

MEXICO

**MULTIPHASE SKILLS-BASED HUMAN RESOURCES
DEVELOPMENT PROGRAM, PHASE I**

(ME-0250)

LOAN PROPOSAL

This document was prepared by the project team consisting of Juan Carlos de la Hoz, RE2/SO2, Project Team Leader; Astrid Bucio (COF/CME); Amelia Cabrera (RE2/SO2); Paulina González-Pose (RE2/SO2); Javier Jiménez-Mosquera (LEG/OPR); Kleber Machado (RE2/SO2); Consuelo Ricart (COF/CME); Deni Sánchez (RE1/SO1); and Nelson Hernández, Roberto Flores Lima, and Oswaldo Giordano, consultants.

CONTENTS

EXECUTIVE SUMMARY

| | | |
|------|--|----|
| I. | FRAME OF REFERENCE..... | 1 |
| A. | Socioeconomic framework..... | 1 |
| B. | The education sector | 1 |
| 1. | Occupational skills standards | 4 |
| 2. | Developments among educational players with regard to the creation of NTCL..... | 9 |
| C. | Program strategy | 10 |
| D. | Mexico's sector strategy | 11 |
| E. | Bank strategy in the country and the sector and lessons learned..... | 12 |
| F. | Coordination with other donors..... | 13 |
| II. | THE PROGRAM | 14 |
| A. | Objectives and description..... | 14 |
| B. | Program structure and description..... | 14 |
| 1. | Component 1. Enhancing the relevance of vocational and technical education..... | 15 |
| 2. | Component 2. Consolidating the SNCCL | 18 |
| C. | Cost and financing | 20 |
| III. | PROGRAM EXECUTION..... | 22 |
| A. | Borrower, guarantor, and executing agency | 22 |
| B. | Program execution and management | 22 |
| 1. | Execution of Component 1. Enhancing the relevance of technical and vocational education | 25 |
| 2. | Execution of Component 2. Consolidating the SNCCL | 26 |
| C. | Procurement of goods and services..... | 28 |
| D. | Execution period and disbursement schedule..... | 29 |
| E. | Monitoring and evaluation..... | 30 |
| F. | Retroactive financing and reimbursement of expenditures..... | 31 |
| G. | External program audit | 32 |
| IV. | VIABILITY AND RISKS..... | 33 |
| A. | Institutional viability | 33 |
| B. | Socioeconomic viability and benefits | 33 |
| C. | Financial viability..... | 35 |
| D. | Environmental impact..... | 35 |
| E. | Risks | 35 |

ANNEXES

| | |
|----------|-------------------|
| Annex I | Logical framework |
| Annex II | Procurement plan |

BASIC SOCIOECONOMIC DATA

For basic socioeconomic data, including public debt information, please refer to the following address:

<http://ops.iadb.org/idbloans/>

<http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata>

INFORMATION AVAILABLE IN THE RE2/SO2 TECHNICAL FILES

Preparation:

Roberto Flores-Lima. Technical and economic studies for the development of Technical Occupational Skills Standards in four priority sectors.

Oswaldo Giordano. Monitoring and evaluation of the skills-based human resources development program.

Nelson Hernández, et al. Financial study and execution plan for the skills-based human resources development project.

Execution:

Program monitoring matrix

Program execution plan

Terms of reference. Study on graduate follow up

Terms of reference. Design of a graduate follow-up system

Terms of reference. Midterm program evaluation

Terms of reference. Final program evaluation

ABBREVIATIONS

| | |
|---------|---|
| ANFAD | National Appliance Manufacturers Association |
| AWP | Annual work plan |
| CA | Certification agency |
| CBE | Skills-based education |
| CODIPRO | Program Executive Committee |
| COF/CME | Bank's Country Office in Mexico |
| CONALEP | Colegio Nacional de Educación Profesional Técnica [National System for Technical Vocational Education] |
| CONOCER | Consejo de Normalización y Certificación de Competencias Laborales [Occupational Skills Standardization and Certification Council] |
| DGB | Dirección General del Bachillerato [General Directorate for <i>Bachillerato</i>] |
| DGCFT | Dirección General de Centros de Formación para el Trabajo [General Directorate for Career Education Centers] |
| DGECyTM | Dirección General de Educación en Ciencia y Tecnología del Mar [General Directorate for Education in Science and Marine Technology] |
| DGES | Dirección General de Educación Superior [Directorate for Higher Education] |
| DGETA | Dirección General de Educación Tecnológica Agropecuaria [General Directorate for Agricultural Technology Education] |
| DGETI | Dirección General de Educación Tecnológica Industrial [General Directorate for Industrial Technology Education] |
| EC | Evaluation centers |
| GDP | Gross domestic product |
| IIS | Integrated Information System |
| INEGI | Instituto Nacional de Estadística, Geografía e Informática [National Institute of Statistics, Geography, and Computer Science] |
| IS | Institutional Standards |
| MIF | Multilateral Investment Fund |
| NAFIN | Nacional Financiera, S.N.C. |
| NTCL | Technical Occupational Skills Standards |
| OC | Ordinary Capital |
| PI | Polytechnic Institute |
| PMCU | Program Management and Coordination Unit |
| PMETyC | Proyecto de Modernización de la Educación Técnica y de la Capacitación [Technical Education and Training Modernization Project] |
| PRONAE | Programa Nacional de Educación [National Education Program] |
| PTI | Poverty-targeted investment |
| SEIT | Undersecretariat for Education and Technological Research |
| SEP | Ministry of Public Education |
| SNCCCL | Occupational Skills Standardization and Certification System |
| TEA | Technical executing agency |
| TI | Technological Institute |



Inter-American Development Bank
Regional Operations Support Office
Operational Information Unit

Mexico

Tentative Lending Program

2004

| Project Number | Project Name | IDB US\$ Millions | Status |
|--------------------------|--|-------------------|----------|
| ME0253 | Demonstrative management models potable water and sanitation | 10.0 | APPROVED |
| * ME1003 | Hipotecaria Nacional- Mortgages Asset Backed Security | 75.0 | APPROVED |
| ME0250 | Competency based multiphase program to support human resources development | 50.4 | |
| ME1002 | Technology to support Education (ENCYCLOMEDIA) | 40.0 | |
| ME0255 | Urban Poverty Reduction and Evaluation (Multiphase) | 350.0 | |
| ME0259 | Public Financial System Consolidation | 300.0 | |
| Total - A : 6 Projects | | 825.4 | |
| TOTAL 2004 : 6 Projects | | 825.4 | |

2005

| Project Number | Project Name | IDB US\$ Millions | Status |
|---------------------------|--|-------------------|--------|
| ME1007 | Oportunidades Human Development Program | 800.0 | |
| ME0212 | Potable Water and Sanitation in Rural Areas II | 200.0 | |
| Total - A : 2 Projects | | 1,000.0 | |
| ME0240 | Small Exporters Finance Program | 300.0 | |
| ME0245 | Health and Pension for Government Workers | 300.0 | |
| ME0257 | Irrigation District Technification | 80.0 | |
| ME0251 | Modernization and Reform Water Sector | 200.0 | |
| ME1004 | Training and Employment Support Program Phase II | 300.0 | |
| Total - B : 5 Projects | | 1,180.0 | |
| TOTAL - 2005 : 7 Projects | | 2,180.0 | |

Total Private Sector 2004 - 2005 75.0
Total Regular Program 2004 - 2005 2,930.4

* Private Sector Project



MEXICO

IDB LOANS APPROVED AS OF JULY 31, 2004

| | US\$Thousand | Percent |
|---|-------------------|---------|
| TOTAL APPROVED | 16,974,890 | |
| DISBURSED | 15,251,895 | 89.84 % |
| UNDISBURSED BALANCE | 1,722,995 | 10.15 % |
| CANCELATIONS | 1,274,603 | 7.50 % |
| PRINCIPAL COLLECTED | 7,872,016 | 46.37 % |
| APPROVED BY FUND | | |
| ORDINARY CAPITAL | 16,360,095 | 96.37 % |
| FUND FOR SPECIAL OPERATIONS | 558,986 | 3.29 % |
| OTHER FUNDS | 55,810 | 0.32 % |
| OUTSTANDING DEBT BALANCE | 7,379,879 | |
| ORDINARY CAPITAL | 7,338,351 | 99.43 % |
| FUND FOR SPECIAL OPERATIONS | 24,864 | 0.33 % |
| OTHER FUNDS | 16,664 | 0.22 % |
| APPROVED BY SECTOR | | |
| AGRICULTURE AND FISHERY | 4,216,379 | 24.83 % |
| INDUSTRY, TOURISM, SCIENCE AND TECHNOLOGY | 2,338,294 | 13.77 % |
| ENERGY | 758,545 | 4.46 % |
| TRANSPORTATION AND COMMUNICATIONS | 730,772 | 4.30 % |
| EDUCATION | 641,630 | 3.77 % |
| HEALTH AND SANITATION | 1,676,435 | 9.87 % |
| ENVIRONMENT | 79,569 | 0.46 % |
| URBAN DEVELOPMENT | 955,866 | 5.63 % |
| SOCIAL INVESTMENT AND MICROENTERPRISE | 2,238,942 | 13.18 % |
| REFORM AND PUBLIC SECTOR MODERNIZATION | 2,656,177 | 15.64 % |
| EXPORT FINANCING | 0 | 0.00 % |
| PREINVESTMENT AND OTHER | 0 | 0.00 % |

* Net of cancellations with monetary adjustments and export financing loan collections.



MEXICO

STATUS OF LOANS IN EXECUTION AS OF JULY 31, 2004

(Amount in US\$ thousands)

| APPROVAL PERIOD | NUMBER OF LOANS | AMOUNT APPROVED* | AMOUNT DISBURSED | % DISBURSED |
|-------------------------------|-----------------|--------------------|--------------------|----------------|
| <u>REGULAR PROGRAM</u> | | | | |
| Before 1998 | 2 | 388,400 | 25,331 | 6.52 % |
| 1998 - 1999 | 2 | 691,600 | 584,905 | 84.57 % |
| 2000 - 2001 | 4 | 1,605,000 | 836,609 | 52.13 % |
| 2002 - 2003 | 3 | 1,510,000 | 1,054,875 | 69.86 % |
| 2004 | 1 | 10,000 | 0 | 0.00 % |
| <u>PRIVATE SECTOR</u> | | | | |
| 1998 - 1999 | 1 | 75,000 | 62,827 | 83.77 % |
| TOTAL | 13 | \$4,280,000 | \$2,564,547 | 59.92 % |

* Net of cancellations. Excludes export financing loans.

MULTIPHASE SKILLS-BASED HUMAN RESOURCES DEVELOPMENT PROGRAM, PHASE I

(ME-0250)

EXECUTIVE SUMMARY

Borrower: The United Mexican States

Financial agent: Nacional Financiera, SNC (NAFIN)

Executing agency: Ministry of Public Education (SEP)

| Amount and source: | Phase I | Phase II |
|---------------------------|------------------|-----------------|
| IDB (OC): | US\$50.4 million | US\$ 70 million |
| Local: | US\$33.6 million | US\$ 50 million |
| Total: | US\$84.0 million | US\$120 million |

Financial terms and conditions: The interest rate, credit fee, and inspection and supervision fee mentioned herein are established pursuant to document FN-568-3-Rev. and may be modified by the Board of Executive Directors taking into account the Finance Department's semiannual recommendation. In no case will the credit fee exceed 0.75%, or the inspection and supervision fee exceed 1% of the loan amount.^(*)

| | |
|-----------------------------|---|
| Amortization period: | 25 years |
| Grace period: | 5 years |
| Disbursement period: | Minimum 3 years; maximum 5 years |
| Interest rate: | Adjustable option |
| Credit fee: | 0.25% |
| Inspection and supervision: | 0.0% |
| Currency: | United States dollars (Ordinary Capital—Single Currency Facility) |

^(*) In no event will the inspection and supervision fee exceed, in a given six-month period, the amount that would result from dividing 1% of the loan amount by the number of six-month periods in the original disbursement period.

Objectives: The general objective of the program is to help enhance the employability of workers and technical and vocational education training graduates in Mexico. This general objective will be achieved by pursuing three specific objectives: (i) to enhance the relevance, effectiveness, and quality of technical and vocational education and job training programs; (ii) to promote coordination and potential transferability of students between educational tracks and between learning pathways throughout life; and (iii) to increase the relevance and use of the present Technical Occupational Skills Standards (NTCL) system, by augmenting the number of NTCLs issued and demanded by the nonfinancial sectors and the labor market, and those employed in worker skills recognition, in business human resources management, and as a benchmark for improving the relevance of education programs.

Description: The program will comprise two phases. The first phase will last three years and will center on: (i) consolidating the shift to skills-based technical education program in the different vocational education tracks; (ii) targeting the development of market-based NTCL approach in strategic areas within those nonfinancial sectors that demand standards and certifications and facilitating NTCL market penetration; (iii) helping to improve the relevance of education supply through issuance of a critical mass of benchmarks based on the skills standards used in the nonfinancial sectors that contribute to the objective of enhancing the relevance of study programs; and (iv) disseminating the economic benefits seen by companies that recruit and train personnel with skills certification. The second phase will have a three-year execution period and will build upon the progress made in curriculum transformation in order: (i) to achieve substantial increases in the efficiency, effectiveness, and quality of participating schools; (ii) to expand the universe of strategic business sectors that issue and demand NTCL; and (iii) to complete the transformation in curriculum development and in the individual regulations of the different upper secondary tracks so as to achieve greater coordination and transferability between subsystems. In order to achieve these objectives, the proposed program will finance activities in the following two components:

Component 1. Improving the relevance of technical and vocational training (US\$49.8 million). In order to enhance the relevance, effectiveness, and quality of program offerings in technical and vocational education and job training, the program will encourage the use of standards to drive curriculum changes and will support school-business linkage and vocationally oriented activities. The component will finance activities in three areas: (i) curriculum development; (ii) information and school-business linkage; and (iii) technical support.

