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## Skill Standards Systems *Around the Globe*

(Draft: 5/19/99)

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**Information Sources:** This information is based in part on [Setting and Maintaining World Class Skill Standards](#), a paper prepared by David Lythe, New Zealand Qualifications Authority, for the National Skill Standards Board, June 1997. Information from Lythe's paper was updated by surveying the countries via fax and email. Additional sources of information are cited in the document. All funds have been converted to U.S. dollars for the year indicated, based on foreign exchange rates published by the [Federal Reserve Bank system](#).

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### Australia

#### [Economy and People](#)

Most of Australia's 18.7 million people live in urban areas along the coast, and about half (9.2 million) are employed. As in other advanced industrial economies, the service sector accounts for most jobs, employing 69 percent of the workforce. Another 21 percent of the labor force works in manufacturing (of aluminum, machinery, transportation equipment, etc.), mining (of coal, alumina, and iron ore), and construction. About 5 percent of the workforce are employed in agriculture.

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All Australians must attend school until age 15, and most continue their education. About 87 percent of 16-19 year olds are enrolled in further education or training. Among this group, most attend secondary school, following either an academic curriculum or a mix of academic and vocational subjects. Others enroll at a Technical and Further Education (TAFE) college. Most TAFE students follow a purely vocational program, but some study academic as well as vocational subjects in order to complete a secondary education certificate.

In 1996, 35 percent of the Australian labor force had completed upper secondary education, another 11 percent had completed non-university secondary education, and 17 percent were university graduates [Organization for Economic Co-operation and Development, Education at a Glance: OECD Indicators 1998, Paris 1998].

Nearly all Australians can read at a basic level. However, the OECD International Adult Literacy Survey suggests that Australians' ability to understand and use written and quantitative information varies widely. Adults in Australia and 11 other nations were asked to perform tasks similar to those encountered in everyday life. The tasks were designed to assess levels of prose literacy, document literacy, and quantitative literacy; scores were grouped into 5 skill levels. Large proportions of the Australian population scored at level 1 (below the minimum expected proficiency) and at level 4/5. This literacy profile is similar to that of Canada and New Zealand. Out of a possible total of 500 points, Australia's mean score in prose literacy was 274.2, in document literacy, 273.3, and in quantitative literacy, 275.9 [Organization for Economic Co-operation and Development and Human Resources Development Canada, Literacy Skills for the Knowledge Society, Paris: OECD, 1997].

In 1998, Australia's GDP was \$350.0 billion, and the economy was growing slowly. GDP per capita was \$20,000. Moving beyond its traditional reliance on exports of raw materials from agriculture and mining, Australia has developed an export-oriented manufacturing sector. Since 1984, successive governments have dismantled the trade barriers created to shelter this sector, but exports of manufactured goods (primarily to Asia and the U.S.) continue to contribute to economic growth. In recent years, the country has posted a small trade deficit. The Asian economic crisis has caused instability, but Australia's economy is likely to experience continued growth in the long term.

### Development of Skill Standards

As it lifted trade barriers, Australia's Labor government launched efforts to increase the international competitiveness of its goods and services. Because worker skills and productivity were seen as key assets to the economy, the government began to create a comprehensive framework for education and training. Today, Australia has implemented the eight-level Australian Qualifications Framework (AQF). The first six levels apply to vocational education and training: Certificate levels 1, 2, 3 and 4, Diploma and Advanced Diploma. Higher education institutions also offer academically focused Diplomas and Advanced Diplomas and are primarily responsible for delivery of degree and post graduate qualifications (levels 7 and 8 in the AQF).

To clarify the types and levels of skills required by employers within this framework, in 1990 the government created the National Training Board (NTB). The NTB commissioned industry bodies to develop broad national competency standards. Between 1989 and 1995 over 350 individual sets of standards were developed and endorsed by the National Training Board, covering occupations employing about 75 percent of the Australian workforce.

The Australian National Training Authority (ANTA) assumed responsibility for promoting standards development in 1994. ANTA reviewed, and to some degree consolidated, the network of industry bodies. Since 1996, ANTA has funded Industry Training Advisory Bodies (ITABs) and other groups to develop national

Training Packages. Each Package includes updated national competency standards, assessment guidelines, and packaging rules. The rules align the national competencies with the AQF framework. To date, ANTA has endorsed Packages covering approximately 50 percent of the workforce and projects are underway to cover up to 75 percent of the workforce by the end of 1999.

### **Government Support**

Successive Australian governments have supported development of national skill standards. The states and territories, as well as the federal government reached a formal agreement to create ANTA. Under this agreement, the representatives of industry, labor, and government who make up the ANTA governing board are appointed by a council of all federal, state, and territory ministers responsible for vocational education.

Each year between 1990 and 1995, the Australian government provided about \$26 million to support development of national competency standards. More recently, the annual government investment has fallen slightly to about \$25 million per year. This investment takes two forms--general operating support for ITOs and contracts with individual ITOs to create Training Packages. This government support makes up only a small part of each ITAB's budget. Companies within the relevant industry sector provide most of the money and in-kind support that sustain each ITAB. ANTA has a total staff of 95, including 24 who work closely with industry and national training advisory bodies to develop and update Training Packages.

### **Implementation**

After a decade, implementation of the Australian Qualifications Framework, including skill standards, has led Australia to radically restructure its vocational education system. In the past, individual States and territories accredited vocational courses, and companies provided on-the-job training, but these entities typically did not recognize or give credit for skills attained elsewhere. Today, all training providers may register to provide either:

- Training delivery, assessment, and certification
- Assessment and certification only

In the new system, ITABs register with ANTA. Public and private education and training providers may register with a State/Territory training authority or operate in partnership with a registered ITAB. Although registration is not required, training providers who do register must align their training, assessment, and certification activities with the national Training Packages.

In 1996, Keltner, Finegold, and Pager evaluated the Australian skill standards system [Brian Keltner, David Finegold, and Chet Pager, "Institutional Supports for a High-Performing Skill Standards system: Evidence from Germany, the UK, and Australia. RAND Institute on Education and Training, November 1996. Paper prepared for the National Center for Research in Vocational Education under contract DRU-1548-NCRVE/UCB]. The authors found that skill standards had increased access to skill certification for many young people. In particular, industry training advisory bodies were providing assessment and certification of skills learned at technical colleges and vocational schools. However, the study concluded that adult workers faced more difficulty obtaining certification for skills learned at work. Trade unions opposed formal assessment of employees by supervisors, and

some employers viewed formal assessment as a "labor-intensive drain on time and money." [p.36].

In terms of breadth of skill development, the authors found that Australia had succeeded in developing broad standards. The inclusion of employers, government, and employee representatives helped to encourage this. In addition, both ANTA and its predecessor, the National Training Board, required that industry bodies consult with industry bodies in overlapping industries and professions to incorporate crosscutting skills in their standards.

Keltner, Finegold and Pager found that the Australian system had attained mixed results in encouraging lateral mobility. The clerical-administrative industry body had developed broad skill standards that were widely accepted (at least by large firms), allowing workers with certificates to move easily across industry sectors. The metalworking industry body's skill standards were also widely accepted, but the technical nature of the training made it hard for certified workers to obtain employment outside the metalworking sector. Finally, the authors suggested that skill standards in the retail industry had done little to encourage lateral mobility, because most large retailers had their own company-specific training that did not link into the AQF framework.

More recent information confirms that large employers and government training providers are the most active participants in Australia's voluntary skill standards system. Many of these employers have registered, aligning their training with the ANTA-endorsed Training Packages. In 1997, registered providers accounted for about 22 percent of the clients and 10 percent of the hours of delivery for all vocational education and training provided in Australia. That year, overall enrollments and investment in vocational education grew. Today, 43 percent of the 25-34 age group have attained vocational qualifications. A smaller fraction of older workers possess such qualifications, which reflects the lower skills required in the past. However, the percentage of Australians with upper secondary academic or vocational qualifications, when compared to other OECD nations, remains relatively low.

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## **Canada**

### **Economy and People**

Canada is the second largest country in the world and the U.S.' largest trading partner. About 15 million people, or half of the national population of 30 million, are employed. As in other advanced industrial nations, most workers (74 percent) are employed in services. Another 16 percent work in manufacturing, and 4 percent in agriculture. [More Information . . .](#)

Canada's economy is based on abundant natural resources, including petroleum and natural gas, hydroelectric power, fish, and huge forests. The farm sector produces wheat, livestock, meat, and other products for domestic consumption and export. Canada also has an advanced manufacturing sector, trading large volumes of autos, auto parts, and other transportation equipment with the U.S. and other

trading partners. In 1996, GDP was \$585 billion, the economy was growing slowly at 1.5 percent, and Canada had a slight trade surplus. However, high unemployment has been a persistent problem since the 1980s as Canada has faced increased international competition. In the late 1990s, the unemployment rate was over 9 percent each year.

