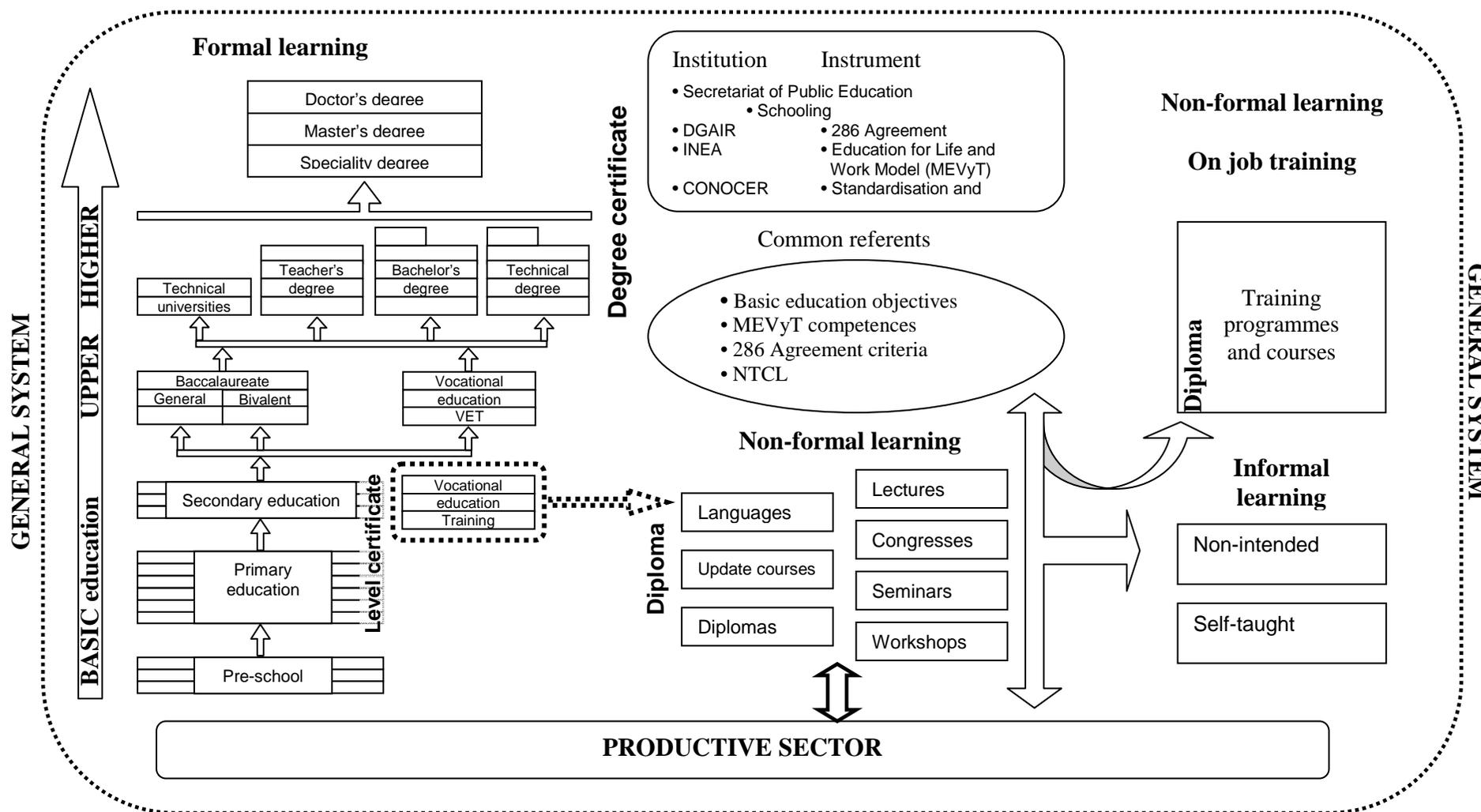
Sector \ Level																		Total				
	Agriculture, forestry, fishing and hunting	Mining, quarrying, and oil and gas extraction	Utilities (electric power, water and gas ...)	Construction	Manufacturing	Wholesale trade	Retail commerce	Transportation, postal service and storage	Information and mass media	Finance and insurance	Real estate and rental and leasing	Professional, scientific, and technical services	Management of companies and enterprises	Administrative and support and waste ...	Educational services	Health care and social assistance	Arts, entertainment, recreation and sports ...	Accommodation and food services	Other services (except public administration)	Public administration		
5																						0
4												1		2	1						1	5
3							1	1				2			4	3		3		3	17	
2					2		7		1	1	2	2		3	1	8		7	3		37	
1																				1		1
Total	0	0	0	0	2	0	8	1	1	1	2	5	0	5	6	1	1	0	10	4	4	60

Source: CONOCER.