Component 2. Consolidation of the Occupational Skills Standardization and Certification System (SNCCL)

(US\$26.2 million). The objective of this component is to get at least 10 nonfinancial sectors to issue and demand NTCL in order to make business human resources management more efficient and to recognize individual skills. The component will finance activities in three areas: (i) the development of worker skills and certification projects in sectors and industries; (ii) monitoring and analysis of outcomes to guide changes to the system of skills; and (iii) social marketing.

The Bank's country and sector strategy:

The Bank's strategy with Mexico centers on four basic elements: (i) modernization of the social sectors (including improvements in education and labor markets) and poverty reduction; (ii) integration; (iii) modernization of the State and subnational decentralization; and (iv) heightened competitiveness by lowering barriers that limit productivity. In the area of education, its lines of activity focus on enhancing efficiency and equity in the delivery of educational services, particularly in upper secondary education, more closely linking the delivery of educational services to the needs of the labor market. The proposed program will develop these lines extensively, from promoting efficiency to seeking greater synchronization between the demands of the nonfinancial sectors and the curriculum changes in upper secondary education.

Coordination with other official development agencies:

This program is based on the lessons learned from the Technical Education and Training Modernization Project (PMETyC) financed by the World Bank. In that regard, the project team participated in the latest PMETyC administrative mission, where the outcomes of the components and some impact assessments were reviewed. The results of that mission have enabled the team to incorporate lessons learned into the project design and have served to boost the benefits obtained (see paragraph 1.46).

Environmental and social review:

The majority of the program's planned activities focus on technical assistance for preparing NTCL, curriculum development, and teacher training, and thus, no direct negative impact on the environment is anticipated. Guidelines established by the NTCL with respect to industrial safety, occupational health, and solid and liquid waste disposal will be observed when purchasing equipment to support the transformation to skills-based education. New NTCL will be created in accordance with existing regulations governing occupational health and will constitute a quality control mechanism for the Standardization Committees. The program will break down tracking information in order to separate outcomes by gender, as is shown in paragraphs 3.35 and 3.36.

Benefits: Program benefits may be demonstrated at two levels. First, the enhanced employability of graduates will make it possible to improve productivity among active workers, their salaries, and the competitiveness of the nonfinancial sectors so that they are better positioned to face the challenges of globalization and the growing demands of trade liberalization. Past experiences show that the introduction of skills-based education modules in the National System for Vocational and Technical Education (CONALEP) offered graduates up to a 45% greater probability of finding employment than graduates of other tracks. Second, lower dropout and repetition rates resulting from curriculum reorganization could lead to a five-point increase in the average internal efficiency of the subsystems, at a rate of one point per year beginning in year three. If efficiency gains translate into lower costs per graduate per year, a seven-year timeline (2004-2005 / 2010-2011) is adopted, and there is a discount rate of 12%, savings benefits would equal approximately US\$410 million.

Risks: There are risks involved in executing the program in terms of coordination among the different executing agencies. The team conducted a stakeholder analysis and has examined the lessons learned from the PMETyC. It is proposing a program execution plan in which technical responsibility falls to the technical executing agencies and crosscutting issues are discussed and agreed upon by the Executive Committee. Additionally, the program seeks to have the nonfinancial sectors take on a leadership role in issuing and using the NTCL. There is a risk of not succeeding in conveying the model's economic benefits and of facing growing apathy from those sectors. The fact that four projects were developed during the program design phase to develop and update NTCL in four of the country's key economic sectors mitigates the initial risk of apathy on the part of the private sector to participate in developing and updating standards. Nevertheless, there will have to be constant dissemination of outcomes as well as social marketing efforts to engage additional sectors and maintain interest.

The fact that the articles of dissolution and agreement for the CONOCER trusts have yet to be signed and that this has been left as a contractual condition for disbursement perpetuates the risk that they will never be signed and that the program will lack one of its technical executing agencies (TEAs). Such an occurrence would seriously jeopardize the execution of the program given the necessary interrelationship between the development of benchmarks and the development of technical education opportunities. High-level representatives of the Government of Mexico have expressed their confidence that the articles will soon be signed based on official minutes reflecting decisions to that effect.

Special contractual clauses:

The following will be conditions precedent to the first disbursement:

- a. The program's Executive Committee has been created and duly formed (see paragraph 3.4).
- b. The executing agency has formed the Program Management and Coordination Unit on terms acceptable to the Bank (see paragraph 3.7).
- c. The Program's operations manual, which includes the Operating Regulations for components 1 and 2, has entered into force as previously agreed with the Bank (see paragraph 3.9).

As a special condition precedent to disbursement of component 2 of the program, the borrower must have set up and provided with the necessary funding, to the Bank's satisfaction and in accordance with the statutory regulations in effect, the new quasigovernmental trust fund or legal entity that will serve as technical executing agency of this component (see paragraph 3.16).

Poverty-targeting and social sector classification:

This operation qualifies as a social equity-enhancing program, as described in the indicative targets for Bank activities in the report of the Eighth Replenishment (document AB-1704). This operation does not qualify as a poverty-targeted investment (PTI) as it does not call for focus on poor geographical areas and fewer than 50% of the beneficiaries of skills-based education are poor.

Exceptions to Bank policy:

See procurement.

Retroactive recognition of expenses:

Approval for retroactive financing of up to US\$9 million from the Bank financing and up to US\$6 million chargeable to the local counterpart funds for expenses incurred beginning 1 July 2003 that have already been analyzed and approved by the Bank is recommended (see paragraph 3.37).

Procurement:

The procurement of goods and related services, and consulting services will be done pursuant to particular Bank policies and procedures in effect. International competitive bidding will be required for the procurement of goods and services when their estimated cost is greater than or equal to US\$350,000. International competitive bidding will also be required when the estimated cost of consulting services is greater than the equivalent of US\$200,000. The procurement of goods and related services in lesser amounts will be governed, in principle, by domestic legislation as long as such

legislation is compatible with Bank policies. No construction works contracts are anticipated under the program.

The foregoing notwithstanding, contracts may be awarded directly: (i) to Instituto Nacional de Estadística, Geografía, e Informática [National Institute of Statistics, Geography, and Computer Science] (INEGI) to conduct surveys during the program, to a maximum of US\$3 million; and (ii) for advertising expenses during the program to a maximum of (1) US\$3 million for television; and (2) US\$1 million for the printed press.

I. FRAME OF REFERENCE

A. Socioeconomic framework

- 1.1 Between the mid-1980s and the late 1990s, the Mexican economy underwent a period of structural changes that transformed a highly protected economy supported mainly by the public sector into a globalized economy driven chiefly by the private sector and linked to the United States and Canada under a free trade agreement. Three consequences stand out: first, the economy grew steadily; second, this produced a shortage of skilled workers to meet the demands of economic liberalization; and finally, modest gains were seen in worker productivity and in private sector productivity in general.
- 1.2 Although the fast pace of economic growth slowed in early 2000, the economy showed signs of recovery last year, and is expected to grow at a rate of close to 3.5% in 2004. While some recent international productivity rankings show that Mexico has not progressed as quickly as some developing economies, both the structural reforms discussed above and the transformations in the educational system set the stage for potential improvements in productivity, and an eventual solution to the inequities in income distribution generated by trade liberalization. The education sector has a fundamental role to play in narrowing the gap in the availability of skilled human resources to help increase corporate productivity in a global environment.

B. The education sector

- 1.3 The Mexican educational system is divided into three levels: basic education, upper secondary education, and higher education, with the levels and tracks shown in Table I-1.

Table I-1
Mexican Educational System

| Basic Education | | Upper Secondary Education | | Higher Education | |
|-----------------|---------------------------------------|---------------------------|-----------------------------------|------------------|--|
| LEVELS | Preschool ages 3 – 5 | TRACKS | General <i>bachillerato</i> | LEVELS | Technical college |
| | Primary school ages 6 – 12 | | Technological <i>bachillerato</i> | | Undergraduate (<i>Licenciatura</i>) |
| | Lower secondary school ages 13 –15 | | Technical vocational education | | Graduate school |

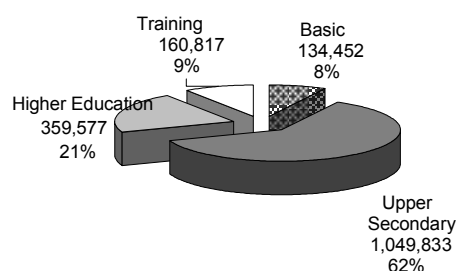
- 1.4 Upon completing basic education, young people may choose to attend upper secondary school, which currently serves 3.1 million young people, with a gross coverage of 49%. Within the universe of upper secondary education, 59.8% of

students attend general *bachillerato*, 28.8% attend technological *bachillerato*, and 11.4% pursue technical vocational studies. Insufficient synchronization between curricula in the various upper secondary tracks and the demands of a changing economy is one of the factors explaining the shortage of skilled workers referred to in the socioeconomic framework section.

- 1.5 From a perspective concerned more with the demands of the nonfinancial sectors and with the labor market, it is important to mention the National System of Technical Education, a subsystem within the Mexican educational system that offers technical education. The System comprises 11 public institutions that provide services at all educational levels: technical secondary education at the basic level; technological *bachillerato* and technical vocational studies at the upper secondary level; and technical college and undergraduate and graduate school at the higher education level. At the training level it provides various types of technical education for the workplace.

- 1.6 Technical education at all these levels serves 1.7 million students each year. Figure I-1 shows the distribution among the various levels: most noticeable is that 62% of students attend upper secondary school; in second place is higher education, which boasts 21% of students; and lastly, basic education and training have shares of less than 8% and 9%, respectively. Few upper secondary schools exist specifically for indigenous areas, since the indigenous population is served primarily by “unitary schools,” which typically combine several primary school grades, and in some instances secondary education as well, in a single classroom. Indigenous students therefore attend the same technical education schools as other students.

Figure I-1. 2002 Enrollment in the Technical Education System



- 1.7 With 62% of enrollment in technical education, upper secondary schools are the most important level when it comes to meeting the demands of the labor market. Yet upper secondary education is facing problems in terms of coverage as well as of quality and relevance, the clearest evidence of which is the low completion rate, at about 58%. Table I-2 shows coverage and completion rates, which are essentially the same for males and females, for the different educational tracks. The annual cost of educating a student varies considerably among the tracks of upper secondary school, from approximately US\$1,300 for technological *bachillerato*, to US\$600

for technical vocational education, all of which create the added problem of cost-effectiveness in the system.¹

Table I-2
Upper Secondary Education (2001-2002)

| Educational Track | Enrollment | Coverage | Drop-out Rate | Completion Rate |
|---|-------------------|-----------------|----------------------|------------------------|
| 2-year general college preparatory <i>bachillerato</i> | 120,069 | 2% | 12% | 73% |
| 3-year general and technological <i>bachillerato</i> | 2,644,155 | 41% | 16% | 59% |
| Technical vocational studies (CONALEP) | 356,251 | 6% | 24% | 49% |
| TOTAL | 3,120,475 | 49% | 17% | 58% |

- 1.8 A series of cross-cutting difficulties contribute to different extents to the problems described. Some of these are: (i) graduates' insufficient mastery of some key skills, such as basic language skills and analytical thinking, which have generally not been part of curricula; (ii) inflexible curriculum rules that make it difficult to transfer between tracks; (iii) a lack of effective instruments for linking schools, teachers, and students with nonfinancial sectors, which would enable them to receive demand signals, process the information, and make decisions about degree programs, areas of specialization, etc.; (iv) minimal, scattered teacher training in the implementation of new curricula; and (v) obsolete equipment, workshops, and laboratories that do not receive proper maintenance, owing to regulations and needs analysis that perpetuate unnecessary purchases instead of encouraging the design and implementation of innovative means of access to relevant, up-to-date technologies.
- 1.9 The public sector is not the only provider of upper secondary education. The private sector share of total school enrollment in Mexico is growing, mainly in response to the slow expansion of the public system and to demand from the nonfinancial sectors for better-trained workers to meet the challenges of economic liberalization. The private sector currently accounts for 19% of enrollment in technological and general *bachillerato*, and 21% of technical education. The Ministry of Public Education (SEP) is only just beginning to classify these private schools and identify their funding sources and the profile of their students.
- 1.10 In the sphere of higher education, the schools that have performed best with respect to the problems in upper secondary education described above are the Technological Institutes (TI) and Polytechnic Institutes (PI). The Polytechnic Institute subsystem was engendered in 2001 in response to the need to expand

¹ Investment in the terminal track of upper secondary education totaled 1.472 billion pesos (US\$147 million). Of the total number of students enrolled (236,856), an estimated 18.9% failed and 16.6% did not complete their studies. Taking into account that the cost per student was US\$600, these repetition and attrition rates generated a loss of US\$520,000.

opportunities in higher education, offering high-quality degree programs that are also relevant to national development, with an emphasis on state and regional development. Which specific polytechnic universities and degree programs are created is determined according to studies of educational supply and demand, on state and regional economic activity, and on the expectations of the nonfinancial sector. These studies also yield the graduate profile desired by the nonfinancial sector, suggest possible lines of research, and point to business needs for training, technical assistance, and technology services, among others. The Technological Institute subsystem came into being in 1991 with the aim of broadening and diversifying higher education opportunities in Mexico, while at the same time providing businesses with graduates with a university-level technical degree whose academic preparation is more relevant thanks to the schools' more practical than theoretical profile.