In Canada, compulsory school ends at age 16. As in other industrialized nations, most young people continue their education. In 1996, 69 percent of 17-year olds, and 34 percent of 18-year olds were enrolled in upper secondary education. That year, 29 percent of the adult population had completed upper secondary education, 33 percent had studied further, completing non-university higher education, and 20 percent had a university diploma [Organization for Economic Co-operation and Development, *Education at a Glance: OECD indicators, 1998*, Paris, OECD Publications, 1998, p. 43]. The International Adult Literacy Survey reveals that the distribution of literacy skills is uneven. Like Australia and New Zealand, Canada has relatively large proportions of the population at both level 1 (below the basic minimum needed to perform life tasks competently) and levels 4/5 (the highest levels). On a scale of 500 possible points, Canada's mean was 278.8 in prose literacy, 279.3 in document literacy, and 281.0 in quantitative literacy.

### **Development of Sector Councils**

To increase international competitiveness and reduce long-term reliance on unemployment benefits, the Canadian government launched a new labor force development strategy in 1989. In this "Sectoral Partnership Initiative," the federal government conducted studies of the human resource needs of various sectors of the economy. These studies were used to catalyze creation of bipartite (employers and unions) sectoral councils. In 1991, a new agency — the Canadian Labor Force Development Board (CLFDB) — was created to improve worker skills, primarily by working with the sectoral councils. Each council could develop its own approach to meeting sectoral skill needs, and some chose to do so by creating national occupational skill standards.

### **Government Support**

The government of Canada has invested staff time and funding to conduct studies of human resource needs in various sectors and to establish ongoing sectoral partnerships. Between 1986 and 1997, the federal government provided about \$118 million for the Sectoral Partnership Initiative, and the private sector has added an estimated \$178 million.

As part of a larger effort to rebalance power, the Federal government in 1997 reached agreement with a number of provinces returning to them authority over job training programs. Prior to the agreement, Human Resources Development Canada (HRDC) had operated and funded employment and training programs throughout Canada. HRDC has also funded the Sectoral Partnership Initiative. Under the 1997 agreement, HRDC began phasing out all training funds for the sectoral councils. This shift is still in progress, and the councils currently rely on a mix of federal, provincial, and industry support.

### **Implementation**

After a decade, there are now 23 functioning sectoral councils, and many have developed or are developing national skill standards. The sectoral councils

coordinate their work through the Sector Council Steering Committee located within the CLFDB.

- Apparel Human Resources Council (Tel: (613) 567-7495  
begin\_of\_the\_skype\_highlighting (613) 567-7495 end\_of\_the\_skype\_highlighting)
- [Association of Consulting Engineers of Canada](#)
- [Biotechnology Human Resources Council](#)
- Canadian Aquaculture Industry Alliance (email: [CAIAoffice@aol.com](mailto:CAIAoffice@aol.com))
- [Canadian Automotive Repair and Service Council](#)
- [Canadian Aviation Maintenance Council](#)
- [Canadian Council of Technicians and Technologists](#)
- [Canadian Council of Professional Engineers](#)
- [Canadian Council of Professional Fish Harvesters](#)
- Canadian Grocery Producers Council (email: [cgpccerna@interlog.com](mailto:cgpccerna@interlog.com))
- [Canadian Professional Logistics Institute](#)
- [Canadian Steel Trade and Employment Congress \(CSTEC\)](#)
- [Canadian Technology Human Resources Board](#)
- [Canadian Tourism Human Resources Council](#)
- Canadian Trucking Human Resources Council (email: [sbarone@istar.ca](mailto:sbarone@istar.ca))
- [Cultural Human Resources Council](#)
- [Forum for International Trade Training](#)
- [Horticulture Human Resource Council](#)
- [Human Resource Sector Council for the Electronic & Appliance Service Industry](#)
- [Mining Industry Training and Adjustment Council](#)
- [National Seafood Sector Council](#)
- Sectoral Skills Council of the Electrical and Electronics Industry (SSC) (Tel: (613) 567-3036 begin\_of\_the\_skype\_highlighting (613) 567-3036 end\_of\_the\_skype\_highlighting).
- [Software Human Resource Council](#)
- [Textiles Human Resources Council](#)
- [Women in Trades and Technology National Network](#)

The councils are using a variety of strategies to implement national skill standards. Many have worked with the provinces to align the apprenticeship training curricula with the national occupational skill standards. For example, the Canadian Tourism Human Resource Council has developed skill standards leading to certification as a "National Food and Beverage Server." Several western provinces have aligned their vocational education and apprenticeship curricula with the standards, and some hotels and restaurants provide financial support and time off for training to employees preparing for certification.

Other sectoral councils offer skill standards-based training through private trainers, community colleges, or distance education. In some cases, the sectoral council conducts assessment and certification of those who complete the training. Other councils, such as the Canadian Council of Professional Engineers, review the curricula and course delivery of colleges or universities, accrediting courses that closely follow the national standards. In these cases, the Sector Council generally certifies those who successfully complete the accredited program without conducting a separate assessment.

Some councils have developed skill standards reflecting specific and immediate training needs. For example, in response to concerns raised by foreign customers, Canadian seafood processing companies requested that the National Seafood Sector Council (NSSC) develop standards and skills training programs to improve sanitation and hygiene. The council created the requested sanitation and hygiene skill standards. These safety standards have been widely accepted by companies throughout Canada, and the council is now working with provincial training authorities to develop and implement training classes to meet the standards.

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## Chile

### Economy and People

Chile is a large republic, nearly twice the size of California, located on the West Coast of South America. The climate and terrain vary from desert in the north, to the fertile Central Valley and the Andes Mountains on the eastern border. In 1997, there were about 14.6 million Chileans, including mestizos of mixed Spanish-Native American heritage, Europeans, and Native Americans. The predominant religion is Roman Catholicism, and the population is growing at about 1.5 percent annually.

About 5.2 million people are employed. Thirty-six percent of the workforce provides public and private services, 34 percent work in manufacturing and commerce, 14 percent in agriculture, forestry, and fishing, and about 7 percent in construction.

Young people in Chile must attend school from age 6 until age 14, and most continue in secondary school through age 17. In 1996, about half of those enrolled in upper secondary education followed a general program, while 57 percent took vocational-technical classes [[Education at a Glance, 1998](#)].

Although Chile's economy is growing rapidly (at 7.1 percent annually in 1997), the population is poor relative to advanced industrial nations. In 1997, total GDP was \$77.1 billion, and GDP per capita averaged only \$5,280. Important sectors of the economy include mining (of copper, iron ore, nitrates, and other minerals); agriculture, forestry, and fisheries; and manufacturing. Chile exports copper, fishmeal, fruits, wood and paper products, and imports petroleum, chemical products, vehicles, factory equipment, and electronics. Major trading partners include the European Union, U.S., UK, and Brazil. In 1996, Chile had a small trade deficit.

**Development of Skill Standards** [Information provided by Rimmer Roos, Fundación Chile, Santiago, Chile. e-mail: [rroos@fundch.cl](mailto:rroos@fundch.cl)]

Chile has recently initiated a 3-year project to develop a "Competency Certification and Training Quality System." This project will define and pilot a methodology for development of competencies (skill standards), and create and install systems needed for a National Competency Certification System.

The project staff will initially work in three important sectors of the Chilean economy: Construction, Mining and Tourism. The number of skill standards to be developed will vary depending on the human resource needs in the sector and the decisions of a group representing companies and workers in the sector.

The focus will be on certifying competencies demonstrated in the workplace, rather than acquired knowledge. Competency will be demonstrated via a portfolio of evidence that will demonstrate in terms of actual results that the person has achieved a consistency in competently performing functions in real work situations. As with skill standards systems in many other countries, one goal is to separate demonstration of competency from training. Competency may be acquired through formal training or through experience. The goal is to create skill standards that help companies meet their skill requirements while also helping workers to demonstrate their skills, obtain jobs, and stay employed.