Appendix 2. 1995 SEP simplified organogram



Appendix 3. National qualifications system in Mexico



Source: Morfin, 2002, p. 53.

Appendix 4. Participant responsibilities

Participant	Responsibility
CONOCER	<ol style="list-style-type: none"> 1. Registration and assistance of lead bodies. 2. Registration of new labour competence technical standards developed by lead bodies. 3. Negotiation of project commission participation. 4. Signing of collaboration agreements with project commissions. 5. Accreditation of awarding bodies. 6. Quality assurance of awarding bodies. 7. Issuing of labour competence certificates, authorized by the Secretariat of Public Education requested by awarding bodies. 8. Technical assistance to train personnel for: 9. Standard (labour competence technical standard) development and selection. <ol style="list-style-type: none"> 9.1. Curriculum and training materials development on the labour competence approach. 9.2. Training on the labour competence approach. 9.3. Assessing of labour competence against labour competence technical standards. 9.4. Quality assurance verification. 10. Production of multimedia advertising and printed for social marketing among economic sectors. Maintenance of the Integral Information System about the Standardisation and Certification Systems. 11. Development of follow up studies on the programme advance.
Lead bodies	<ol style="list-style-type: none"> 1. Developing and updating of labour competence technical standards by entrepreneurs and unions. 2. Presentation of new labour competence technical standards to CONOCER in order to be published in the Federal Oficial Diary and registered in the Standardisation System. 3. Approval of labour competence technical standards use by project commissions.
Awarding bodies (private third party organisations accredited by CONOCER that generally award other certifications like ISO)	<ol style="list-style-type: none"> 1. Accreditation of assessment centres. 2. Quality assurance of assessment centres. 3. Documentation of candidates' assessment. 4. Processing of certificates requested by assessment centres. 5. Delivery and control of certificates.
Assessment centres (private or public organisations accredited by an awarding body)	<ol style="list-style-type: none"> 1. Construction of assessment instruments. 2. Selection and training of assessors. 3. Registration of candidates. 4. Integration and maintenance of candidate files. 5. Assessment of candidates. 6. Request of certificates for candidates the get a favourable report. 7. Internal quality assurance. 8. Assistance for candidates and training.

Source: Anda and Martínez, 2006, p. 33.

Appendix 5. Labour competence level descriptors

Level	Description
5	Competence that involves the application of a range of fundamental principles and complex techniques, across a wide and often unpredictable variety of contexts. High degree of personal autonomy. Frequent responsibility for the allocation of resources. Responsibility for analysis, diagnosis, design, planning, execution and evaluation.
4	Competence in a broad range of complex, technical or professional work activities performed in a variety of contexts. High degree of personal responsibility and autonomy. Responsibility for the work of others Occasional responsibility for the allocation of resources.
3	Competence in a broad range of varied work activities performed in a wide variety of contexts, most of which are complex and non-routine. There is considerable responsibility and autonomy. Control or guidance of others is often required.
2	Competence in a significant range of varied work activities, performed in a variety of contexts. Some of the activities are complex or non-routine. Responsibility and autonomy are low. Collaboration with others is often required or through a work group or team.
1	Competence in the performance of a small range of varied work activities. Routine and predictable activities are predominant.

Source: CONOCER, 1996 and SEP-STPS-CONOCER, 2000.