- 1.11 During the late 1990s, and the first years of the new millennium, some upper secondary schools and the PI and TI subsystems began to modify their curricula, including more hours of practical instruction so as to adapt to the changing demands of the economic environment, and thereby improve their coverage and efficiency indicators. Technical Occupational Skills Standards (NTCL) have played an important role in this regard.

1. Occupational skills standards

- 1.12 In the mid-1990s, the government launched the Technical Education and Training Modernization Project (PMETyC), financed in part by the World Bank. The project was designed with the aim of transforming the system of technical education,² taking more seamless coordination with the needs of the nonfinancial sector as its central focus. As part of the Project, the Consejo de Normalización y Certificación de Competencias Laborales [Occupational Skills Standardization and Certification Council] (CONOCER)³ was created to promote an Occupational Skills Standardization and Certification System (SNCCCL).
- 1.13 The NTCL are meant to establish a “common language” to facilitate interaction between suppliers and consumers in the labor market and in human resources development. The advantage for companies is that with better information regarding job offerings, they can select the worker with the profile best suited to their needs more quickly and at a lower cost. For workers, the advantage is that they have better chances of finding the job that best matches their skills, and hence, of garnering better pay. Providers of upper secondary education, eager for benchmarks from the nonfinancial sectors, find the NTCL to be an ideal tool for enhancing the relevance of curricula.

² Including all tracks of upper secondary education already mentioned, with the exception of general *bachillerato*.

³ Created as a public nongovernmental trust with operational and budgetary flexibility.

- 1.14 Although the PMETyC did achieve the aim of working the concept of occupational skills standards into policy discussions and decisions in the public and private sectors, and about 600 NTCL were issued over five years as a result, the implementation of the system has run into various difficulties and obstacles: (i) the high cost of developing a standard—according to CONOCER, the average cost of developing a standard, including consulting fees and CONOCER’s administrative and operational overhead, is about US\$27,000—although this figure has been falling over the last two years;⁴ (ii) the lack of a strategic focus on skills demanded by the market, needed to ensure the system’s sustainability; (iii) the systems for developing skills standards and the guidelines and requirements for evaluation and certification soon became obsolete as they were driven primarily by public sector experts, while more dynamic, unofficial systems resulting from market advances and the demands of the globalized economy flourished; and (iv) the high costs of evaluating and certifying occupational skills, under the system whereby CONOCER certifies certification agencies (CAs) that issue the certificates of skills after evaluation centers (ECs) evaluate the person’s skills, which in aggregate terms has cost US\$6.1 million. The cost of certification for levels one and two is regulated, but for higher levels, the rate is agreed upon by the CA and the EC, varying on average between 17.5 and 27 days of minimum wage. Not only is the number of standards developed to date relatively small, but also few are used by the nonfinancial sector. This means that in very few cases have the standards recognized by the marketplace been developed fully and completely.
- 1.15 In the framework of this first stage in the development of the standardization and certification system, the aforementioned problems—cost and lack of focus—have militated against the NTCL fully producing the benefits that were the rationale for their creation. The high costs of certification and the development of NTCL that are not backed by market signals have resulted in a lack of economic incentives for workers and employers to pay. Among entrepreneurs and within the State, only those who have identified value in certification have been willing to finance the outlays involved in the massive certification of workers. This explains why in many cases the standards have not been used, in the sense that few workers have become certified. It also explains why it is only in a few segments of the job market that the number of certified workers has surpassed the minimum threshold at which NTCL function as a benchmark to facilitate interactions in the job and education markets.
- 1.16 To overcome the difficulties and obstacles described earlier, the Government of Mexico has decided to pursue the following course of action as the system matures and evolves: (i) to direct CONOCER actions concerned with creating and updating NTCL strictly toward demand from those nonfinancial sectors where significant objective economic benefits can be discerned; and (ii) to keep the institutional framework of the system in place in terms of the roles of CONOCER, the ECs, and

⁴ This figure includes CONOCER’s operating costs, but not necessarily the costs the private sector might incur in developing standards.

the CAs in the medium term, unless the development of the new trust and the new demand-driven focus end up indicating a need to change the course of action.

- 1.17 The Mexican government has made the decision to dissolve the public nongovernmental trust (which is how CONOCER has operated since its inception) in order to set up a new entity with the characteristics of a public trust fund, considered a quasigovernmental agency. The articles of dissolution and agreement have not yet been signed, but officials at the highest level of government are convinced that the process will come to a successful close during the second half of 2004.
- 1.18 As an initial strategy for focusing its efforts, CONOCER has identified four sectors that meet the requirements of presenting a clear-cut economic justification for promoting the development of NTCL in the interest of competitiveness in a globalized economy, and that are also willing to share costs with CONOCER.⁵ These sectors are: (i) household appliance industry; (ii) mining; (iii) tire distribution; and (iv) tourism.
- 1.19 **Manufacture of household appliances.** The makers of household appliances are part of the manufacturing sector, although one of their main strengths lies in providing appliance installation, maintenance, and repair services. The value of appliance production grew at an average annual rate of 8.1% from 1994 to 2002, faster than the average for the manufacturing sector (3.5%); and in the same period, the number of units sold in the domestic market was up by 80%. Exports of electrical appliances expanded by 11.5% annually between 1996 and 2002 and sector sales reached the order of US\$2.5 billion, or 0.42% of the gross domestic product (GDP).⁶ The electrical appliances industry accounts for about 35,000 direct jobs and close to 210,000 indirect jobs at companies that are exclusive suppliers of inputs for the sector. The companies in this industry belong to the National Appliance Manufacturers Association (ANFAD);⁷ the leading companies, among others proposed for this project, are Bosch, Philips, Daewoo, Hamilton, LG Electronics, and Koblenz.
- 1.20 The principal problem facing companies in this industry lies in after-sales services. About 900 authorized service centers offer maintenance services, but there is no

⁵ Specific descriptions of these sectors' characteristics, their size with respect to the country's economy, economic justifications, and investments appear in the sector studies prepared especially for the design of this program in 2004 by the consultant Roberto Flores-Lima. On average, these four sectors contribute four times as many resources as CONOCER.

⁶ Source: Ministry of the Economy, with information from ANFAD and INEGI (National Institute of Statistics, Geography, and Computer Science).

⁷ ANFAD includes 20 business groups, made up of 29 companies, whose share in the domestic electrical appliances market is: 90% for major appliances; 70% for small appliances; 60% for heaters; and 70% for air conditioners (the difference is made up by imports).

system to monitor the quality of those services. Another issue is the use of spare parts that do not meet the manufacturer's standards, which affects the prestige of producers. This is why sector companies are interested in implementing the occupational skills model—they want to certify the substantive functions performed by authorized service centers, with the goal that in the near future, all service centers wanting to belong to the manufacturers' service network would have certified personnel.

- 1.21 Over the next three years, an estimated 25,100 Occupational Skills certificates will be issued to 9,400 workers at electrical appliance manufacturing companies and after-sales service centers, which will have a demonstration effect on the entire industry. The idea is that one of the criteria for any after-sales service center to become accredited to provide services for ANFAD's member companies will be to have personnel who are certified in the NTCL set by the sector.
- 1.22 **Mining.** The mining sector accounted for approximately 1.3% of Mexico's GDP in 2003. The sector employs 256,000 people and cumulative investment in the last six years has been approximately US\$4.45 billion, a level that will be maintained over the next few years. The sector had a favorable balance of trade in 2002, thanks in large part to the upward change in the price of metals.
- 1.23 Three of the country's principal mining groups are interested in deepening the application of the occupational skills model in the industry, with a view to complementing their quality program and strengthening their competitive position in the international marketplace. The hope is that optimizing process efficiency and systematizing the operations of the companies participating in the project will be reflected in their financial performance, and particularly in increased job security, as well as in the reduction of workplace accidents, since currently the industry's accident rate is almost five percentage points above the national average.
- 1.24 Ten NTCL have been developed in this sector and five new standards are being considered, based on which 9,600 persons should be certified in the 2004–2006 period. This means that in that period a little over 11,000 workers will be evaluated in almost 26,500 Occupational Skills Units, with the aim of issuing 23,000 Occupational Skills certificates. A further four NTCL now in place will be used to certify another 3,400 people in the 2007-2009 period, in a second stage of this project.
- 1.25 **Tire distribution.** Tire distributors are part of the retail sector, and their principal activities are tire sales, installation, maintenance, and repair services. The annual volume of tire sales in 2003 was 16 million units, an increase of 14% over 2002. In employment terms, tire distributors provide about 100,000 direct jobs.
- 1.26 The companies that will participate initially in this sector project are interested in implementing the occupational skills model so they may evaluate and certify

substantive functions that they perform at their service centers. They also hope to leverage their influence and business leadership so that other companies in the field gradually join in using the occupational skills model.

- 1.27 The principal objective of the sector project is to develop five sector-specific NTCL upon which to base the implementation of the occupational skills system. Then, over the next three years, 5,600 workers will have to be evaluated in 36,000 Occupational Skills Units so that at least 5,000 workers can be certified, with 30,000 Occupational Skills certificates issued for providing after-sales, maintenance, and tire repair services. All of this will have a demonstration effect on other companies in this industry.
- 1.28 **Tourism.** In the period from January to June of 2000, tourism as a share of the nation's total GDP was 8.9% on average, with certain activities such as transportation, restaurants and bars, retail, lodging, and crafts production (included in the manufacturing industry), among others, contributing the most. In that same period, the balance of trade in tourism reported a surplus of US\$1.747 billion for the country's economy, with the industry employing 1.9 million workers.
- 1.29 Some companies belonging to the various tourism associations have expressed great interest in implementing the occupational skills model with a view to professionalizing their staff and the services they offer and having certified staff in the near future, in the hope of resolving some aspects of worker performance problems. It is thought that the model will help to reduce operating and administrative costs, increase productivity and the quality of services offered, as well as boost the competitiveness, image, and prestige of the companies. The companies wish to apply the model so as to deepen their service quality strategy, as well as reduce the cost of damage to operating equipment. For example, the Camino Real group spends \$17 million pesos per year on damage, of which only 30% is considered normal wear and tear; the hope is that introducing the occupational skills system will dramatically reduce that expense. The occupational skills system is also expected to reduce the personnel turnover rate, 70% of which is seen at high-impact levels of operation.
- 1.30 In the 2004-2006 period, 6,600 workers will be certified for occupational skills and 20,000 Occupational Skills certificates issued, which will require at least 7,590 workers and 23,000 Occupational Skills Units to be evaluated, and which will produce a broad demonstration effect and contribute to consolidating the system in the sector. It bears mentioning that by 2002, fewer than 14,000 Occupational Skills certificates had been issued. This project is supposed to surpass what was achieved in six years of activities under CONOCER's certification system by almost 50% in only three years.

2. Developments among educational players with regard to the creation of NTCL

a. Colegio Nacional de Educación Profesional Técnica [National System for Technical Vocational Education] (CONALEP)

- 1.31 CONALEP offers technical vocational education and was one of the early adopters of NTCL as benchmarks to enhance the relevance of curricula. Despite having focused the range of degree programs offered, reforming its curricula, and offering its students the option to obtain both a *bachiller* degree and the traditional title of technical professional, CONALEP's share of upper secondary enrollment has stayed at about 11%. As for employability, a recent study by Lopez-Acevedo (2002)⁸ concluded that CONALEP graduates take longer to find a job, but their likelihood of finding a job that is better suited to their skills is also greater. A unique characteristic of CONALEP, which sets it apart from the other systems, is that the teachers are for the most part actively employed in industry and work only part-time for CONALEP. Additionally, the curriculum structure does not afford any type of recognition to those who leave school before completing the six semesters of study.

b. The Undersecretariat for Education and Technological Research (SEIT) subsystem

- 1.32 Several types of institutions coexist under SEIT that offer technological *bachillerato* in various areas: (i) industrial technology, General Directorate for Industrial Technology Education (DGETI); (ii) marine technology, General Directorate for Education in Science and Marine Technology (DGE CyTM); and (iii) agricultural technology, General Directorate for Agricultural Technology Education (DGETA). SEIT also includes a General Directorate for Career Education Centers (DGCFT), where short courses are given to enhance students' job prospects. SEIT institutions have changed the vocational education component in some of their specialized programs to include a skills benchmark, but without first defining the participants' shared priorities, leading to scattered efforts and a failure to use potential synergies. After several years, few results have been seen in terms of better employability of graduates, and attrition at these institutions continues to be high. Enrollment in SEIT schools is free and accessible to students of every socioeconomic level and ethnic background.

c. The General Directorate for Bachillerato (DGB)

- 1.33 Although it did not participate in the PMETyC project and its scope lies outside of technical education, it should be noted that the *bachillerato* high schools under the

⁸ Lopez-Acevedo, G., "An Alternative Technical Education System in Mexico." Policy Research Working Paper 2731, The World Bank, 2002.