The project includes 7 types of activity:

- *Institutional Articulation*, which includes co-operative agreements among employers, government, and public and private education and training providers, defining their roles in both the current project and in the future administration of the skill standards system.
- *Sectoral Analysis*: A study of the characteristics of the 3 sectors participating in the project. This information will be used to guide the development of competencies and project the impact of the skill standards and certification system.
- *Identification and Validation of Competencies*. Project staff will use a functional method of job analysis to define units of competence. Each unit of competence will include the following elements: 1) performance criteria; 2) evaluation criteria; 3) assessment guidelines; and 4) list of basic skills and knowledge.
- *Design of Assessment and Certification System*: A basic goal of the Chilean system is to separate competency assessment from both certification and training. To ensure this, an assessment evaluator may neither train for, nor certify competencies. This separation of roles will help to maintain an open unbiased route to certification. When assessing competence, an evaluator will not rely on training as evidence of competence, but will consider training as one contributing form of evidence. National trade associations in each sector of the economy will award certificates. For example the National Construction Association (Camera Chilena de la Construcción) will be the certifying body for the construction sector.
- *Training Quality Assurance*. Standards will be developed for certifying the quality of training providers, based in part on whether the courses they offer align with the units of competence (skill standards).
- *Competency Piloting*. The competency units and the entire system of competencies, assessment, and certification, will be pilot tested within one or more private companies. This will provide information on how competencies can be used to improve management of human resources.
- *Evaluation and Marketing*. In this activity, the impact and benefits of the competencies will be measured, based on the pilot project. The resulting information will be used to market the skill standards system.

### **Government Support**

The Chilean Government and the Inter-American Development Bank are the

primary funders of the initial, 3-year skill standards project. The Canadian International Development Agency is providing additional support.

Following this initial public investment, the government of Chile hopes to create a self financing system. Government support will continue in the form of tax discounts equal to the value of company investments on training and certifying competence, up to a maximum of 1% of the company's wage bill. However, the majority of the funding will be raised through sales of products and services including certification, accreditation, quality control, and competency consulting.

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## Denmark

### [Economy and People](#)

Denmark is a small country with an aging population and an extensive social welfare system. About 2.8 million people, out of a total population of 5.2 million, are employed in services (38 percent), government (31 percent), manufacturing and construction (25percent), and agriculture and fisheries (5 percent).

About 80 percent of private sector and 100 percent of public sector workers belong to labor unions; labor unions and their "social partners," trade associations, play an active role in the skill training system. Centralized collective bargaining determines wages of most of the workforce, including apprentices (see discussion below).

Although Denmark has few natural resources other than fish and a small amount of oil from the North Sea, it has a strong, growing economy. Its GDP of \$174 billion in 1996 included 20 percent provided by manufacturing and 4 percent from agriculture and fishing. Unemployment fell from 12 percent in 1993 to 6.5 percent in 1998. Since Viking times, Denmark has been an international trading center, and the nation has experienced a trade surplus over the past several years. Major exports include machinery and instruments, chemicals and pharmaceuticals, meat, fish, transportation equipment, and textiles and apparel. Germany, Sweden, and the UK are Denmark's largest trading partners.

Denmark, like the other Nordic countries (Norway, Sweden, and Finland), invests heavily in lifelong education. Among all OECD nations, the average public investment in education in 1995 was equal to 4.7 percent of GDP. By contrast, the government of Denmark spent about 6.5 percent of GDP on education. All young people must attend school from age 6 to 16, and most continue their education. In 1996, 93 percent of 16-year-olds, and 82 percent of 17-year olds were enrolled in upper secondary education. Of those who go on to upper secondary school, about half (47percent) choose a general curriculum and half choose vocational education (53 percent). Most who choose the vocational track enter apprenticeship training.

The Danish workforce reflects the national commitment to education. In 1996, 47 percent of adults had completed upper secondary education, 17 percent were university graduates, and 11 percent had finished some form of non-university education. Basic literacy is universal; Denmark did not participate in the International Adult Literacy Survey [Education at a Glance, 1998].

## Development of Skill Standards

Although Denmark has not developed skill standards per se, it has developed vocational education and training curricula based on the skills needed in particular occupations. Apprenticeship training, based on "learning by doing" under the guidance of a skilled craftsman, began over 400 years ago. Two hundred years ago, trade guilds, the predecessors to today's trade associations, saw the need for formal instruction as well as on-the-job training, and created the first vocational schools. The current apprenticeship system in Denmark still includes these two basic components—on-the-job training supplemented by more formal instruction in the classrooms of these vocational schools. [Interview with Roland Osterlund, Director, Vocational Education, Danish Ministry of Education, February 1999]

In 1991, the government of Denmark instituted reforms to align apprenticeship with other vocational education and to reduce the number of apprenticeships in order to promote occupational mobility. These reforms helped to institutionalize today's "sandwich" apprenticeship system. Today, Danish apprentices spend most of the year in on-the-job training, sandwiched with an average of 10 weeks per year of classroom instruction. Most apprenticeships take 3 or 4 years. Young people can enter apprenticeship either by enrolling in a vocational college and then seeking an employer or by going to work and asking the employer to sponsor them as an apprentice. Apprenticeship training is offered in 90 broad occupational areas and 200 specialized occupations. [Danish Ministry of Education, The Transition from Initial Education to Working Life in Denmark: The Danish Country Report to OECD (Copenhagen, 1998)].

National collective bargaining between trade associations and unions establishes apprentice wages, which are typically about half of the journeyman wage. Apprentice wages increase over time, reflecting the increasing productivity of the trainee. This system encourages employers to take on apprentices at relatively low salaries and also encourages young people to complete their training in order to increase their earnings.

Trade associations and labor unions provide vehicles through which employers and unions can cooperate in developing and delivering apprenticeship. Sixty Trade Committees made up of equal numbers of trade association and union representatives determine the apprenticeship curriculum. These committees decide on training duration, structure, objectives, and examination and certification requirements for each particular trade or occupation. The Department of Vocational Education and Training within the Ministry of Education facilitates the work of the committees and writes training ordinances incorporating committee decisions. The Department of Vocational Education also funds and oversees 124 vocational schools that provide the classroom component of apprenticeship training.

### Government Support [Osterlund interview, op. Cit.]

Employers and workers provide most funding to develop skill standards and assessments in Denmark. Trade associations supported by employer fees and unions supported by member dues underwrite the costs of the Trade Committees. Typically each Trade Committee hires a full-time training coordinator to develop skill standards and assessments, and oversee administration of assessments.

While development of skill standards for apprenticeship is privately financed, the

government supports implementation in several ways. First, the federal government supports the vocational schools that provide classroom education as part of apprenticeship. In recent years, the government has spent about \$0.5 billion annually to support apprenticeship education at these schools. Second, the government oversees the schools, which involves the work of less than one person per year for each of the 60 Trade Committees, or less than 60 full-time employees. Third, the government has created a training tax that encourages employers to take on apprentices. All employers, public and private, must pay into this national training fund. Each employer who trains an apprentice receives a subsidy from this fund, which corresponds with the apprentice's salary while the apprentice is attending school. This offsets the "lost time," with the result that the apprentice's wages should be approximately equal to his or her actual productivity. Finally, the government provides administrative support for the skill standards, translating the decisions of the Trade Committees into ordinances.

### **Implementation**

Because the social partners both create and use the skill standards, they have been fully implemented in the Danish labor market. The Trade Committees made up of equal numbers of union and management representatives develop the national training ordinances (skill standards). Although the Ministry of Education must approve these skill standards, this is generally no more than a formality. At the local level, the social partners make up the majority of the board of directors of each vocational college, and participate in local committees that oversee the implementation of apprenticeship training. These local committees have the authority to decide whether any given employer has adequate training staff and facilities to hire apprentices and train them in accordance with the training ordinance. A committee of three—the apprenticeship instructor, and two "inspecting masters" appointed respectively by the relevant labor union and trade association—conducts the final assessment. If this committee finds that the apprentice has successfully completed the assessment, the relevant national Trade Committee issues the certificate. [OECD Review Team, "Thematic Review of the Transition from Initial Education to Working Life: Country Note—Denmark (DRAFT)," Paris, OECD, 1999].

Young people who successfully complete apprenticeships receive an occupational certificate allowing them to practice their chosen trade. Because almost all employers require these certificates, young people seek apprenticeship training. For example, most employers require entry-level clerical workers to have completed an apprenticeship. Although they are not legally required to do so, most firms choose to take on apprentices and train them in accordance with the specifications set out by the Department of Vocational Education and Training.

The Danish skill standards and apprenticeship system has allowed a growing proportion of the workforce to obtain advanced skills and certification. Among older workers over 60 years of age, only about 20 percent have certificates. In contrast, 47 percent of workers aged 25-39 possess a certificate demonstrating completion of apprenticeship. Among the youngest group, aged 20-24, about 50 percent have certificates.