Appendix 6. Most-used qualifications 1998-2003

No	Title	Level	Number of certificates	%
1	Document elaboration with computing tools.	2	76,078	29.7
2	Tailoring pieces preparation.	1	14,756	5.8
3	Garment pieces assembling.	1	11,383	4.4
4	Fire and rescue services.	2	9,889	3.9
5	Good selling in department stores.	2	8,786	3.4
6	Training course design and delivery.	4	7,620	3.0
7	Medicine serving and dealing in drug stores.	3	7,549	2.9
8	Transaction register and cashing in retail commerce.	2	6,583	2.6
9	General consultancy.	5	6,202	2.4
10	Public collective transport driving.	2	5,119	2.0
11	Customer support by means of documentary information.	2	5,043	2.0
12	Service request attention on electrical energy supply and re-establishment.	2	4,698	1.8
13	Public individual transport driving.	2	4,437	1.7
14	Transformation of vapour into thermal energy and mechanical work	1	4,018	1.6
15	Food preparation	2	3,965	1.5
16	Restaurant customers service	2	3,950	1.5
17	Prevention, detection and forest firefighting	1	3,715	1.4
18	Plant cultivation	2	3,554	1.4
19	Training course providing	3	3,326	1.3
20	Tractor operation with farming, mechanical and hydraulic implements	2	3,314	1.3
21	Electrical energy distribution network maintenance	2	3,120	1.2
22	Mechatronic equipment assembling	1	2,987	1.2
23	Refraction examination practice	3	2,356	0.9
24	Printed matter reproduction according to offset imprint system	2	1,891	0.7
25	Candidate labour competence assessment referred to labour competence technical standards.	3	1,540	0.6
26	<i>Tortilla</i> (Mexican basic corn flour kind of bread. <i>Arepa</i> in other countries) production.	2	1,342	0.5
Total			207,221	80.7

Source: CONOCER, 2003.

Appendix 7. The Integral Reform of Upper Medium Education La Reforma Integral de la Educación Media Superior (RIEMS)

The Integral Reform of Upper Medium Education (RIEMS) is a response to the problem originated by the independent different services operation, without an articulation and equivalences among them. It also considers international trends on this level education in the European Union, particularly France, and Latin American countries like Chile and Argentina. Three Reform characteristics are outstanding:

- Emphasis in key competences.
- Enriched and loosened curriculum.
- Learning centered educational process.

The Integral Reform has three basic principles.

- National recognition of all upper medium educational services that must turn coherent the diversity of curriculum design among all open or school services.
- Relevant curriculum according to student needs and characteristics, as well as productive sectors requirements.
- Free transit among services and schools because of portability of studies.

According to this Reform, upper medium education has a common curriculum framework for all education institutions and services. It leads to achieve outcome performances expressed in terms of competences, understood as “the set of specific and transversal knowledge, abilities and skills that a graduate must possess in order to respond to social requirements.”⁵³ New curriculum exit profile is expressed in three types of competences that are interrelated:

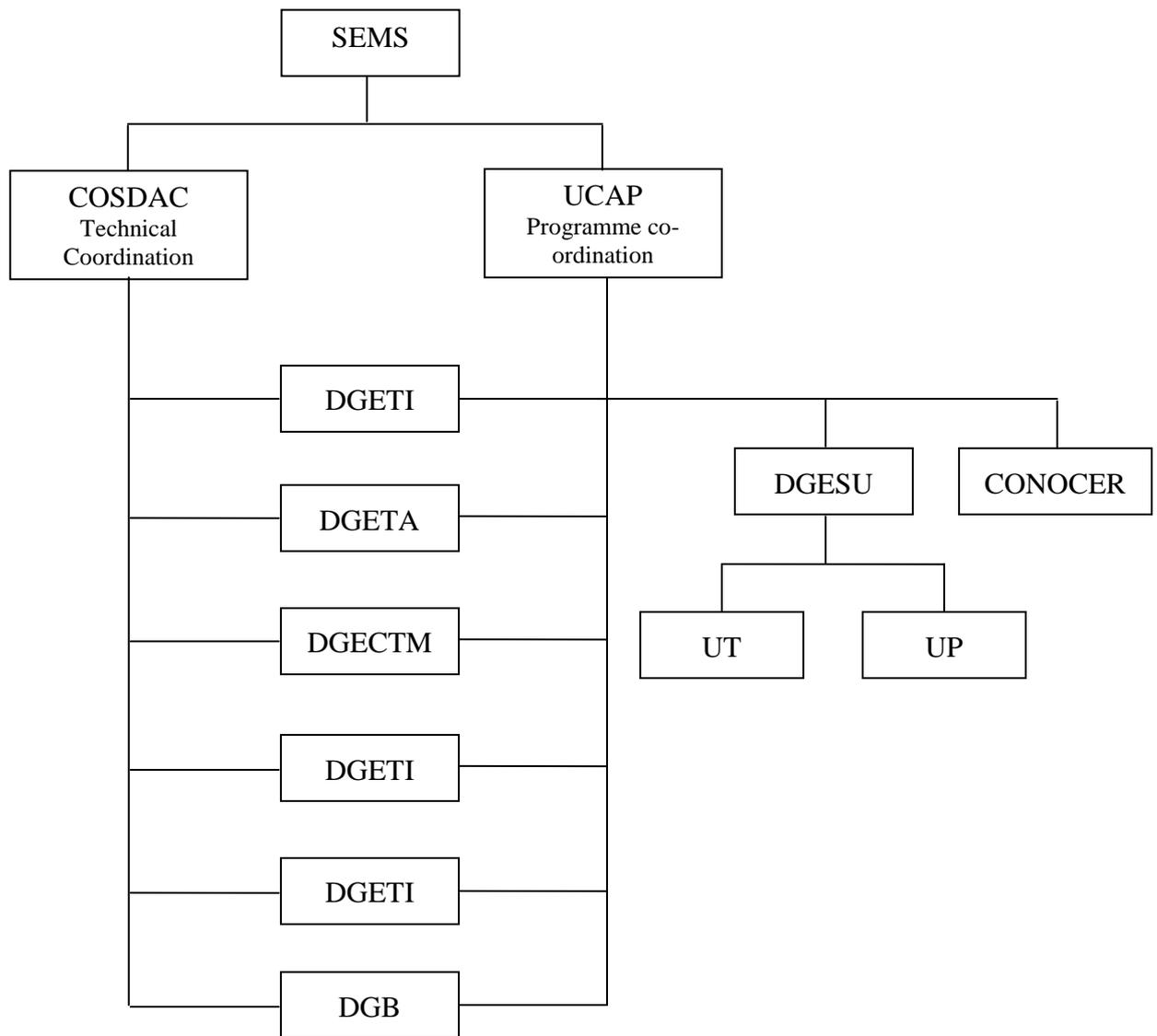
- General key competences that are transversal, such as communication, team work, self-determination, self-care, and so on.
- Subject competences and knowledge, such as reading comprehension, writing, oral expression; numeric skills, and so on.
- Vocational competences, according to the general directorate and school specialty, such as maintaining control circuits, food preparation, plant cultivation, and so on. These competences are the ones that are intended to be developed by labour competence technical standards-based modular courses.

The new curriculum structure considers three components according to competences:

- Basic education that is common to all schools and specialties and represents 40% of the time. It tends to students transfer among different institutions.
- Propaedeutic education with courses needed to enter higher education that takes 20% of the time.
- Vocational education that is specific of each specialty and takes 40% of the time. This component is organized in five modular labour competence-based courses.

Source: SEMS, 2008, p. 50.

Appendix 8. Governance of ProFoRHCom



Source: UCAP.

Appendix 9. Most-used qualifications 2006-2009

Standard	Level	Number of certificates	%
1. Document elaboration with computing tools.	2	44,940	37.0
2. Advising on housing credit*	2	15,368	12.6
3. Children care in child care centres**	2	9,193	7.6
4. Training course face to face providing**	3	6,931	5.7
5. Training course designing and providing**	4	5,851	4.8
6. Customer support by means of documentary information.	2	3,262	2.7
7. Basic life support and first aid	2	3,091	2.5
8. Face to face training courses design, its assessment instruments and educational materials**	3	2,179	1.8
9. Candidate labour competence assessment referred to labour competence technical standards.	3	2,002	1.6
10. Assessment process internal verification as set by the Labour Competence Certification System	3	1,741	1.4
11. Training course designing and providing	4	1,702	1.4
12. Gasoline engines tuning with injection system	2	1,343	1.1
13. Broker representation in acts and formalities of customs clearance	4	1,255	1.0
14. Maintaining control circuits	2	1,084	0.9
Sub-total		99,942	82.2
Others		21,647	17.8
Total		121,587	100.0

*Includes second and third generation labour competence standards.

**Third generation standards.

Source: CONOCER, 2009.