DGB absorb almost 60% of upper secondary enrollment. In a context of poor completion rates and high drop-out rates, the DGB has identified education based on occupational skills standards as an answer to problems of relevance with its vocational education component, both to open up paths of specialization toward higher education, and to offer partial certifications to those who choose a *salida lateral* (i.e. leave before finishing the full course of study and thus giving recognition to studies actually completed). Though fragmented, the results of the follow-up on students that drop out of general *bachillerato* show that they have few job skills valued by employers, indicating that the content of the vocational education component is lacking in relevance.

d. Technological Institutes

- 1.34 In the TI system, whose model is rooted in skills, it has been applied partially to two fields of study by reorienting the teaching/learning process toward a process focused more on learning. The reason why skills-based education was not incorporated into the PMETyC project from the start was because neither the standards nor the methodology to do so existed in Mexico. The challenge for TIs is to redesign their syllabi and curricula to incorporate NTCL and thus become consistent with the approach of a model centered on learning and dedicated to the practical elements of education. The TIs' involvement has been aimed at furthering the adoption of the skills approach by training, evaluating, and certifying teachers at the universities and workers from different nonfinancial sectors.

e. Polytechnic Institutes

- 1.35 The PI educational model encourages educational curricula and syllabi to be designed and taught with a skills approach. The model also attaches importance to the involvement of students and professors with State and regional companies; hence, part of the student's education takes the shape of projects, practical experience, and internships with companies. Professors' relationships with companies are established through joint research projects, technical assistance, and technology services. The PI model represents an opportunity for graduates of upper secondary school to continue their studies, especially for those who were schooled under the skills-based education approach and for students from other higher education institutions. Similarly, it is thought that PIs will provide continuing education opportunities to "higher university technicians" (graduates from the TI system) with degrees that match up sufficiently with PI degree programs.

C. Program strategy

- 1.36 Based on an analysis of: (i) demands from the nonfinancial sectors and from workers who hope that the relevance of their education and training will facilitate their placement in the job market; (ii) the transformations under way in upper secondary education; (iii) outcomes and lessons from the PMETyC; and (iv) the

lessons learned by the Bank in other similar projects, the program aims to help rectify the problems with the relevance, quality, efficiency, and effectiveness of upper secondary education, and also to address the weak relevance, high cost, and disparities of the standardization system, shortcomings which have kept the model from gaining a foothold in the human resources management actions of the nonfinancial sectors. The strategy of the proposed program is to address the two issues simultaneously, so that progress on one issue contributes to accomplishments in that area, but also to accomplishments in the other area, as well as contributing toward the greater purpose of enhancing the employability of graduates.⁹

- 1.37 The program's strategy for supporting advances in vocational education and training centers on targeting efforts toward curriculum development to achieve efficiency and quality outcomes, gradually supplying teacher training resources, teaching materials, and equipment to support curriculum changes that strengthen ties with the nonfinancial sectors and enhance portability between educational subsystems. The strategy to consolidate the standardization and certification system aims to encourage leadership in the nonfinancial sectors so as to focus efforts toward issuing standards that could potentially generate economic benefits for companies once incorporated as critical elements of their human resources management.

D. Mexico's sector strategy

- 1.38 The Mexican government defined the key points of its strategy for the education sector in the 2001-2006 National Education Program (PRONAE). According to PRONAE, upper secondary education reform cannot be delayed and should focus on curriculum reform to encourage the incorporation of occupational skills standards, and include common components that would contribute to greater coordination and flexibility in the system and enable people to switch between learning paths throughout life.
- 1.39 Following the PRONAE strategy, the Mexican government has decided to build upon the advances under the PMETyC to introduce a new program centered on enhancing educational opportunities, whereby the various technical education schools would make use of the strengthened benchmarks created through the NTCL system to make their vocational education components more relevant, thus furthering the employability of their graduates. Although PRONAE sets out a common development framework, the different technical schools will move toward achieving their own identity and functionality depending on the populations they serve and the demands of the nonfinancial sector.

⁹ This concept encompasses all the factors that determine a person's success in the job market, and involves the development of capacities that enable a person to have real possibilities, not only of finding work, but of enjoying job mobility and remaining active in the labor market. Follow-up on graduates will allow for an evaluation of employability over time.

E. Bank strategy in the country and the sector and lessons learned

- 1.40 The Bank's strategy with Mexico centers on four basic elements: (i) modernization of the social sectors (including improvements in education and labor markets) and poverty reduction; (ii) integration; (iii) modernization of the State and subnational decentralization; and (iv) improved competitiveness through the lowering of barriers that limit productivity. In the area of education, its lines of activity focus on enhancing efficiency and equity in the delivery of educational services, particularly in upper secondary education, more closely linking the delivery of educational services to the needs of the labor market. The proposed program will develop these lines extensively, from promoting efficiency to seeking greater synchronization between the demands of the nonfinancial sectors and the curriculum changes in upper secondary education. The program will also help to improve the country's competitiveness by enhancing the relevance of education and focusing the creation of NTCL on the sectors defined in the Competitiveness Agenda.
- 1.41 Through a donation from the Multilateral Investment Fund (MIF) [Worker Skills Certification and Standardization Pilot Project] (MIF/AT-89), the Bank supported the creation of CONOCER and used pilot projects to promote the participation of important sectors of the economy.
- 1.42 In addition to the experience in Mexico, the Bank has participated in processes to create occupational skills standardization systems in over 17 countries. Some of the lessons learned from these international experiences are: (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.
- 1.43 In Mexico, the Bank is financing a labor market program (ME-0233) that is financing the training of workers within companies, utilizing the NTCL benchmark where it exists. Executing this operation has enabled the Bank to make sure that the nonfinancial sectors are open to investing in training for their workers when they see productivity gains and see that NTCL can be an effective benchmark for training design.
- 1.44 The Bank has given especial consideration to Mexico's Competitiveness Agenda and to its description of strategic sectors. Given that this program aims to improve employability and thus contribute to boosting competitiveness, the sectors mentioned have been points of reference for CONOCER's new strategic focus.

- 1.45 Although the project completion report from the PMETyC financed by the World Bank is still being prepared, the preliminary reports allow for some initial conclusions and lessons to be drawn: (i) the monitoring and evaluation of component outputs and impact indicators should be a central element during execution; (ii) monitoring indicators should be constructed to draw from employment surveys and independent evaluations commissioned for the project; (iii) investment in transforming educational offerings should be as narrowly focused as possible so that measurable outcomes can be obtained; and (iv) the goal of raising the number of NTCL and persons certified is not a desired objective in and of itself, if those increases are not rooted in real demands from the nonfinancial sectors; this is why it is critical to encourage a change in thinking and redirect standards development toward strategic sectors if we are to pursue the economic rationale for the system and ensure its sustainability.

F. Coordination with other donors

- 1.46 The project team has coordinated closely with the World Bank, participating in the latest PMETyC administrative mission, where the outcomes of the components and some impact assessments were reviewed. The results of that mission have enabled the team to incorporate lessons learned into the project design and have served to boost the benefits obtained.

II. THE PROGRAM

A. Objectives and description

- 2.1 The general objective of the program is to help enhance the employability of workers and technical and vocational education training graduates in Mexico.
- 2.2 This general objective will be achieved by pursuing three specific objectives: (i) to enhance the relevance, effectiveness, and quality of technical and vocational education and job training programs; (ii) to promote and coordinate more effectively the possibility of student transfers between educational tracks and between life-long learning pathways; and (iii) to increase the relevance and use of the present NTCL system, by increasing the number of NTCL issued and demanded by the nonfinancial sectors and the labor market, employed in the recognition of an individual's skills, business human resources management, and as a benchmark for enhancing the relevance of educational programs. Table II-1 presents some process and impact indicators of what would be accomplished with the program.

Table II-1
Selected Success Indicators

| Process indicators (during Phase I) | |
|---|--|
| Component 1 | |
| <ul style="list-style-type: none"> Curricula modified in at least 41 CONALEP degree programs Curricula modified in at least 3 vocational fields offered by the SEIT Transformation of at least 4 specializations within the DGB's career education cluster | |
| Component 2 | |
| <ul style="list-style-type: none"> Average cost for developing and updating NTCL reduced Average unit cost of certification reduced Number of NTCL increased in 10 strategic sectors Number of certifications in 10 strategic sectors increased | |
| Intermediate and final outcomes (Phase I and Phase II) | |
| <ul style="list-style-type: none"> Completion rate improved and cost per graduate to schools reduced (intermediate outcome Phase I) Company costs for the recruitment, selection, management, and training of workers reduced (intermediate outcome Phase I) Greater employability of graduates (final outcome of Phase I and Phase II) Greater employer satisfaction with graduates (final outcome Phase I and Phase II) | |

B. Program structure and description

- 2.3 **Phase I.** The program will comprise two phases. The first phase will last three years and will center on: (i) consolidating the transformation of skills-based technical education curricula in the different vocational education tracks financed by the program; (ii) using a market focus to target the development of NTCL toward strategic areas within those nonfinancial sectors that demand standards and certifications, and facilitate market penetration of NTCL; (iii) helping to make educational offerings more relevant by issuing a critical mass of benchmarks based on skills standards used in the nonfinancial sectors, which should further the

objective of enhancing the relevance of curricula; and (iv) disseminating the economic benefits seen by companies that recruit and train personnel with skills certification.

- 2.4 **Moving from Phase I to Phase II.** On the demand side, the triggers¹⁰ for proceeding to Phase II will be: (i) evidence that the average costs of NTCL development, updating, evaluation, and certification have declined with respect to the costs generated by the sector and other comparable sectors abroad or by other participating sectors; and (ii) evidence that concentrating NTCL in at least eight of the ten strategic sectors identified has really enabled those sectors to begin to use occupational skills standards in their human resources management. On the educational supply side, the triggers are: (i) that CONALEP has developed and incorporated integrating, self-contained modules into the curricula of at least 41 of its degree programs; (ii) that in at least three vocational fields, a substantial number of SEIT schools have changed their curricula and are teaching with a skills-based approach, at the educational levels appropriate to each; (iii) that at least four fields of specialization in the DGB's career education cluster have shifted to a skills-based approach; and (iv) that the TI system has developed and incorporated two skills-based degree programs and the PI system has developed and incorporated seven such degree programs.
- 2.5 **Phase II.** The second phase will have a three-year execution period and will build upon the progress made in curriculum transformation in order to: (i) achieve substantial increases in the efficiency, effectiveness, and quality of participating schools; (ii) expand the universe of strategic business sectors that issue and demand NTCL; and (iii) complete the transformation in curriculum development and in the individual regulations of the different upper secondary tracks so as to achieve greater coordination and transferability between subsystems.
- 2.6 In order to achieve these objectives, the proposed program will finance activities under the following two components:
- 1. Component 1. Enhancing the relevance of vocational and technical education (US\$49.8 million)**
- 2.7 The aim of this component is to enhance the relevance, effectiveness, and quality of program offerings in technical and vocational education and job training, promoting more effective coordination and mobility between educational subsystems. The program will encourage the use of standards demanded by employers to drive

¹⁰ With regard to program execution, the following triggers will be taken into account: (i) that at least 50% of the resources for Phase I of the operation have been disbursed; and (ii) that the commitment to adequately manage the accounting, financial execution, and external audit of the program has been met. The report containing the analysis of the triggers will also include an analysis of the management of local counterpart resources, the fulfillment of contractual clauses, the submission of audited financial information, and compliance with observations from the external audit.

curriculum changes and will support school-business linkage and vocationally oriented activities. The component will finance activities in three specific and complementary areas: (i) curriculum development; (ii) information and school-business linkage; and (iii) technical support.

a. Curriculum development (US\$16.4 million)

- 2.8 In this area, the program will finance technical assistance for transforming curricula and syllabi in each of the subsystems participating in the program. The principal benchmark on which the subsystems will base curriculum and syllabus changes are the NTCL, although the dynamics of change in moving toward relevance will require them to use other international benchmarks and institutional standards where the NTCL benchmark does not exist. Nevertheless, program support is intended to reduce the use of institutional standards¹¹ at the expense of a growing availability of NTCL. The program will support skills research and if applicable the educational entities may decide for themselves on an appropriate mix with technical skills.
- 2.9 The program will also support technical assistance for each educational subsystem to implement mechanisms¹² that facilitate coordination and the possibility of student mobility between education subsystems as part of their curriculum development. The activities corresponding to each of the subsystems are described below:
- 2.10 **CONALEP.** As an adequate, equitable response that includes high school education, recognizes partial studies for students, and seeks to raise completion rates, the program will finance an incremental curriculum transformation: 714 curriculum modules in 41 degree programs in 2004, and 232 elective modules in 2005 to address regional requirements, thereby improving careers through the transformation of plans and curriculums in order to be able to offer the new title of *profesional técnico bachiller* (specialized).
- 2.11 **SEIT.** The program will provide technical assistance for the transformation of the vocational education component of curricula in each of the technological *bachillerato* subsystems. To achieve internal coherence amongst the various subsystems, the common thread in the transformation will be a focus on common fields of vocational education, which will make it possible to integrate and organize the specializations offered. The fields selected initially (maintenance, management and accounting, tourism and computer science) correspond to priorities identified through job market studies. The program will finance curriculum reform with the

¹¹ For cases where NTCL do not exist and education providers perceive real demand from the nonfinancial sector and wish to change their curricula, institutional standards that follow the NTCL construction methodology have been developed as benchmarks.

¹² Organizing curricula by modules that are related to skills units is expected to facilitate coordination and transferability between different tracks.

goal that in at least three (3) of the four (4) fields chosen for the first phase, all specializations and all schools migrate toward skills-based education, covering about 30% of programs offered, and benefiting a substantial percentage of those enrolled.