Denmark's skill standards are embedded within an apprenticeship system that is widely accepted and used. In the Danish labor market, jobs that require a journey level certificate offer more pay and prestige than those that do not. Workers who lack certificates have fewer employment opportunities. To reduce this problem, the

Danish government made it easier for adults to demonstrate their skills and obtain certification. Since 1995, the government has encouraged adults to enter apprenticeship by providing subsidies to employers that hire them and additional support to vocational schools that train them. Adult apprentices may also be given credit for experience, skills, and prior education, shortening the duration of apprenticeship. The response has been positive and in 1997, adults signed 19 percent of new apprenticeship contracts. [Danish Ministry of Education, 1998, p. 18]. Many older workers have completed apprenticeships in clerical and administrative skills.

Although international experts agree that Danish apprenticeship has been quite successful at upgrading the skills of the workforce, the system is currently being reformed. The Danish government hopes to make vocational education more attractive and to increase the articulation between apprenticeship and higher education.

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## Germany

### [Economy and People](#)

Germany is a small European nation, about the size of Montana. In 1996, the population was about 56 million, and 30.6 million people were employed. In 1993 (the most recent year for which figures are available), 61 percent of the workforce was employed in services, 29 percent in manufacturing, and 2.9 percent in agriculture. [More Information . . .](#)

The German system of labor relations provides a framework that supports development and implementation of skill standards. About 35 percent of the workforce belong to labor unions, and 80 percent of employers are members of trade associations. In addition to participating in trade associations, employers are required to belong to their local chamber of commerce (industrial employers) or chamber of handicrafts (small business and artisan employers). The "social partners" (unions and trade associations or chambers) work closely together to design and deliver apprenticeship training.

Germany has one of the world's highest levels of education, technological development, and economic productivity. The nation has abundant natural resources, including iron, hard coal, lignite, potash, and natural gas. Manufacturing of iron and steel, chemicals, electrical products, ships, motor vehicles, and other goods contributes 35 percent of GDP. Germany exports many of these products to France, the U.K., and U.S., and in 1995 Germany had a small trade surplus.

Germany is currently the world's third-largest economy (after the U.S. and Japan) with a GDP of about \$2.5 trillion and per capita income averaging about \$25,000. However, economic growth slowed over the past decade and the economy contracted during the last quarter of 1998. Some economists fear that Germany will experience a recession [William Drozdiak, "Crucial Hour Nears for German Economy, [The Washington Post](#), March 23, 1999, p. A-1]. In response to high wage levels, German firms have moved thousands of jobs abroad. Job losses,

together with the high costs of unification with the former East Germany, have put new demands on the social welfare system. The fraction of the labor force without jobs has grown from 5 percent in 1990 to an estimated 11 percent today.

All young people in Germany must attend school from age 7 to age 17. Between the fourth and sixth grades, German students enter one of three types of secondary schools. The *Gymnasium* follows a rigorous college preparatory curriculum, *Realschule* is less academically rigorous, and *Hauptschule* is the least rigorous. Following secondary school, most German young people go on to further education. In 1996, 82 percent of 18-year olds and 57 percent of 19-year olds were enrolled in upper secondary education. Among those enrolled in upper secondary education, 76 percent were enrolled in vocational education, and, of these, about half were involved in apprenticeship training. The trade and technical schools supporting apprenticeship in the original 11 states of West Germany are considered among the world's best.

Germany's labor force is highly educated. In 1996, 61 percent of the German labor force had at least an upper secondary education, and another 25 percent had completed some form of postsecondary education [Education at a Glance, 1998]. Relative to other countries, Germany's literacy levels are uniformly high. On the International Adult Literacy Survey, Germany's mean score of 285 in document literacy (out of a possible total of 500) was the second highest among the 12 countries surveyed. The difference between the average score of individuals with postsecondary education and those without upper secondary education was highest in the United States and lowest in Germany. This suggests that German elementary and secondary schools provide strong basic skills to most of the population.

### Development of Skill Standards

Although Germany's apprenticeship system originated in medieval guilds that were the precursors to today's unions and business associations, its current form results from modernization efforts launched in 1969. Modern apprenticeship is often referred to as the "dual system," because it combines on-the-job training with more formal, classroom-based instruction. Currently, about two-thirds of all young people leaving middle school in the former West Germany enter apprenticeships, and three-fourths successfully complete their training.

The social partners—business associations and unions—work closely together to develop skill standards for apprenticeship training. The Federal Institute for Vocational Education (Das Bundesinstitut für Berufsbildung — BiBB) supports and coordinates their efforts. When apprenticeship standards are to be developed or updated for a certain occupation or industry sector, BiBB convenes two committees. One, representing employers and unions, focuses on the basic standards (skill standards) for the content of apprenticeship training on the job. The other committee, including employers, unions, and state vocational education institutions, develops basic standards for the school-based portion of apprenticeship training. The committees work until they achieve consensus, which ensures rapid implementation of the final skill standards.

BiBB promulgates national training ordinances which state what apprentices should know and be able to do to qualify as workers. These training ordinances, or skill standards, specify the recognized occupation; duration of training; knowledge and skills to be imparted; guidelines for the organization of training; and requirements for the final exam.

In addition to apprenticeship, vocational skills may be certified at two higher levels. Experienced journeyworkers workers may take courses leading to certification. These certificates are used to qualify for supervisory positions or to set up one's own business. Advanced courses are available in many sectors of the economy, including manufacturing, skilled trades (e.g., auto mechanic, baker, electrician), and services (e.g., banking, retail trade, and insurance). Like apprenticeship, the courses end with a comprehensive qualifying exam.

### **Government Support**

At the beginning of 1998, the German government's annual budget for development of national apprenticeship standards through BiBB was \$26 million. A full-time staff of 366 employees at BiBB works to continually develop and update standards and encourage apprenticeship training. The German government invests additional funds to encourage implementation of skill standards. Subsidies are available to help employers in the former East Germany by offsetting some of the costs of apprenticeship training. Other subsidies encourage employers in both West and East to hire apprentices from disadvantaged groups, such as recent immigrants. In addition, government funds to local chambers of commerce and industry and chambers of handicrafts are used to establish and operate regional training centers.

### **Implementation**

Since 1969, when the current reforms began, apprenticeship training has been updated for 253 occupations. About 97 percent of all apprentices (1.6 million in 1997) are preparing for these occupations. The government recognizes a total of 364 occupations that involve apprenticeship training.

The social partners play an active role in implementing, as well as designing, the skill standards. Local chambers of commerce and chambers of handicrafts administer and enforce the national training ordinances. Each chamber has a vocational education committee made up of equal numbers of employer, education, and union representatives, which oversees apprenticeship. For example, the committee determines whether an employer has the staff and facilities to deliver on-the-job training in accordance with the national training ordinances. The committees also establish examining boards, made up of at least one employer, one worker, and one vocational teacher to develop and conduct final examinations at the end of apprenticeship training.

Because they are so involved in all aspects of apprenticeship, most employers do hire and train apprentices, following the outlines established by BiBB. National collective bargaining between trade associations and unions establishes wage levels for each industry sector. Apprentice wages are typically about half of the journeyman wage and increase over time, reflecting the increasing productivity of the trainee. This provides another incentive to employers to hire apprentices, since they can pay them relatively low salaries. The wage pattern also encourages young people to complete their training in order to increase their earnings. After successfully completing apprenticeship training and passing the exit exam, many qualified journey-level workers are hired by the same firm that trained them.

Most observers agree that the dual system is one of the finest vocational education and training systems in the world. Apprenticeship is the primary method of vocational education in Germany, providing wide access to skill certification.

Nevertheless, the system has some problems. One is that apprenticeships vary in the depth of training they provide, and the upward mobility they offer. Young people from lower-income families often attend *Hauptschule*, the lowest tier of secondary school. Following graduation, they typically enter apprenticeships leading to lower-paying occupations in the service sector and manufacturing. In contrast, those who complete *Realschule* (the middle tier of the secondary system) may go on to full-time vocational school or enter apprenticeships. Both routes prepare these young people for technical or white-collar occupations. In the past, almost all *Gymnasium* graduates entered universities, but today, many choose apprenticeship. Employers in banking and business services generally select apprentices who are *Gymnasium* graduates, bypassing young people from the less rigorous high schools [Robert G. Sheets, Skill Standards Systems in Germany, Japan, and Canada: Implications for a U.S. Skill Standards System, Washington, D. C.: National Governors' Association, 1994].

The increasing education levels of the German population have also affected the relationship between apprenticeship and upward mobility. In recent years, managers in some sectors have begun hiring university graduates for positions that were formerly filled from within by skilled journey-workers. For example, Keltner, Pager and Finegold [1996, op.cit] found that, in metalworking, journey-workers who completed higher-level courses became supervisors or lower-level managers, but were unlikely to move higher. In retail trade and services, however, most senior managers began their careers as apprentices.