- 2.12 **DGB.** As part of its curriculum reform, the DGB will work the occupational skills standards-based education approach into the career education cluster of its curriculum during the first phase of the program. This transformation will take place gradually, beginning with the development of four modules that will be taught from the third to the sixth semester, and make up a little over 17% of the total curriculum. Curriculum reform in the career education cluster during Phase I of the program will involve eight aptitudes or trainings, selected on the basis of data obtained from the nonfinancial sectors. The inclusion of schools in the process will also take place gradually to ensure that curriculum changes are accompanied by teacher training and the availability of teaching material and equipment.
- 2.13 **TIs and PIs.** As part of their process of expanding skills-based education, the TIs and PIs will perfect a methodology for designing skills-based curricula and syllabi to be applied in seven PI degree programs in engineering (industrial, electronic and telecommunications, mecatronics, biotechnology, computer-based communications, information technology, and systems), at the four existing PIs and in the Industrial Maintenance and Production Processes degree programs at the technical college level in pilot projects at five Technological Institutes.

b. Information and business linkage (US\$5.3 million)

- 2.14 To help solve the generalized problem of insufficient linkages between changing trends in the business world and the design and orientation of curricula, the program will support the development and operation of channels of communication between the various national and regional subsystems and representatives from business and industry. The proceeds of the program will be concentrated in three sets of activities: (i) financing to conduct market research to encourage decision-making in each of the subsystems regarding how to modify and update specializations and degree programs; (ii) technical and logistical assistance for strengthening or creating opportunities for exchanges between educational authorities and members of business and industry to foster discussion about the relevance of specializations and degrees, the quality of education and the level of graduates, and the participation of entrepreneurs in educational processes, among other issues; and (iii) technical assistance and equipment for improving data collection and information analysis systems at each of the executing agencies so those systems can support follow-up on students and graduates as well as the creation of an information system to monitor progress in initiatives to construct institutional standards, and to track classroom and laboratory availability in order to foster the harmonious use of installed capacity amongst the various subsystems. As an incentive for improving performance, the information system will use a baseline

allowing for comparisons between the different tracks participating in the program. The program will promote the social marketing of curriculum changes to attract new students, with an emphasis on the most neglected areas with limited access to educational opportunities.

c. Technical support (US\$28.1 million)

- 2.15 The program will provide financing for teacher training, for purchasing educational materials based on the specifications and needs defined in the curricula of each technical executing agency, and for acquiring equipment conforming to the standards contained in the Operations Manual that is essential to rounding out the planned curriculum changes and achieving the aims of enhancing the relevance and quality of skills-based education. Given that curriculum changes will be introduced sequentially, the financial assistance in this area will also be extended in stages and will be tied to the pace of curriculum transformation at each school. The program's execution plan will indicate the sequence in each case.

2. Component 2. Consolidating the SNCCL (US\$26.2 million)

- 2.16 The objective of this component is to increase the relevance of the NTCL and the profile of the SNCCL in order to reach a critical mass of nonfinancial sectors that issue and require NTCL¹³ in order to make businesses' human resources management more efficient and to recognize individuals' skills. In turn, a more high-profile system will make it possible to provide more relevance benchmarks for the changing offerings in technical education and help to coordinate the demand for and the supply of mid-level technical workers. The component will finance activities in three areas that will all lead to and further a common goal: (i) development of worker skills and certification projects in sectors and industries; (ii) monitoring and analysis of outcomes so the skills system evolves in line with market dynamics; and (iii) social marketing.

a. Sector and industry-level occupational skills and certification projects (US\$16.1 million)

- 2.17 The program uses as a benchmark the specific strategies outlined by the Presidential Competitiveness Council, which seeks to focus the federal government's efforts on sectors accorded priority because their market share, exports, and level of job creation generate synergies that can attract the rest of the nonfinancial sectors. These sectors are: (i) the automobile industry; (ii) electronics; (iii) software; (iv) aeronautics; (v) textiles and apparel; (vi) agriculture;

¹³ Critical mass is understood to mean that at least 8 of the 10 nonfinancial sectors involved in the Phase I projects issue and adopt NTCL and that at least 55% of companies in a given sector adopt evaluation and certification systems in their recruiting, training, and human resource management processes.

(vii) in-bond assembly industry; (viii) chemicals; (ix) leather and footwear; (x) tourism; (xi) retail; and (xii) construction.

- 2.18 The program will finance specific projects in the sectors mentioned above that demand NTCL for economic reasons and are in a position to share in the financial costs as well as to direct the technical aspects of identifying and developing occupational skills and be in charge of certifying those skills within the sector, in order to achieve greater value added or competitiveness within their sector. The sectors are participating directly in the hope that the new standards, or the updated existing ones, become powerful benchmarks that contribute to gradually changing human resource management within companies and significantly increase the number of certified workers who are more employable when they enter the job market. This careful selection of sectors reflects the need to focus efforts, as described in the first part of this document.
- 2.19 The program will initially finance the four projects mentioned in the first section of this document. The financial support for these four projects is expected to result in 245,000 occupational skills certificates being issued to 66,500 workers, which in a three-year period would represent a 100% increase with respect to the number of certifications the system produced in its development stage, from 1998 to the present. The sphere of action and expected outcomes for each additional project will be defined in accordance with eligibility criteria related to economic justification and relevance to the country's competitiveness.
- 2.20 For each sector project, CONOCER, or the legal entity that replaces it, will fund technical assistance for: (i) identifying and developing new NTCL based on the priorities established in the proposals from each sector; (ii) reviewing, updating, and validating NTCL that were issued in the past by CONOCER's technical committees, where sector leaders consider it appropriate; (iii) developing evaluation systems in keeping with sector requirements and based on cost-effectiveness criteria geared to the actual needs of each sector; (iv) training evaluators and verifiers as required by the sector so evaluations can be made in due time and form; (v) training personnel from sector companies to develop NTCL-based training plans, where companies have a need for it; (vi) designing and developing NTCL standardization, evaluation, and certification systems together with CONOCER, or the legal entity that replaces it, experts to simplify these processes, lower their cost, and adapt to the changing dynamics of the nonfinancial sectors; and (vii) conducting awareness-building and dissemination activities to ensure that a significant number of companies participate in standardization and certification activities and apply the system to their business management. The sectors selected commit to co-finance worker certification in accordance with their estimates and commitments, make their staff of experts available, and ensure the availability of public relations firms.

**b. Monitoring and analysis of outcomes and constructing indicators
(US\$5.1 million)**

- 2.21 With resources from CONOCER, or the legal entity that replaces it, and from the participating sectors, this subcomponent will support activities to analyze the standardization and certification system's current and potential costs and benefits in terms of companies' productive performance and competitiveness, and to put these indicators and an inventory of the operational elements of evaluation and certification required by companies and individuals into an Integrated Information System (IIS). In this connection, activities eligible for financing might include, among others: (i) surveys and follow-up studies to reveal the economic benefits resulting from applying the SNCCL to the business sector; (ii) evaluation of experiences in the nonfinancial sectors with regard to evaluation and certification to recommend ways to simplify these processes and lower their cost; (iii) case studies drawn from sector projects financed by the program to facilitate the design and implementation of skills-based personnel recruitment, selection, and certification policies; (iv) updating of software and hardware needed to support the IIS; and (v) technical assistance and refresher training for personnel in order to uphold the SNCCL's quality standards.

c. Social marketing (US\$5 million)

- 2.22 In addition to constructing indicators of the standardization and certification system's economic benefits for companies, the program aims to effectively disseminate these experiences so the model gains a firm enough foothold amongst the nonfinancial sectors and the chances of future sustainability are increased. The eligible activities in this area will be directed primarily toward the business arena and aim to reach target groups with appropriate messages. They will include: (i) social marketing and focus group research aimed at assessing and potentially modifying the strategies for putting together sector projects as the obstacles and opportunities for transforming human resources management policies according to the dynamics of each sector are identified; (ii) development of sector surveys to find out how companies assimilate the occupational skills model, in order to provide feedback on the strategy for implementing the model in the sector; and (iii) design and implementation of public information campaigns and outreach activities aimed at changing the business sector's perceptions with regard to CONOCER's present role and the benefits of the SNCCL.

C. Cost and financing

- 2.23 The total cost of Phase I of this investment program will be US\$84 million, of which US\$50.4 million will be financed by the Bank, and the remaining US\$33.6 million will come from local counterpart funds (Table II-2).

Table II-2
Costs per component and per expense category (in US\$000)

| Expense category | IDB | MxGov | TOTAL | % |
|---|---------------|---------------|---------------|-------------|
| 1. Component 1. Enhancing the relevance of vocational and technical education | 29,896 | 19,930 | 49,826 | 59% |
| 1.1 Curriculum development | 9,829 | 6,552 | 16,381 | |
| 1.2 Information and business linkage | 3,166 | 2,111 | 5,277 | |
| 1.3 Technical support | 16,901 | 11,267 | 28,168 | |
| 2. Component 2. Consolidating the occupational skills standardization and certification system | 17,872 | 8,307 | 26,179 | 31% |
| 2.1 Occupational skills projects | 11,783 | 4,248 | 16,032 | |
| 2.2 Monitoring outcomes and constructing indicators | 3,076 | 2,051 | 5,126 | |
| 2.3 Social marketing | 3,013 | 2,008 | 5,021 | |
| 3. Administration and monitoring expenses | 2,632 | 5,279 | 7,911 | 10% |
| 3.1 Administration, supervision, and coordination | 1,915 | 4,317 | 6,231 | |
| 3.2 Information systems | 428 | 366 | 794 | |
| 3.3 Evaluations | 289 | 186 | 474 | |
| 3.4 Audits | - | 410 | 410 | |
| 4. Financing expenses | - | 84 | 84 | 0% |
| 4.1 Commitment fee | - | 84 | 84 | |
| TOTAL | 50,400 | 33,600 | 84,000 | 100% |
| Percentages | 60% | 40% | 100% | |

- 2.24 The investment resources provided for under this operation will finance critical line items in the budgets of participating entities that will serve to attain program objectives. The historical yearly budget levels of the anticipated executing agencies justify the proposed amounts for each program component.

III. PROGRAM EXECUTION

A. Borrower, guarantor, and executing agency

- 3.1 The borrower will be the United Mexican States, who will use Nacional Financiera, SNC (NAFIN), as its financial agent. The executing agency will be the Ministry of Public Education (SEP) through the Undersecretariat for Planning and Coordination. This office has more than six years' of experience in executing external loan programs, enabling it to develop institutional coordination and monitoring capacity.

B. Program execution and management

- 3.2 Three additional bodies will participate in program execution: (i) a program executive committee (CODIPRO); (ii) a program management and coordination unit (PMCU); and (iii) a group of technical executing agencies (TEAs).
- 3.3 **Executive committee.** CODIPRO will be the authority in charge of coordinating and supervising the program and will be responsible for establishing the guidelines for its execution, ensuring both internal and interagency coordination for carrying out program activities. It will be required to: (i) ensure that program objectives and goals are met; (ii) guarantee appropriate coordination and boost the synergies amongst the different program TEAs; (iii) approve the general program execution plan and each executing agency's annual work plan (AWP) including activity schedules and budgets; (iv) evaluate the performance of program components and subcomponents and develop recommendations for the institutionalization of its outputs and outcomes; (v) approve the annual procurement plan for program goods and services (including training, studies, and equipment), subject to the provisions of the operations manual and the loan contract; (vi) review and approve progress reports, program evaluation reports, and project performance monitoring reports that must be submitted to the Bank; (vii) be familiar with the terms of reference for and results of external audits and monitor compliance with their recommendations; (viii) review performance and compliance with program contractual commitments; and (ix) approve the Program Operations Manual and Operating Regulations and modifications thereto. The Technical Secretariat will perform, at a minimum, the following functions: (i) participate, without voting rights, in CODIPRO sessions; (ii) keep a record of CODIPRO agreements; and (iii) communicate CODIPRO's recommendations and/or decisions to the technical executing agencies and subsequently monitor progress made in implementing those recommendations.
- 3.4 CODIPRO will consist of: (i) the SEP's Deputy Minister for Planning and Coordination (the chair); (ii) the SEP's Deputy Minister for Education and Technological Research; (iii) the SEP's Deputy Minister for Higher Education and Scientific Research; (iv) two representatives of the Ministry of Finance and Public

Credit, one from the Office of the Deputy Minister of Expenditure and the other from the Office of Public Credit; (v) a representative of the Deputy Minister for Employment and Labor Policy of the Ministry of Labor and Social Security; (vi) a representative of the Investment Promotion Unit of the Ministry of the Economy; (vii) a representative of NAFIN; (viii) the Managing Director of CONALEP; (ix) the head of the public quasi-governmental trust, CONOCER, or the legal entity that replaces it; and (x) the General Coordinator of the PMCU, who will act as Secretary of CODIPRO with the right to speak but not to vote. As a condition precedent to the first disbursement of the financing, CODIPRO must be established according to the terms indicated herein.

- 3.5 **Program Management and Coordination unit.** In addition to acting as CODIPRO's Technical Secretariat, the PMCU will perform two substantive functions: one of programming, monitoring, and evaluation and the other of management and finance. The PMCU is independent of the executing agencies although its operations are intimately linked to them. 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. In this context, all resources necessary for the unit's operations should be for its exclusive use, notwithstanding the close coordination that it should maintain with those responsible for program execution in the executing agencies. The programming function will be based on the monitoring and evaluation system designed during the program preparation phase. It will make instrumental use of an information system that receives its data from the technical coordinators' databases, making it possible to monitor program indicators and goals.
- 3.6 The PMCU's basic responsibilities are the following: (i) to monitor the implementation of the strategy and planning guidelines established for executing the program; (ii) to execute and implement such decisions and actions as are considered necessary by CODIPRO; (iii) to coordinate program monitoring, studies, and evaluation activities; (iv) to coordinate the physical and financial planning of the program in order to ensure that processes and instruments are standardized and that the outputs and outcomes set out in the program's logical framework materialize; (v) to prepare and submit to the Bank, through NAFIN and in accordance with the deadlines established in the loan contract, periodic reports on the technical and financial management of the program; (vi) to provide technical assistance to the executing agencies in the administration of the financial resources allocated to the components and subcomponents, the implementation of and compliance with standards and procedures for goods and services procurement and the bidding process, as well as the implementation of financial and accounting controls; (vii) to keep a record of program accounting and financial operations pursuant to the chart of accounts, and implement a financial accounting system for the program; (viii) to assist CODIPRO in preparing the information required for

- decision-making; (ix) to propose updates to the Program Operations Manual and Operating Regulations; (x) to make supervisory visits to the TEA, along with the Bank and NAFIN, or as necessary; and (xi) to provide technical assistance to the DGB for the activities corresponding to the latter as part of component 1.
- 3.7 The creation of the PMCU on terms acceptable to the Bank will be a condition precedent to the first disbursement.
- 3.8 **Technical executing agencies.** The third authority in the context of program execution will consist of the agencies responsible for the technical execution of the components. The following TEAs will participate in Component 1: (i) CONALEP; (ii) the DGCFT; (iii) the DGETI; (iv) the DGETA; (v) the DGECyTM; (vi) Dirección General de Educación Superior [Directorate for Higher Education]; and (vii) the DGB. In the case of Component 2, the technical executing agency will be CONOCER, or the legal entity that replaces it. These TEAs will prepare their annual work plans for the program based on the overall program execution plan and will also be responsible for budgetary execution of program resources. They will submit their progress reports to the PMCU, which will then consolidate and submit them to the Bank. The SEIT will consolidate the reports from its executing agencies (DGCFT, DGETI, DGETA and DGECyTM) and submit them to the PMCU.
- 3.9 **Operations Manual.** The project team has prepared an operations manual, which contains operating regulations for components 1 and 2 that reflect the technical and eligibility requirements of programs run by the TEAs under this operation. The operating regulations describe the technical characteristics and implications inherent to the technical execution of the components, eligibility criteria, as well as technical and institutional requirements that apply to each activity. In general terms, the operations manual establishes a set of standards and procedures for guiding the execution of the program that, among other things, specifies the functions and responsibilities of the different technical executing agencies, the PMCU, and the financial agent designated by the Government of Mexico. It also describes the coordination mechanisms and flow of information required between technical executing agencies and the PMCU for implementing the monitoring system and sending the reports requested by the Bank. In cross-cutting terms, outside the specific scope of the operating regulations, the manual sets out the procedures for financial and administrative management. The entry into force of the operations manual and its operating regulations, pursuant to the terms previously agreed upon with the Bank, will be a condition precedent to the first disbursement.
- 3.10 In the specific case of CONOCER, or the legal entity that replaces it, the manual will include, in addition to the operating regulations for Component 2, an explicit reference to the general rules governing this trust, as published in the Diario Oficial de la Federación [Official Gazette of the Federation]. The final version, prepared to the Bank's satisfaction, will become part of the loan proposal. Initially, CONOCER's general rules will reflect the current institutional structure. However,

once it has the elements necessary to recommend changes to the general rules in order to simplify processes and adjust them to the needs of the nonfinancial sector (at the end of year two of the program), CONOCER will report to the Bank on aspects that should be modified to achieve necessary institutional improvements.

1. Execution of Component 1. Enhancing the relevance of technical and vocational education

- 3.11 The eligibility of expenditures will be conditional upon a series of requirements as described below.
- 3.12 **Curriculum development.** The main benchmarks for curriculum transformation will be the NTCL, key skills, and crosscutting skills. Where the NTCL do not exist, other market standards accepted by the corresponding sector will be used, always seeking the coordination and transferability of curricula and syllabus content between educational subsystems. Only in cases where the respective NTCL do not exist as a benchmark and a market study demonstrates a new curriculum should be developed, and there is clear and real demand on the part of the nonfinancial sectors, will it be possible to finance Institutional Standards (IS) and the subsequent curriculum transformation. The program's information system will constantly reflect the availability of the NTCL developed by CONOCER and will further provide information on specific IS development initiatives being carried out by each of the technical executing agencies, all of this with an eye to taking advantage of economies of scale and avoiding duplication of efforts. The SEIT, the DGB, and CONALEP will define the scope and will supervise the delivery of technical products for curriculum development in accordance with the series of milestones defined in the program's execution plan.
- 3.13 **Information and business linkage.** The technical executing agencies will define the scope of specific market studies and examine the findings in order to make decisions with respect to modifying and updating degree programs and specializations. These studies should complement existing research and will emphasize obtaining information on the specifics of regional markets. The findings of these studies will go into the program's information system and will be available for review by all the TEAs and by the general public. As regards opportunities for linkage with members of the business community and private industry, the program will give priority to institutionally representative bodies such as existing outreach committees at CONALEP schools and groups created with the full backing of SEP authorities in order to bring education more into line with the realities of nonfinancial sector needs. Actions to expand upon workplace-oriented activities and business linkages that each executing agency seeks to implement should be agreed to during annual review meetings with the Bank. The agreements will be integrated into the AWP for the corresponding year, as authorized by the Bank.

- 3.14 The program's information system, which will include a performance monitoring and evaluation component, will be administered by the PMCU and will draw on information produced by the TEAs' monitoring systems and by the activities of CONOCER itself. Specific inputs will also be entered from monitoring and evaluation studies commissioned to that end. During the program's preparation phase, the specific needs of each TEA and the PMCU as the system administrator were identified, making a general procurement of equipment, software applications, and support elements possible. The terms of reference for the specific performance monitoring and evaluation studies will be reviewed by the TC and approved by CODIPRO; contracting will be carried out and supervised by the PMCU. It should be noted that the information system's public access page will specify the difference between the NTCL developed by CONOCER and the IS prepared by the TEA.
- 3.15 **Technical support.** The execution and procurement plans and the annual goals developed during the program's design phase reflect the investments and outcomes anticipated for curriculum development support. Based on these plans, the TEA will prepare specific packages for educational institutions where investments in teacher training, equipment purchases, and teaching materials may be linked to expected curriculum development outcomes. The package should contain at least two indispensable items: (i) an analysis of equipment purchasing options that takes into account obsolescence levels, the availability of equipment in other schools in the same subsystem or in other SEP subsystems, different financing options, and final considerations in selecting the proposed option; and (ii) evidence that each school's specific package will enable it to fully carry out its responsibilities in providing skills-based education with a new curriculum. When deemed appropriate, the TEA may request that the PMCU assume responsibility for the procurement process and supervise the delivery of inputs. Any decision on appropriate equipment and/or technology will be based on criteria of useful life and lowest cost. In selecting the equipment to be purchased, installation costs should be taken into account, and resources earmarked for proper maintenance and operation.

2. Execution of Component 2. Consolidating the SNCCL

- 3.16 Disbursement of funds for Component 2 will be contingent upon the borrower having created and provided the corresponding funds, to the Bank's satisfaction and pursuant to current legal regulations, to the new public quasi-governmental trust that will act as the component's technical executing agency. Expenditure eligibility will be contingent upon the series of requirements described below.
- 3.17 **Sector and industry-level occupational skills and certification projects.** Sector projects will be led by a group of businesses made up of at least one half of the 10 companies representing the highest share in terms of production value and employment in the respective sector. The group commits to certifying at least 5,000 workers in 10 Occupational Skills Units during the execution of the program;

- providing evidence that the occupational skills model has been incorporated into their internal human resources management; and making the NTCL the benchmark for recruitment in their firms. The program support each project receives, through CONOCER, or the legal entity that replaces it, will be based on what is specified in a cooperation agreement that will have an annex that describes and establishes a timeline for achieving the program's goals. The goals will have to do with NTCL to be developed or reviewed, assessment tools, the training of evaluators, internal and outside testers, developers of skills-based education programs, as well as the individuals and occupational skills units to be evaluated and certified. Also specified will be aspects of implementing the model in the group of businesses and the means for providing evidence that the occupational skills model has been incorporated into human resources management and that the NTCL have been used as a basis for hiring in a significant number of representative businesses in the sector. A more specific description of support procedures appears in the corresponding Operating Regulations.
- 3.18 Under the program, financing will be extended to sector projects not meeting the eligibility criteria set out in the Operations Manual as soon as the TEA begins carrying out at least 8 projects in eligible sectors, and that do not absorb more than 50% of the resources allocated for this subcomponent.
- 3.19 **Monitoring and analysis of results and constructing indicators.** Proposals for monitoring studies and analyses of the outcomes from the development and use of NTCL will be prepared by CONOCER for each sector initiative and should demonstrate at a minimum: (i) the justification for and relevance of the economic sector or area selected; and (ii) the potential demonstration effect of outcomes obtained when disseminated to other economic areas. Each nonfinancial sector project will include at least one economic benefit analysis, one analytical report, and one case study.
- 3.20 The terms of reference for the economic study should include measurable indicators to assess the impact on productivity in the areas in which the occupational skills model has been implemented by businesses, as compared to the situation prior to implementation, and as compared to similar businesses that do not implement the model, in order to isolate the effects attributable to the use of occupational skills. The analytical report will describe what happens during the standardization, training, evaluation, and certification of occupational skills in order to document methodologies and establish best practices for other sectors. The case study will document the implementation of the occupational skills model with the use of NTCL as benchmarks for selecting and recruiting certified personnel, in-service training, evaluation, certification, and overall human resources management in the businesses participating in the project in order to create a demonstration effect on other sectors and industries.

- 3.21 Investments in software and hardware for the IIS, as well as for technical assistance and refresher training aimed at ensuring the quality of the SNCCL, will be made as specified in the operating regulations. Software and hardware in particular must be justified in the anticipated return on investment in the efficiency and effectiveness of the SNCCL.
- 3.22 **Social marketing.** With the participation of the sectors involved in the projects, CONOCER will prepare the terms of reference for social marketing and consulting activities, whose primary objectives are: (i) to actively involve more strategic sectors in developing NTCL and through their participation succeed in making positive changes in human resources management policies and in-house company training; (ii) to provide feedback on the implementation of the SNCCL in participating sectors; and (iii) to inform the business community about CONOCER's strategic role and the SNCCL's economic benefits (using data obtained from project monitoring and the aforementioned outcomes analyses).

C. Procurement of goods and services

- 3.23 The procurement of goods and related services and the contracting of consulting services will be governed by Bank policies and procedures in effect for those matters. International competitive bidding will be required for the procurement of goods and services when their estimated cost is greater than or equal to US\$350,000. The procurement of related goods and services for lesser amounts will be governed, in principle, by domestic legislation as long as that legislation is compatible with Bank policies. International competitive bidding will be required when the estimated cost of consulting services is greater than the equivalent of US\$200,000. No construction works are planned for the program.
- 3.24 Bank supervision of competitive bidding or any other type of procurement used, in amounts less than the equivalent of US\$350,000 for goods or services, will be done ex post. Bank supervision of the contracting of consulting services planned in the program for less than the equivalent of US\$200,000 for consulting firms, and the equivalent of US\$100,000 for individual consultants, will also be done ex post. The executing agency will only present the model documents ex ante for bidding and any other procurement process.
- 3.25 With regard to consulting services financed with local counterpart funds, the Bank reserves the right to review and approve the names and credentials of the firms or individual consultants selected, the terms of reference, and the fees agreed upon, before the executing agency may proceed with contracting.
- 3.26 The borrower, through the executing agency and the technical executing agency, if applicable, will award contracts for a number of services directly as specified in paragraph 12.04 of the Bank's Procurement Procedures and Policies for Consulting Services, which are contained in document GN-2220-10 of February 2004.

- 3.27 Although Instituto Nacional de Estadística, Geografía e Informática [National Institute of Statistics, Geography, and Computer Science] has extensive experience in training, processing, and disseminating statistical and geographical information on Mexico and its staff is highly qualified with technological resources for highly reliable census surveys and samples that are highly representative from a statistical standpoint), it should be allocated directly up to US\$3 million for graduate follow-up surveys. INEGI has offices in 32 federal government agencies throughout the country, where it operates through an infrastructure consisting of 10 regional directorates and 32 states coordinating offices, which enable it to monitor and address information requirements at the national and regional level. In addition, INEGI's main responsibilities include coordinating and developing national statistical and geographical information systems and generating official national statistics based on censuses, the most important of which are the national population and economic censuses.
- 3.28 Another case in which contracts should be awarded directly is advertising for marketing the program to the community. Such services should be marketed directly because Mexico has nine open television channels, of which the six with broadest national coverage that broadcast mainly to the social sectors and different age groups, are owned by two television broadcasting companies. It is highly probable that a competition for awarding advertising by television would be directed at either of these two companies. Dissemination through the press, the uniform format of the different printed media (circulation, geographic coverage, and target population), and their scant consumption means having to be highly selective in how contracts are awarded in order to enhance the impact on the target population. Contracts will be awarded directly as follows: (i) television (up to US\$3 million); and (ii) printed press (up to US\$1 million).

D. Execution period and disbursement schedule

- 3.29 SEP and Bank authorities have agreed that the first phase of the program will be executed over a three-year period and the period for the disbursement of funds will be a minimum of three and a maximum of five years; both periods would begin when the loan contract enters into force.