Another problem is that Germany's skill standards are embedded in apprenticeship, making it difficult for those who develop skills via other routes to obtain certification. In order to be assessed, a young person must have completed an apprenticeship course that follows the training ordinance.

The German apprenticeship system is sometimes slow to respond to changing skill requirements in the economy. In metalworking, the last major revision of apprenticeship took ten years, while in retail, the last major revision took only three years. Although all parties must agree on any revisions of skill standards, achieving consensus does not necessarily require a decade. In the mid 1990s, the government set new guidelines requiring that all new training ordinances should be developed and introduced within a two-year period.

Perhaps the most serious problem facing apprenticeship today, reflecting the overall unemployment problem in Germany, is a lack of permanent skilled jobs for graduates of the system. In the former West German states, 13 percent of recent apprenticeship graduates were unemployed in 1992, a proportion which grew to over 20 percent by 1996. In former East Germany, where unemployment is higher overall, the fraction of unemployed journey workers rose from 24 percent in 1993 to over 33 percent in 1996. If these trends continue, fewer young people will be attracted to apprenticeship [Bundesministerium fuer Bildung, Wissenschaft, Forschung und Technologie, Berufsbildungsbericht 1997, p. 109,111].

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## Japan

## Economy and People

Japan includes one densely populated main island and several smaller islands. The population of 126 million is rapidly aging, and quite homogeneous. In 1997, about 67 million people were employed. Among these, about 23 percent worked in services, 56 percent in trade, manufacturing, mining, and construction, 6 percent in fisheries, and 3 percent in government. [More Information . . .](#)

After two decades of rapid growth, Japan's economic growth slowed in the early 1990s. In 1997, GDP was \$2.85 trillion. The Asian economic crisis that began that fall led to recession in 1998. Unemployment has risen from 3.3 percent in October, 1997 to 4.8 percent in March, 1999. Although the current level of unemployment is lower than that of most other industrialized nations, it is an all-time high for modern Japan.

Japan is best known for manufacturing high quality products for export. Japanese factories produce machinery and equipment, metals and metal products, textiles, autos, chemicals, and electronics. Many of these products are exported to Southeast Asia, the U.S., and China, and Japan has had consistent trade surpluses. The country has few natural resources other than fish; Japanese farmers produce a variety of agricultural products.

Japan provides free public schooling for all children through junior high school, and school is compulsory until age 15. Standardized tests play a large role in determining educational and employment opportunities. Near the end of junior high school, young people take national standardized tests. Although nearly all students go on to attend senior high school (in 1996, 95 percent of 17-year-olds were enrolled), the test scores determine the quality of the school. Top performers on the test gain access to the best senior high schools, which have relationships with the best universities and employers [Sheets, 1996, op. Cit.].

In high school, most Japanese students (72 percent in 1996) follow a general, academic curriculum, while less than a third (28 percent) enroll in vocational high schools. Near the end of both types of schools, students again take national, standardized tests. Employers use these test results to decide whom to hire, while colleges and universities accept new students based largely on the test results. Most vocational school graduates go directly to work. Japan did not participate in the International Adult Literacy Survey.

## Development of Skill Standards

In Japan, most vocational training is conducted in the workplace. As part of Japan's commitment to lifetime employment (for at least some core workers in large firms) — and in keeping with the "kaizen" philosophy of continuous improvement — most enterprises provide extensive and ongoing employee training. As a result, training is often focused on specific skills needed to perform a job rather than general occupational skills.

However, skill standards and certification do play a role in Japanese training, and their significance may grow because the country's economic difficulties have increased worker mobility. The Vocational Training Law of 1958 inaugurated a national vocational skills testing system for the specific purpose of increasing the social status of blue-collar workers. More recent legislation has emphasized the role of national skill standards and certification as a way of upgrading worker skills.

Under current legislation, the Japanese Ministry of Labor (MOL) encourages worker training and certification at three levels:

1. Basic training for recent junior high and high school graduates
2. Upgrade training for experienced workers
3. Vocational ability redevelopment training for older workers and displaced workers

The content of all three types of training is determined by training standards, which are somewhat analogous to skill standards. The MOL develops these national training standards in consultation with the tripartite Central Human Resource Development Council, which consists of employers, unions, and educators. This council establishes expert committees to develop training standards and assessments. Training standards specify admission requirements, duration of training, curriculum, instructor qualifications, and facilities and equipment needed. The MOL uses these standards to review public and private training courses, accrediting courses that meet the standards. Accredited courses are eligible for government funding.

Both the public and private sectors deliver training. Basic training is generally conducted in public vocational schools. Workers who complete accredited courses at these public institutions and pass the national qualifications assessment are certified as "Assistant Skilled Workers." Workers may obtain accredited upgrade training in a variety of ways, including taking classes at a local vocational school, attending accredited, company-sponsored training, or by enrolling in an approved correspondence course. Following completion of approved courses, a worker may take a national trade test for a specific skill area. Those who successfully complete the relevant assessment are certified as a Grade 2 (entry-level) Certified Worker or a Grade 1 (advanced level) Certified Worker [Sheets, 1994]. Displaced workers may obtain retraining through the same sources, including public vocational schools and accredited correspondence courses or private training courses.

### **Government Support**

The government of Japan supports both the development and implementation of national training standards and assessments.

The MOL's capacity-building program provides subsidies for company training, supports public vocational training centers, and subsidizes national trade tests. Small and medium-sized firms that follow government guidelines may qualify for capacity-building grants, which can be used to establish training, assessment, and certification systems. Although operated by the federal government, the capacity-building program is financed in part by employer contributions to the unemployment insurance system. These employer contributions are combined with general revenues from the national, state, and local governments.

### **Implementation**

Both public and private organizations develop and administer assessments to measure attainment of skill standards. The MOL develops and conducts assessments for Grade 1 worker certification, and awards national certificates. The general content of these assessments is based on national skill standards developed by the Central Human Resource Development Council. Using this general content,

expert committees of the Japan Vocational Ability Development Association develop specific assessment items.

Trade associations in each prefecture (regional government) in Japan develop Grade 2 assessments, based on the national skill standards. The prefecture governments administer these Grade 2 examinations and award Grade 2 certificates.

Although skill standards and certification are widely used by Japanese employers and workers, a single unified system does not yet exist. An article in a Japanese journal reports on a 1995 survey of employers [Takashi Kawakita, "Japanese In-House Job Training and Development," Japan Labor Bulletin, Vol. 35, No. 4 (April 1, 1996)]. Less than 20 percent of those surveyed offered promotions or higher pay to individuals who had passed the national skill tests. The survey found that nearly half of the companies had created their own job qualifications systems, under which workers could be tested and certified as experts in specific jobs.

The MOL has launched a multifaceted program to respond to the current economic crisis. One key element involves continuing and expanding efforts to promote worker training, skill standards, and certification. The MOL provides subsidies to companies that retain and train employees rather than laying them off. Other subsidies are designed to encourage companies to allow workers flexible schedules and extended leave in order to participate in training classes and to support retraining of displaced workers.

Since 1995, the government has also created a new skill standards and certification system for white-collar workers. Staff of a new "Ability Garden" in downtown Tokyo have conducted work analysis and defined skill standards for ten white-collar occupational areas. They have reviewed existing public and private training courses and accredited those that meet the new skill standards. Graduates of approved courses, as well as workers who have developed similar skills on the job, may be assessed and certified by the Japan Vocational Ability Development Association.

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## Malaysia

### Economy and People

Malaysia is a small Southeast Asian nation made up of the Malay Peninsula and the island of Borneo. A former British colony, Malaysia became independent in 1957 and is now governed by a parliamentary democracy.

At independence, Malaysia inherited an economy dominated by two commodities -- rubber and tin. In the 40 years thereafter, Malaysia's economy diversified rapidly, with the help of new foreign and domestic investment. Manufacturing grew from 13.9 percent of GDP in 1970 to 35.7 percent in 1997, while agriculture and mining, which together had accounted for 42.7 percent of GDP in 1970, dropped to 18.5 percent in 1997. Malaysian factories now produce electronics, electrical products, chemicals, food and beverages, metal and machine products,

and apparel. Malaysia is the world's largest exporter of semiconductor devices. In 1997, exports and imports were balanced. Major trading partners include Singapore, the U.S., and Japan.