Table III-1
Disbursement Timetable (in US\$000s)

| Source | Year 1 | Year 2 | Year 3 | Total |
|--------------|---------------|---------------|---------------|---------------|
| IDB | 15,227 | 16,749 | 18,424 | 50,400 |
| Mex. govt. | 10,151 | 11,166 | 12,283 | 33,600 |
| Total | 25,378 | 27,915 | 30,707 | 84,000 |

E. Monitoring and evaluation

- 3.30 **Monitoring.** As previously indicated, and bearing in mind the multiphase nature of the program, monitoring will be ongoing. During the preparation of the program, an execution plan and a monitoring and outcomes matrix including semiannual milestones were agreed upon for overseeing progress toward meeting the program targets included in the logical framework. The monitoring matrix will also include impact indicators and triggers for moving on to Phase II (see paragraph 2.4).
- 3.31 The Bank's Country Office in Mexico (COF/CME) will review the disbursement both ex post and through sampling, thus ensuring that there are records with supporting documentation of the requests for disbursement, and that resources have been used in accordance with the loan contract.
- 3.32 The TEA, the PMCU, and the Bank will hold supervision and evaluation meetings, within the first three months of each calendar year for the duration of the program, in order to analyze progress made in the execution of the program. During these meetings, the AWP will be presented and should include, among other things, a report on activities carried out in the previous year's AWP and activities to be carried out the following year which should include elements agreed upon with the Bank such as: (i) the status of program execution; (ii) the meeting of the program goals and targets in accordance with the agreed monitoring and outcomes matrix; (iii) problems that have arisen; and (iv) solutions applied.
- 3.33 The program will use monitoring indicators centered on key processes. For Component 1, some process indicators will include: (i) the number of courses structured around occupational skills standards. This goal encompasses all the processes involved in offering the curriculum under the new skills-based education approach (curriculum development, teaching materials, equipment, training, and teacher certification, etc); (ii) percentage of students who complete the full course of study and obtain career education equivalency diplomas in one or more skills modules; (iii) improvements in the completion rates of different subsystems; and (iv) a reduction in average costs per graduate. For Component 2, the indicators will be: (i) a reduction in the average cost of developing and updating NTCL; (ii) a reduction in the unit cost of evaluation and certification; (iii) an increase in the number of NTCL focused on specific strategic sectors; and (iv) that the concentration of NTCL in 10 strategic nonfinancial sectors makes it possible for those sectors to have begun to make substantial use of occupational skills standards in their human resources management.
- 3.34 **Evaluation.** Midterm and final evaluations will focus on evaluating progress toward meeting the program targets established in the monitoring matrix, program outcomes, progress made in meeting objectives and goals, and progress in indicators that trigger the second phase. During the midterm evaluation, second phase triggers will be monitored and the recommendations made will be

implemented, if necessary, to improve program execution. The evaluations will be conducted by an independent firm acceptable to the Bank. The midterm evaluation will be conducted 18 months after the effective date of the loan contract or when 50% of the IDB financing has been disbursed. The final evaluation will be performed in the second half of the last year of program. Its objective will be to analyze and evaluate the program's outcome and effects, measure the extent to which second phase triggers have been met, and make recommendations for the preparation and execution of Phase II. The ex post evaluation will be conducted during Phase II of the program and will be financed with loan funds.

- 3.35 Some outcomes and impact indicators can only be measured once the first generation of students taught with the new curricula graduate, that is, two or three years later, and outcomes (better indicators of completion rates and better indicators of employability) can be verified. These indicators will be, to the extent that it is possible, broken down by gender and family income level. Similarly, it will only be possible to measure some of the impact indicators after three years of program execution and during the execution of Phase II. These impact indicators are divided into two groups: (i) employability indicators, which will be derived from the findings of graduate follow-up studies for each subsystem, and analyses of the results of the National Employment Survey; and (ii) relevance, effectiveness, and quality indicators which will be derived from disaggregated indicators for unit cost per student and the completion rates of each of the subsystems. The anticipated outcomes with respect to penetration of the certification system may be monitored throughout execution (number of standards issued, number of individual skills certified), and subsequently through impact indicators such as results of the use of NTCL in businesses' human resources management (see paragraph 3.20).
- 3.36 The idea behind measuring program outcomes with respect to improvements in employability is to identify current and potential benefits of a skills-based education system. This measurement will be done through follow-up studies on graduates from each subsystem. In order to distinguish the effects attributable to this program from trends in the Mexican labor market, control groups will be used. The information required will be gathered through annual follow-up surveys of program graduates; this will make it possible to monitor short and long-term indicators that determine a graduate's employability. Short-term indicators are: (i) the time taken to find a job; (ii) starting salary; and (iii) registration in the social security system. Long-term indicators are: (i) salary evolution; (ii) length of service in each job held in the period surveyed; (iii) amount of time unemployed; and (iv) periods of voluntary unemployment. In order to analyze the impact by specific groups, these indicators will be broken down by income level and gender.

F. Retroactive financing and reimbursement of expenditures

- 3.37 The borrower has requested that program-related expenses incurred by the executing agency since 1 July 2003 be reimbursed from the IDB financing

resources to a maximum of US\$9 million and be recognized as chargeable to the local counterpart contribution to a maximum of US\$6 million. Expenses chargeable to the loan and to the local counterpart funding must have been incurred in connection with training, consulting work, and procurement of eligible goods and equipment for the program. Once it has analyzed the documentation demonstrating that payments made by the executing agency conform to objectives, that the procedures followed are acceptable to the Bank, and that expenses equal the amounts requested, the Bank will proceed with the aforementioned recognition of expenses.

G. External program audit

- 3.38 The borrower, through the executing agency and the financial agent, will be required to submit to the Bank on an annual basis and within 120 days of the close of each fiscal year, the program annual financial statements, audited by an independent auditing firm in accordance with Bank requirements. The terms of reference for the audits will be previously approved by the Bank.
- 3.39 Selecting and contracting the auditing firm will be done in accordance with the bidding procedures for auditing firms. Auditing costs will be covered by local counterpart funds.

IV. VIABILITY AND RISKS

A. Institutional viability

- 4.1 With the participation of different agencies attached to its office, SEP has a great deal of experience in successfully executing programs financed with external credit. In the case of the PMETyC project completed in 2003, the ever increasing number of technical executing agencies over the life of the project made it more complex and prevented greater degrees of compatibility from being achieved in terms of approach and expected outcomes. For the ME-0250 program, fewer technical executing agencies have been chosen and each of them is strongly committed to the program's objectives, especially where the impact of introducing the program is central and there is a clear convergence of interests and strategic visions.
- 4.2 The technical executing agencies have taken part in all of the preparation phases of the program and the information provided in this report reflects their official institutional proposals. This creates a positive framework for the program's institutional viability. Additionally, the functions assigned to CODIPRO offer the TEAs the confidence that coordination and collaborative actions will be discussed at the highest level, preserving individual authority and powers.
- 4.3 The Steering Committee of the new public quasi-governmental trust that will be established for CONOCER's operations is expected to continue to have very significant and representative participation from the private sector, thus maintaining the platform for giving its activities a demand focus and creating an enabling environment for institutional viability.
- 4.4 The fact that there is already an explicit commitment from the four sectors participating initially in the development of the NTCL to promote the decentralized participation of the CAs and ECs with prior experience in certifying other types of quality standards creates an institutional environment that increases the likelihood that businesses will invest in skills-based training and promote the certification of their workers as a means to improve the quality of their products, increase the effectiveness of associated after-sale services, and ultimately to boost productivity. Nevertheless, as is stated in the section on risks, CONOCER will have to make a sustained effort to maintain the four sectors' interest and create the operational and economic environment necessary to attract the remaining sectors.

B. Socioeconomic viability and benefits

- 4.5 The economic studies backing the initial participation of the four sectors in standards development show that on average, in the three years of Phase I of the program, the sector will be investing up to three times what CONOCER plans to invest. In the medium and the long term, this creates an economically viable

environment for the program, especially in view of the fact that the majority of the sectors' investments are aimed at certifying their workers, one of the main obstacles up to now to expanding the standardization and certification system.

- 4.6 The socioeconomic viability of the program is closely linked to program benefits for students, businesses, and the economy in general. Program benefits may be demonstrated at two levels: on the one hand, the enhanced employability of graduates will make it possible to improve productivity among active workers and the competitiveness of the nonfinancial sectors. Past experiences show that the introduction of skills-based education modules in CONALEP offered graduates a 45% greater probability of finding employment than graduates of other tracks. In promoting the consolidation of and focus on skills-based education in occupational education and training subsystems, the program seeks to achieve similar and even greater benefits in terms of access to the labor market, time savings in job searches, and more relevant education which will be reflected by greater value being placed on individual skills by businesses and a decrease in expenses incurred by businesses for irrelevant training.
- 4.7 As regards the economic benefits of higher completion rates in the subsystems covered under the program, the analysis starts with an estimated average annual cost per graduate of upper secondary technical education, which is approximately US\$1,240. If internal efficiency were 100%, the cost per graduate would equal the amount that results from multiplying said cost by the number of years. As efficiency is far lower in reality, the cost is substantially higher given that each graduate is saddled with costs generated by dropouts and repeaters. Assuming that internal efficiency in the subsystems increases by five points at a rate of one point per year beginning in the third year, efficiency gains will translate into a reduction in the amount of investment required and lower costs per graduating student per year. If a seven-year horizon (2004-2005/2010-2011) is adopted, discounted at a rate of 12%, savings benefits will be equal to approximately US\$410 million.¹⁴ In other words, this amount would constitute the amount saved by the State in the seven years following the beginning of program execution. From a social point of view, students' families will also enjoy significant savings as a result of the improved management of upper secondary education.
- 4.8 With respect to the economic benefits that result from the development of NTCL and their impact on businesses' performance and productivity, in the case of appliance manufacturing alone, ANFAD estimates that 13 million repairs are done annually, of which at least 15% are rejected; this represents an annual loss of 314 million pesos for the sector. These rejections will be substantially reduced when repair shops have certified personnel.

¹⁴ Oswaldo Giordano. Economic evaluation of the proposed Skills-based Resource Development Training project, 2003.

C. Financial viability

- 4.9 The TEAs' share of the SEP budget is slightly more than US\$2.5 million and is rising, unlike the case of higher and basic education. Financing from the Bank, which represents just 4% of the total annual budget invested in technical education, is thus strongly backed within the government's budget commitments, lending it tremendous support and financial viability.

D. Environmental impact

- 4.10 The majority of the program's planned activities focus on technical assistance for developing the NTCL, curriculum development, and teacher training, and thus, no direct negative impact on the environment is expected. Guidelines established by the NTCL with respect to industrial safety, occupational health, and solid and liquid waste disposal will be observed when purchasing equipment to support the transformation to skills-based education. New NTCL will be created in accordance with existing regulations governing occupational health and will constitute a quality control mechanism within the Standardization Committees.

E. Risks

- 4.11 There are risks involved in executing the program in terms of coordination among the different executing agencies. The team conducted stakeholder analysis and has examined the lessons learned from the PMETyC. It is proposing a program execution plan in which technical responsibility falls to the technical executing agencies and crosscutting issues are discussed and agreed upon by the Executive Committee.
- 4.12 Additionally, the program seeks to have the nonfinancial sectors take on a leadership role in issuing and using the NTCL. There is a risk of not succeeding in conveying the model's economic benefits and of facing growing apathy from those sectors. The fact that four projects were developed during the program design phase mitigates the initial risk of apathy on the part of the private sector to participate in developing and updating standards. Nevertheless, there will have to be constant dissemination of outcomes as well as social marketing efforts to engage additional sectors and maintain interest.
- 4.13 The fact that the articles of dissolution and agreement for the CONOCER trusts have yet to be signed and that this has been left as a contractual condition for disbursement perpetuates the risk that they will never be signed and the program will lack one of its TEAs. Such an occurrence would seriously jeopardize the execution of the program given the necessary interrelationship between the development of benchmarks and the development of technical education opportunities. High-level representatives of the Government of Mexico have

expressed their confidence that the articles will soon be signed based on official minutes reflecting decisions to that effect.

MULTIPHASE SKILLS-BASED HUMAN RESOURCES DEVELOPMENT PROGRAM, PHASE I
(ME-0250)
LOGICAL FRAMEWORK

| Program Summary |
|---|
| Goal of Program PHASE I and PHASE II: To enhance the employability of workers and vocational education and training graduates in Mexico. |
| Purpose of Project PHASE I: <i>Component 1:</i> Enhance the relevance, effectiveness, and quality of vocational education and job training programs for higher-level employment. <i>Component 2:</i> Help consolidate the skills-based system which in this first phase means getting at least eight nonfinancial sectors to issue and adopt skills standards and at least 55% of the companies in their sectors to institute evaluation and certification systems in their recruitment, training, and human resources management processes. |

| Summary | Outcome indicators | Means of verification | Assumptions |
|--|---|---|-------------|
| Goal | | | |
| Enhance the relevance, effectiveness, and quality of technical and vocational education and job training programs for higher-level employment. | For Phases I and II: Improvements in the employability of former students (<i>who have completed partial studies</i>) and graduates of the system: <ul style="list-style-type: none"> ▪ <i>Less time</i> for students from each subsystem to find employment after graduation. ▪ <i>Type of employment</i> found by students from each subsystem after graduation is more compatible with their education. ▪ <i>Less time</i> spent between jobs (probability of finding employment). ▪ <i>More time</i> employed in each job. ▪ <i>Higher</i> starting salary compared to graduates without skills. ▪ Employer satisfaction with CBE graduates is at least 50% starting in year three. | <ul style="list-style-type: none"> ▪ Results of follow-up studies on graduates of each subsystem. ▪ Results of the National Employment Survey conducted by INEGI. | |

| Summary | Outcome indicators | Means of verification | Assumptions |
|---|---|--|--|
| Components | | | |
| 1. Component 1. Enhancing the relevance of vocational and technical education | | | |
| Purpose | | | |
| Enhancing the relevance, effectiveness, and quality of program offerings in vocational education and enhanced job training. | <p>For PHASE I:</p> <ul style="list-style-type: none"> ▪ <i>The % of students</i> staying on and graduating at the general bachillerato level, per cohort, increases from 58% in year one to 60% in year two, and 62% in year three (completion rates). ▪ <i>The % of students</i> staying on and graduating from the different technological bachillerato subsystems rises from 48% in year one to 50% in year two, and 52% by the end of year three. ▪ <i>The % of students partially completing</i> the general <i>bachillerato</i> who later obtain career education accreditation diplomas in one or several skills increases from 0% in year one to 50% in year two, and 90% in year three. ▪ <i>The % of students</i> staying on and graduating from the CONALEP subsystems increases from 49% in year one to 50% upon completion of the cycle (3 years). ▪ <i>The average cost</i> per graduate of each track (US\$1,202 in year one) decreases by the end of year three (increase in graduate operational cost-effectiveness) ▪ <i>The % of students staying on and graduating</i> from CBE career paths in Technological Institutes in each cycle (partial CBE efficiency) increases from 57% in production processes careers in year one to 59% upon completion of | <ul style="list-style-type: none"> ▪ Annual performance reports from the SEIT, DGB, and CONALEP, with completion rate data disaggregated. ▪ Reports on DGB and SEIT graduates' performance on college entrance exams. ▪ Employer satisfaction survey. | <ul style="list-style-type: none"> ▪ The focus on skills-based education continues to be a priority under the National Education Program. ▪ Similar levels of public funding are maintained for schools. ▪ As a benchmark for the curricula transformation, CONOCER increases the availability of NTCL issued and demanded by the nonfinancial sectors. |

| Summary | Outcome indicators | Means of verification | Assumptions |
|---|--|--|--|
| | <p>study cycle, and from 56% in maintenance careers to 58%.</p> <ul style="list-style-type: none"> ▪ <i>The average % of dropouts</i> in CBE careers in the 5 Technological Institutes declines from 43% in production process careers in year 1 to 41% upon completion of a study cycle; and from 44% in maintenance careers to 42%. ▪ <i>The average % of dropouts in year one</i> of transformed engineering careers in existing Polytechnic Institutes declines from 19.52% in year one to 17.52% in year two. | | |
| Subcomponents | | | |
| <p>1.1 To complete curriculum development to bring a skills-based approach to curricula and enhance flexibility among subsystems.</p> | <p>For PHASE I:</p> <ul style="list-style-type: none"> ▪ Eight specializations in the (DGB) career education cluster transformed using a skills standards training approach by the end of year three, 5 at the end of year two. ▪ At the end of year three, 90% of training specializations in 3 of the 4 professional areas (<i>maintenance, management and accounting, tourism and computer science</i>) transformed using a skills-based approach in all technological <i>bachillerato</i> subsystems; 30% by the end of year two. ▪ 212 curricula modules using the new approach designed for the 41 CONALEP degree programs by the end of year one of the program, 173 by the end of year two, and 146 by the end of year three. | <ul style="list-style-type: none"> ▪ Final report on the Flexible Curriculum Framework. ▪ Annual performance reports of the SEIT, DGB, and CONALEP as well as Polytechnic Institutes with data on enrollment, degree programs, and skills-based curricula. | <ul style="list-style-type: none"> ▪ There continues to be a political willingness to foster coordination and transferability among subsystems through the coordinated efforts of the different executing agencies. ▪ The subsystems' rules been modified so as to enable movement between curriculum structures and educational tracks. |

| Summary | Outcome indicators | Means of verification | Assumptions |
|--|--|--|--|
| | <ul style="list-style-type: none"> ▪ The Technological Institute (TI) system has designed and put in place 2 <i>CBE degree programs</i> in five Technological Institutes by the end of year two. ▪ The TI system has developed 70 <i>teaching packages</i> for each course in the 2 CBE degree programs by the end of year two. ▪ The Polytechnic Institute system has designed and put in place 7 <i>engineering degree programs using NTCL</i> and international benchmarks: 2 by the end of year one, 2 by the end of year two, and 3 by the end of year three. | | |
| 1.2 The information system for capturing market signals is operational and mechanisms for linkage with the nonfinancial sectors are providing information for decision making. | <ul style="list-style-type: none"> ▪ The executing agencies and the public have access to information on NTCL, International Standards, Certifier Agencies, cost of standards, and benefits of the model by the end of year two. | <ul style="list-style-type: none"> ▪ The system's operations manual and reports on its operation. ▪ Linkage operations framework and minutes from outreach committees. | The information system for capturing market signals is operational and mechanisms for linkage with the nonfinancial sectors are providing information for decision making. |
| 1.3 Technical support for teacher training, educational materials, and equipment have been delivered. | <ul style="list-style-type: none"> ▪ 102 DGB schools are offering skills-based career education clusters under the standards established by the DGB (availability of equipment, educational materials, and teacher training): 70 by the end of year one of the program, 17 by the end of year two, and 15 schools by the end of year three. ▪ By the end of year three, 19 DGETI specializations, 7 DGETA, 9 DGE CyTM, and 9 DGCFT specializations are offered using SEIT-approved standards (availability of equipment, educational materials, and teacher training). | <ul style="list-style-type: none"> ▪ Annual performance reports of the SEIT, DGB and CONALEP as well as Polytechnic Institutes with data on the performance of individual schools and their supplies and equipment inventories. | Technical support for teacher training, educational materials, and equipment have been delivered. |

| Summary | Outcome indicators | Means of verification | Assumptions |
|---|--|---|--|
| | <ul style="list-style-type: none"> By the end of year three, 220 <i>schools</i> from the DGETI, 80 from the DGETA, 9 from the DGE CyTm, and 145 from the DGCFT are offering priority specializations using the standards approved by the SEIT. 125 CONALEP V career schools are meeting equipment, educational materials, and teacher training standards for teaching the new curricula designed under the program: 25 by the end of year one, 50 by the end of year two, and 50 by the end of year three. 30 professors trained in the Technological Institutes by the end of year one to implement the 2 CBE degree programs. 90 professors trained in the existing Polytechnic Institutes by the end of year one to implement the CBE degree programs. | | |
| 2. Component 2. Consolidation of the occupational skills standardization and certification system (SNCCL) | | | |
| Purpose | | | |
| Help consolidate the skills-based system which in this first phase means getting at least eight nonfinancial sectors to issue and adopt skills standards and at least 55% of the companies in their sectors to institute evaluation and certification systems in their recruitment, training, and human resources management processes. | <p>For PHASE I:</p> <ul style="list-style-type: none"> At least 50% of companies from at least 8 out of 10 strategic economic sectors are working the occupational skills model into their human resources management (percentages of recruiting, selection, and training) by the end of year three; 30% by the end of year two. The average cost of the NTCL development program (currently US\$62,545) decreases by 35% by the end of year three (see triggers). | <ul style="list-style-type: none"> Program information system. Follow-up studies with surveys on the penetration of the model in the nonfinancial sectors. Annual program reports with reports on the work of the Standardization Committees. Midterm and final project evaluations. Consultations with users. | <ul style="list-style-type: none"> The Government of Mexico continues to provide funds for cofinancing the issuance of standards by the nonfinancial sectors. The nonfinancial sectors include the increase in human resource productivity among its priorities. |

| Summary | Outcome indicators | Means of verification | Assumptions |
|---|--|--|-------------|
| | <ul style="list-style-type: none"> ▪ <i>The average cost of developing NTCL evaluation tools decreases by 35% by the end of year three (see triggers).</i> ▪ Worker recruiting, selection, and training costs decrease in businesses that adopt NTCL. | | |
| Subcomponents | | | |
| 2.1 To consolidate the SNCCL so it can respond to the needs of strategic nonfinancial sectors for the development of the country and serve as a benchmark for training, evaluation, and certification of occupational skills. | <p>For PHASE I:</p> <ul style="list-style-type: none"> ▪ <i>Ten strategic plans</i> developed by the end of year one (four already developed) in order to secure the commitment of the nonfinancial sectors in 10 economic priority sectors. ▪ The development of <i>138 Occupational Skills Unit Standards</i> projects demanded by 10 strategic sectors of the economy: 30 by the end of year one of the program, 65 by the end of year two, and 43 by the end of year three. ▪ <i>138 evaluation tools</i> for the standards projects developed: 30 by the end of year one, 65 by the end of year two, and 43 by the end of year three. ▪ <i>41,500 workers in the 10 sectors certified in</i> NTCL: 11,500 by the end of year two and 30,000 by the end of year three. ▪ <i>41,500 workers in the 10 sectors trained in</i> NTCL: 11,500 by the end of year two and 30,000 by the end of year three. | <ul style="list-style-type: none"> ▪ Completed strategic plans. ▪ Report on projects and standards developed. CONOCER files. ▪ Plans published. CONOCER files. ▪ Instruments published. CONOCER files. ▪ Register of certificates issued. | |
| 2.2 To monitor outcomes for the consolidation of the system. | <ul style="list-style-type: none"> ▪ <i>Integrated Information System</i> in place by the end of year two. ▪ General Rules of the operating framework for the Occupational Skills Standardization and Certification System (2006 version) updated and | <ul style="list-style-type: none"> ▪ Integrated Information System progress report. ▪ Midterm and final project evaluations. ▪ Updated rules. CONOCER files. ▪ Guides published. CONOCER files. | |

| Summary | Outcome indicators | Means of verification | Assumptions |
|---------------------------------|--|--|-------------|
| | <p><i>implemented</i> midway through year three.</p> <ul style="list-style-type: none"> ▪ <i>Ten Economic Impact Assessment studies</i> conducted, one per strategic sector: prepared cumulatively by the end of year three. ▪ <i>Ten Methodology Analysis studies</i> conducted, one per strategic sector: 5 by the end of year two and 5 by the end of year three. ▪ <i>Ten Cost Comparison Analysis studies</i> prepared on standards, evaluation, and certification, one per strategic sector: 5 by the end of year two and 5 by the end of year three. ▪ <i>Ten Human Resource Management studies</i> conducted, one per strategic sector: 5 by the end of year two and 5 by the end of year three. | <ul style="list-style-type: none"> ▪ Site visit reports. CONOCER files. ▪ Study report. | |
| 2.3 Social marketing conducted. | <ul style="list-style-type: none"> ▪ <i>Social marketing study on sector projects</i> conducted and implemented by the end of year two. ▪ <i>A public information campaign</i> conducted during years two and three of the program, using different mass media. ▪ <i>Study evaluating the impact of the information campaign</i> conducted by the end of year two of the program with findings published during year three. ▪ <i>Guidelines have been created and supervision of information campaign for the 7 CBE engineering degree programs</i> in the existing PIs: for 2 CBE degree programs in year one, for 2 more in year two, and for 3 degree programs in year three. | <ul style="list-style-type: none"> ▪ Publication of cases. Reports on dissemination efforts. ▪ Training reports and surveys of businesses. ▪ Information campaign files (videos, cuttings, clips, etc). ▪ Study report. ▪ Study report. | |

| | Indicators | Means of verification | Type of Monitoring | Baseline | Targets |
|-------------------|---|---|--|---|---|
| PHASE II Triggers | <ul style="list-style-type: none"> ▪ Evidence exists that the <i>average costs</i> of the NTCL development program <i>have decreased</i>. ▪ Evidence exists that the <i>average costs</i> of the NTCL evaluation tool development project <i>have decreased</i>. ▪ At least four strategic nonfinancial sectors have begun substantial use of occupational skills standards in their human resource management (as a criterion of personnel selection, promotion, and/or human resources development). ▪ CONALEP has developed and incorporated integrated, self-contained modules into the curricula of <i>at least 41</i> of its degree programs. ▪ <i>In at least three vocational areas, a substantial group</i> of SEIT schools have changed their curricula and are teaching with a skills-based approach, at the educational levels appropriate to each ▪ <i>At least 5 specializations</i> of the DGB career education cluster have switched to a skills-based approach and are under way. ▪ <i>The TI system</i> has developed and incorporated 2 CBE degree programs in Technology Institutes. ▪ <i>The PI system</i> has developed and incorporated 7 CBE degree programs in existing Polytechnic Institutes. | <p>AWPs</p> <p>Reports on the penetration of the NTCL model.</p> <p>Project information system.</p> | Ongoing , with progress verification during the midterm evaluation . | <p>US\$62,545/NTCL</p> <p>US\$46,091/NTCL</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p> | <p>US\$40,000/NTCL</p> <p>US\$30,000/NTCL</p> <p>50% of participating businesses (per sector) that commit to doing so have adopted NTCL.</p> <p>5 complete and 36 to a 5th semester</p> <p>3</p> <p>5</p> <p>2</p> <p>7</p> |

MULTIPHASE SKILLS-BASED HUMAN RESOURCES DEVELOPMENT PROGRAM, PHASE I
(ME-0250)

PROCUREMENT PLAN

| Main program procurement | Sources of financing | Procurement method | Prequalification | Special procurement notice |
|--|----------------------|--------------------|------------------|----------------------------------|
| | IDB (%) Local (%) | | Yes/No | Tentative publication date |
| 1. Goods and equipment procurement Information technology equipment (US\$4.8 million) | IDB 100% | ICB (1) | No | (1) 2005 |
| Teacher support equipment Administrative equipment (US\$2 million) | IDB 100% | ICB (1) | No | (1) 2005 |
| Equipment for workshops (US\$8.4 million) | IDB 100% | ICB (2) | No | (2) 2006 |
| 2. Educational materials Publication of printed materials for curriculum support (US\$2.9 million) | IDB 12% | NCB (2) | No | (1) 2004 (1) 2006 |
| 3. Consulting services Studies for which the PMCU is responsible (US\$881,000) | IDB 85% | NCB (4) | No | (1) 2004 (2) 2005 (1) 2006 |
| Executing units Consultants for curriculum development and studies (US\$18.5 million) | IDB 85% | SIC SBQC | No | 2004 2005 2006 |
| 4. Dissemination and public relations TV advertising Newspaper advertising | IDB 60% IDB 60% | DC (2) | No | (1) 2004 (1) 2005 (1) 2006 |

ICB (International competitive bidding)

NCB (National competitive bidding)

DC (Direct contracting)

SIC (Selection based on individual consultant)

SBQC (Selection based on quality and costs)