From the early 80s through the mid-90s, Malaysia experienced sustained economic growth, averaging 8 percent per year, and 1997 GNP was \$93.6 billion. However, the economic and financial downturn in Asia that began in July 1997 has buffeted the Malaysian economy. In September, 1998, with GDP contracting and the value of the ringgit (Malaysia's currency) collapsing, the government temporarily blocked movement of investments out of the country and halted currency trading. At the same time, however, the nation stabilized its banking system and adopted other needed economic reforms. Now, Malaysia's economy has begun to recover, and GDP is projected to grow 1 to 2 percent by the end of 1999. International investors are looking at Malaysia with renewed interest [Paul Blustein, "Malaysia Survives Dire Predictions," The Washington Post, Wednesday, May 19, 1999, p. E-1].

In 1997, Malaysia's population of about 22 million was growing at an annual rate of 2.3 percent; over one-third of the population was under the age of 15. The politically dominant Malays comprise a plurality among the many different ethnic groups in Malaysia. About 8.6 million people are employed. Of these, about 22 percent work in manufacturing, 21 percent in government, community, social and personal services, 19 percent in trade and tourism, 18 percent in agriculture, and 9 percent in construction.

Compared with advanced industrial nations, Malaysia's workforce is less educated. Most young people attend school for only 7 years, from age 6 through 12. Although school is compulsory until age 16, less than 70 percent of 15 and 16-year olds were enrolled in 1996. That year, 29 percent of the workforce had completed upper secondary education, and 9 percent were university graduates [OECD, Education at a Glance, 1998].

### **Development of Skill Standards**

Like many developing nations, Malaysia erected trade barriers during the 1960s to reduce reliance on imports and stimulate domestic manufacturing. However, when efforts to develop heavy industries failed and foreign debt increased, Malaysia began to focus instead on promoting exports. To attract foreign investment and contain the costs of exports, the government kept wages low and limited union organizing. As noted above, the export-oriented manufacturing strategy has been quite successful [Sarosh Kuruvilla, "Industrialization Strategy and IR Policy in Malaysia and the Philippines: Implications for Comparative Industrial Relations," Paula B. Voos, ed., Proceedings of the Forty-Sixth Annual Meeting, Madison, WI: Industrial Relations Research Association, 1994].

Over the past decade, the Malaysian government has sought to develop higher technology manufacturing with deeper linkages to the domestic economy. The advanced manufacturing now being developed in Malaysia requires more highly skilled workers. As a result, government industrial relations policies have shifted away from containing wages and towards upgrading the workforce.

### **Development of Skill Standards**

Skill standards are a central element in the current strategy, which aims to make

Malaysia an advanced industrial economy by the year 2020. The National Vocational Training Council (NVTC), established in 1989 is developing a system of national occupational skill standards and certification. The NVTC works with skill advisory committees for each industry sector, made up of employers and expert workers. These committees first identify critical occupations for which skill standards are needed and then develop skill standards. The construction industry is represented by a public-private Construction Industry Development Board, which has established skill standards for many trades and offers certification to domestic and foreign workers. However, this is the only industry sector that has created an independent organization; other sectors work through the Skill Advisory Committees.

### **Government Support**

The government provides about \$0.9 million annually for development of NOSS and another \$0.13 million for implementation of the skill certification system, for a total of about \$1 million. Seven full time government employees work with hundreds of expert workers to develop skill standards, using a DACUM approach. In addition, the certification division of NVTC employs 39 staff.

### **Implementation**

After about one decade, NVTC has developed skill standards for 378 jobs, and placed those standards within a five-level qualification framework. Prior to creation of NVTC, Malaysia, like many other Asian nations (e.g., Korea, Japan) had a system of national skill tests and certification. National tests were administered twice a year at designated test centers. Following a major review, the current system was initiated in 1996. In this system, NVTC accredits other organizations to provide training and assessment leading to the award of Malaysian Skill Certificates. To be accredited, the training must be aligned with the national occupational skill standards. To date, NVTC has accredited 312 centers to offer skill certificates. Over 60 percent of these are from the private sector. About 30,000 students are presently studying for the Malaysian Skill Certificates, and about 50,000 individuals have been awarded certificates. Although certification does not yet lead quickly to hiring, promotions, or access to training, the NVTC believes the system is gaining wider support and recognition by both employers and individuals.

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## **The Netherlands**

### **Economy and People**

The Kingdom of the Netherlands is a small, densely populated European nation with a population of 15.4 million. The workforce includes 6.3 million people. As in other advanced industrial nations, services provide the greatest share of employment (about 74 percent in 1996). Another 16 percent of the workforce are employed in manufacturing, and 4 percent in agriculture.

In 1998, the Netherlands' GDP was \$357.4 billion. The Dutch people have

combined a few natural resources (natural gas, petroleum, fertile soil, and a strategic location on the North Sea) with a highly skilled workforce to develop an advanced industrial economy. Dutch factories produce steel, metal products, electronics, bulk chemicals, natural gas, and petroleum products. The Netherlands has been a trading center since the 17<sup>th</sup> century, when it developed a large colonial empire; today, Rotterdam is the world's busiest port. In 1995, exports from the Netherlands were valued at about \$146 billion, and the trade balance was positive. Most trade is with European nations and the U.S. Agriculture plays a small but important role in the economy, contributing 4 percent of GDP.

Relative to other industrialized nations, the Dutch labor force is highly educated. Forty-three percent of working age adults have completed upper secondary education, and 27 percent are university graduates. This proportion of university graduates is second highest among the OECD nations, following only the United States. The results of the International Adult Literacy Survey indicate that the Dutch people have strong basic skills. The Netherlands' mean score of 287 in document literacy was the second highest among the 12 nations surveyed.

### **Development of Skill Standards**

Like Germany and Denmark, the Netherlands has a modern apprenticeship system that traces its origin to medieval guilds. However, the Netherlands also has an extensive system of school-based vocational education (known as MBO). Compulsory school ends at age 18, and about half of nineteen-year olds continue secondary education, while another fourth attend universities. In secondary school, only 30 percent of students followed a general curriculum in 1996, while 70 percent followed a vocational track. Among those participating in vocational education, nearly half (47 percent in 1996) attended MBO training, while 23 percent were apprentices [OECD, Education Indicators, 1998].

Comprehensive reform of academic and vocational education in the Netherlands began in the late 1980s and was codified in the Vocational Education Act (WEB) in 1996. The WEB was designed to better integrate various forms of adult and vocational education, to increase the linkage between vocational education and the labor market, and to help provide at least some qualifications to all citizens. Under the new law, adult and vocational education is offered at four levels:

1. short "assistant" training courses lasting 6 months to one year;
2. basic vocational training lasting two years;
3. more advanced vocational training of 2-4 years; and
4. management training, including 3 to 4 years of middle management training supplemented by 1-2 years of specialist training.

To guide the content of training in the new system, the government created 22 "national bodies for vocational education," one for each major sector of the economy. Each body includes employers, unions and educators. They conduct research into occupational requirements and analyze vocational profiles drawn up by the social partners (companies and unions). Based on this research and analysis, the national bodies develop the "final terms," or skill standards for each occupation. Final terms are descriptions of the minimum knowledge, understanding, skills and/or attitudes necessary for obtaining a qualification. These final terms determine the content of training, both on-the-job and in school, for both MBO schools and apprenticeships. The national bodies also oversee apprenticeship contracts and develop and operate assessment systems for

apprenticeship. Although they do not administer MBO assessments, they provide advice on this as well.

In February 1996, The Advisory Committee on Education and the Labor Market (ACOA) was created to develop a unified framework encompassing all forms of vocational education. The ACOA reviews proposed skill standards and training programs, and provides advice about whether the proposals fit within this unified framework. In addition, ACOA conducts research into the effectiveness of alternative forms of education and training.

### **Government Support**

The government has provided extensive support for development and implementation of skill standards, including funds to create and coordinate the 22 national bodies for vocational training. In 1999, the government is investing about \$76.4 million in the national bodies, for use in developing skill standards. However, employer contributions to each national body far exceed the government support. A federal agency, COLO, coordinates the work of the 22 national bodies.

The national bodies, taken together, employ over 500 staff. However, most staff are employed in delivery of skill standards and certification, funded by industry, rather than government-funded development of skill standards.

### **Implementation**

To date, the national bodies have developed, and ACOA has approved, more than 700 qualifications, which are combined into broader skill standards. The standards cover five types of training at the four levels outlined above.

The Netherlands' system of skill standards has been fully implemented. A law passed in 1997 requires use of the standards to guide the curricula and assessments of both apprenticeship and MBO training. The skill standards also govern the work-based training component of both MBO and apprenticeship, and they are optional for private vocational schools. Apprentices who have completed their training are assessed and certified by the relevant national body. MBO students are generally assessed and certified by the MBO School they attend.

The skill standards have been widely accepted by employers, who generally try to hire certified workers. Companies that train apprentices usually hire them as permanent employees after they complete their training. Certification following either MBO or apprenticeship training is considered a "start" qualification. Most companies provide further, company-specific training to certified workers.

Because it enhances employment opportunities, increasing numbers of Dutch young people are participating in vocational training and certification. The number of students obtaining certification each year rose from 56,400 in 1992/93 to 61,300 in 1996/97. There is no central registry of certification.

All skill standards in the Netherlands are regularly updated. Standards for rapidly changing fields such as advanced information technology are updated more frequently than those for more stable occupations, such as construction. On average, standards are updated every five years. It usually takes about one year to develop a skill standard, a half-year to define the training course based on the standard, and a half year for ACOA to review the proposal. Once ACOA approval

has been obtained, the course must be registered at the Central Register of Vocational Education and after that a school can apply to obtain the curriculum to deliver the course.

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## **New Zealand**

### **Economy and Education**

New Zealand is made up of several South Pacific islands; most of the nation's 3.7 million people live on the large North Island. About 75 percent of the population are of British origin, 14 percent are descendants of the indigenous Maori people, and 6 percent are Polynesian.

In 1996, 1.5 million New Zealanders were employed. Services and government was the largest sector, employing 59 percent of the workforce. About 31 percent of the workforce were employed in manufacturing and commerce, and 10 percent in agriculture and mining.

New Zealand's economy slowed substantially in the late 1990s due to tight monetary policy and the Asian financial crisis. In 1997, GDP was about \$64.4 billion, and real economic growth was approaching 2 percent. New Zealand's prosperity is based primarily on natural resources and related industries. The temperate to subtropical climate and fertile soils contribute to exports of meat, forest products, fruit and vegetables, fish, wool, and dairy products. New Zealand also has hydroelectric power and sizable reserves of natural gas. Leading manufacturing sectors include food processing, metal fabrication, and wood and paper products. New Zealand imports machinery, manufactured goods, transportation equipment, chemicals, and fuels.

Since 1984, New Zealand has moved toward a free market economy, open to global trade. Economic reforms, including elimination of government subsidies and sales of state-run enterprises, have led to economic dislocation and high unemployment (7.7 percent in June 1998). In addition, a tight monetary policy increased the value of New Zealand's currency, hurting exports. In 1996, New Zealand had a trade deficit of \$9 billion.

New Zealand has an extensive educational system. Although school is compulsory from age 6 through 16, nearly all four-year-olds participate in early childhood education, and most 17-year olds attend upper secondary education. At the upper secondary level, the majority of students (62 percent in 1996) follow a general program of study, while a substantial proportion (38 percent in 1996) are on a vocational or technical track. Nearly 40 percent of secondary school graduates went on to university-level education in 1996. New Zealand has one of the highest levels of participation in university education in the OECD, following only the U. S., Poland, Finland, and the UK. Among those currently in the workforce, 38 percent have completed upper secondary education, 13 percent are university graduates, and another 15 percent have completed non-university higher education.

Findings from the International Adult Literacy Survey reveal wide variation in the

basic skills necessary for life and work. As in Australia and Canada, a relatively large proportion of the New Zealand population performed at level 1 (below the minimum expected proficiency) and at levels 4/5. However, although New Zealand's distribution of scores on the prose and document literacy scales was similar to Australia's, a smaller fraction of New Zealanders performed at levels 4/5 on the quantitative literacy scale.

### **Development of Skill Standards**

The New Zealand Qualifications Authority (NZQA) was established in 1990 to develop and maintain a comprehensive and flexible National Qualifications Framework (NQF). Following the Scottish model, the NZQA reviewed and revised existing vocational curricula, creating competency units (curriculum modules) that could be combined into national qualifications. NZQA recognized National Advisory Groups to develop the competency units. However, these bodies lacked the expertise to develop high quality standards without assistance.

To address this problem, the government encouraged the National Advisory Groups to merge and restructure into Industry Training Organizations (ITOs). The government also provided the Education and Training Support Agency (ETSA) with funding to subsidize structured industry training through contracts with the ITOs.

Unit standards, developed by ITOs and approved the NZQA, make up the building blocks of the NQF. Each unit standard includes lists of performance criteria that identify what a person has to know, do, and be able to understand to be considered competent in an area of skill and knowledge. Each standard belongs to one of the eight levels of achievement in the NQF, and carries a specified credit value. Individuals can earn credits toward a National Certificate or National Diploma.

Today the ITOs set standards, provide information to trainees and employers, arrange for delivery of both on-the-job and classroom training, arrange for assessment, and monitor the quality of training and assessment. The NZQA also recognizes a few National Standards Bodies, which develop skill standards not applicable to a particular industry (such as occupations that are found in many different industry sectors).

The NZQA does not set skill standards, but provides quality assurance for the system. For example, the NZQA establishes criteria that must be met if skill standards are to be registered as part of the NQF. The agency also maintains a central database of registered skill standards and national qualifications, and another database including learners who have attained partial (some unit standards) or complete national qualifications.

### **Government Support**

The New Zealand government supports development, registration, implementation, and updating of skill standards through two agencies: NZQA and ETSA. Annual funding for development and registration of skill standards peaked between 1991 and 1995 at \$2.2-\$4.0 million each year. Much of this was used to create and support standards setting bodies. Staff levels rose from 15-20 people in 1993/4 to 40 people in 1995/6. In 1997, the government stopped funding NZQA to develop skill standards, although it continued to support registration of standards, at a level of about \$0.5 million, employing about 8 people in this role. In addition to this

support through NZQA, the government funds ETSA, which provides about \$1.3-\$2.5 million annually to the ITOs for revision of skill standards; a staff of 6 people supports this effort.

Current government support (with most standards already developed) totals about \$1.8-\$3.0 million for updating and registration.

### **Implementation**

Implementation of skill standards is well underway. The number of unit standards and national qualifications registered has grown each year since 1993, and today there are about 11,000 unit standards linked to 415 national qualifications. In August 1998, 300,247 people (about 10 percent of the total national population) had attained qualifications which were recorded in the NZQA's central database (the Record of Learning).

As initially planned, the skill standards are being used in a variety of settings, including workplaces, polytechnic colleges, high schools, and private training organizations. Unlike skill standards systems in many other countries, the New Zealand Qualifications Framework is truly comprehensive, incorporating all vocational and academic credentials including postgraduate degrees. Because unit standards are certified individually on the Record of Learning, companies are able to package collections of unit standards that match their unique needs. This has encouraged employers to adopt the national standards and to use them in training and human resource development.

The ETSA conducted a comprehensive evaluation of the New Zealand skill standards system in late 1997, and found that it had achieved many of its original goals [Skill New Zealand: A Stocktake as of December 1997 (Wellington, New Zealand: Education and Training Support Agency, April 1998):

#### ***Outcome 1: Increase in industry-led design, management, and delivery of training.***

The number of ITOs and National Advisory Groups rose steadily from 1993 through 1997. By 1997, over 90 percent of the workforce were employed in an occupation or industry for which skill standards and training had been developed. Skill standards are used in ITO-funded training (government funds support this) and also in schools, private training establishments, and technical colleges. The real estate and journalism industries provide extensive training linked to skill standards, and leading companies in forestry, transportation, and telecommunications were using the standards.

#### ***Outcome 2: Best practice is aligned to the NQF.***

Under the Industry Training Act, ITOs can get government subsidies to provide training within their industry sector. Most of the 36 ITOs that had received such subsidies provided training programs fully aligned with the NQF, and 90 percent of this subsidized training was between levels 2 and 4 on the NQF, equivalent to apprenticeship. All training providers were required to transition to the standards framework in order to be accredited by the relevant ITO and qualify for government support.

#### ***Outcome 3: Quantity and Quality of Relevant industry training increased.***

The number of students and workers participating in training based on NQF standards grew steadily, reaching a total of 41,227 at the end of 1997. This represents a 177 percent increase over four years. The NZQA has accredited more than 946 public and private training providers to provide training to 251,482 learners registered on the NQF. In addition, NZQA has accredited 45 ITOs to register assessors of training, and these ITOs have registered nearly 5,000 assessors throughout the country.

***Outcome 4: Formal structured training established in industries lacking this training***

Of the 51 industry sectors covered by ITOs, 31 had little or no structured training prior to 1992. One example is the sports, fitness, and recreation industry, which now has an ITO and structured training. In other industry sectors, the ITO has helped to develop training for new areas. For example, the building and construction ITO has developed training for occupations in scaffolding and rigging.

***Outcome 5: All government supported industry-led training linked to NQF so that qualifications are portable, comparable, and easily understood.***

Most national qualifications registered on the NQF (74 percent) include core generic skills (such as communication and occupational safety and health) that are easily transferable. Some ITOs have developed training that has been integrated into the curriculum at the upper secondary school level. To further increase the articulation, or linkage, between academic and vocational qualifications in the NQF framework, NZQA in June, 1997 launched 2 non-industry specific National Certificates:

1. Employment Skills: literacy, speaking, numeracy, personal and technical skills
2. Educational Achievement: achievement at level 3 of the NQF in a wide range of skills, including communication and numeracy.

***Outcome 6: Industry training accessible to all who need it***

The government of New Zealand offers two training programs targeted to the disadvantaged: The Training Opportunities Program (TOP) for low-skilled people experiencing long-term unemployment, and the Skill Enhancement Program, which provides vocational education for young Maori and Pacific Islanders. Both programs assist trainees to gain NQF credits. In 1997, about 20 percent of all learners registered on the NQF were Maori, while Pacific Islanders represented 7 percent. About 48 percent of all those registered were women.

***Outcome 7: Training Pathways Diversified***

Large number of schools and private training enterprises are now training to industry standards. Career guidance for young people in schools is also based on industry skill requirements, and some secondary students are gaining credit toward industry qualifications. At work, there are many paths to skill enhancement and certification.

***Outcome 8: Training culture established***

An increasing number of ITOs has been tapping ETSA subsidies to provide worker training. In 1997, the government published results of a comprehensive labor force survey, which showed that 26.4 percent of wage and salary earners received employer-provided training during the 12 months ending in September 1996. Although the survey does not indicate how much of this training is linked to the NQF, it does indicate that a substantial number of workers are now receiving training.

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## United Kingdom and Scotland

### Economy and People

The United Kingdom is a constitutional monarchy including Great Britain (England, Wales and Scotland) and Northern Ireland. General background information on the entire UK is included here. Because Scotland has its own skill standards system, it is described separately at the end of this section.

The UK population of 58.5 million people (mostly British, with small minorities of West Indians and South Asians) is growing very slowly. In 1996, the civilian labor force totaled 28.6 million. Among those employed, the majority (71 percent) worked in services, including transportation, communication, public utilities, trade finance, and other services. Another 19 percent worked in manufacturing, and just 2 percent were employed in the agricultural sector. [More information . . .](#)

One of the largest economies in the European Union, the UK is a major international trading power. London ranks with New York as a center of global finance. In 1997, the United Kingdom's GDP was \$1.29 trillion, and growing at annual rate of 3.5 percent. Per capita GDP that year was \$22,241. Sources of economic growth include natural resources, such as North Sea oil and gas, coal, tin, limestone, and other minerals. Factories in the UK produce steel, metals, textiles, motor vehicles and aircraft, electronics and chemicals. Together with construction, manufacturing accounts for 33 percent of GDP. Trade makes up an important component of the economy, and in 1995, the UK had a small trade deficit. In 1996, the UK was the U.S.' sixth-largest trading partner. Total two-way direct investment between the U.S. and the UK was the world's largest in 1996.

British education has set world standards for centuries, and the British workforce is highly educated. Public primary education was introduced in 1870 and secondary education in 1900. All young people are required to attend school from ages 5 through 16, and most continue. At age 18, about one-fifth of UK students are enrolled in universities, while another third attend upper secondary education. In 1996, 43 percent of upper secondary students followed a general track, while 57 percent enrolled in a vocational or technical program. That year, 57 percent of the working age population had completed upper secondary school, 15 percent were university graduates, and 10 percent had finished some form of non-university education [OECD, [Education Indicators](#), 1998].

### Development of Skill Standards

Until recently, vocational education was not seen as a high priority in the UK. The world-famous "British education," was reserved for the upper class children attending private boarding schools. There, they prepared for careers in government, the military, law, and banking. Middle class children typically attended local "grammar schools," often followed by apprenticeship. This led to jobs as skilled tradesmen or as managers in local companies. The lower classes attended local free schools, obtaining unskilled jobs at age 14. Only a small fraction of the population attended universities, and most people, learned their trade through formal or informal apprenticeship. Workers in occupations ranging from skilled tradesmen up through bankers, lawyers, and government officials, learned what to do from older, experienced mentors.

By the early 1980s, it was clear that this traditional, highly stratified system was not meeting the needs of British employers. Unemployment was growing, especially among young people. The formal apprenticeship system was shrinking and hundreds of professional bodies, training organizations, schools and colleges offered competing certificates of vocational qualifications. To address these problems, a new National Council for Vocational Qualifications (NCVQ) was created in 1986. The NCVQ created a unifying framework for skill standards and accredited over 150 industry associations, called lead bodies, to develop standards for their industries. Some lead bodies developed skill standards, others provided training to meet the standards, and still others did both.

To develop skill standards, the lead bodies conducted functional job analysis to define the skill, knowledge and attitudes required in an occupation, performance criteria and descriptions of competent performance. Competency units are defined by elements of competence, "range statements" that show the range of situations in which competence must be demonstrated, and performance outcome statements. The resulting competency units are compiled to create National Vocational Qualifications (NVQs). The NVQs are arranged at 5 levels of increasing skill.

In late 1993, the UK government introduced General NVQs, or GNVQs as a supplement to the NVQ system. Unlike NVQs, which are based on competencies required in specific occupations, GNVQs are designed to provide young people with a broader exposure to a field. And, unlike NVQs, which are independent of the training delivery system, GNVQs were designed specifically for delivery in schools and colleges. The GNVQs are well integrated into the secondary education curriculum, and can be used to prepare either for employment or for higher education. By 1996, GNVQs were available in 13 broad vocational areas. They provide qualifications roughly equivalent to NVQ levels 1-3.

In October, 1997, the Qualifications and Curriculum Authority (QCA) was created, merging the functions of the former NCVQ and the School Curriculum and Assessment Authority (SCAA). The former lead bodies have been merged into about 60-70 QCA-accredited "National Training Organizations" (NTOs). The QCA contracts with the NTOs to develop standards and provide training. The QCA also accredits Awarding Bodies to oversee assessment and certification.

### **Government Support**

Successive UK governments have invested heavily in development of skill standards. During the 1980s, the government supported the NCVQ as it developed a framework for skill standards and criteria for accreditation. By 1993/94, NCVQ expenditures totaled about \$13.7 million. Most of its funds came from the

government, but a small part was derived from the private sector in the form of registration fees. In addition to funding NCVQ, the UK government provided funds and staff to the Employment Department (now the Department for Education and Employment), which worked closely with the lead bodies in developing national occupational standards.

Today, the QCA as a whole has an annual budget of \$34.6 million, almost all of which is funded by the government. The 1998/99 annual budget of the Vocational Qualifications and Occupational Standards Division of QCA, which develops national skill standards, is about \$3.1 million [Qualifications and Curriculum Authority, Corporate Plan 1998-2001]. Although the QCA employs about 470 people in total, most of these work in divisions other than the Vocational Qualifications and Occupational Standards Division.

### Implementation

In the twelve years since 1986, the UK has succeeded in creating 881 NVQs, covering 90 percent of occupations and industries. Implementation of these skill standards is slowly gaining momentum. The number of NVQs awarded annually has grown from 47,000 in 1990 to 446,000 in 1998 (about 1.6 percent of the labor force). By September, 1998, 2.2 million NVQ certificates had been awarded, representing a 25 percent increase over the total number awarded one year earlier. About 7 percent of the total UK workforce has been certified, and about 1 million people (3.8 percent of the labor force) are currently working towards NVQs.

In 1986, Keltner, Pager and Finegold evaluated the U.K. system along several dimensions. They concluded that the British skill standards system had increased access to certification for several reasons. First, GNVQs were introduced just at the time that a greater proportion of 17 and 18-year olds were choosing to remain in full-time education, and many of them chose to obtain GNVQs. Second, the NVQs made it easier for those without formal education to obtain certification. However, Keltner and colleagues found that the UK system had less success in encouraging development of broad skills. It appeared at the time of the study that the skill standards were too focused on existing skill levels that could easily be attained by those already in the workforce.

Keltner and colleagues found that the impact of skill standards in promoting lateral mobility varied across economic sectors. In those occupations and industries where attainment of NVQs was based on externally certified tests, the certificate was widely accepted by a variety of employers, allowing lateral mobility. In occupations and industries where attainment is based on assessment in the workplace, it was more difficult to demonstrate the value of the NVQ.

This challenge--demonstrating the quality of NVQs obtained based on assessment in the workplace—is one of several the UK system has encountered. An initial solution was to develop detailed performance measures for assessment, but companies viewed these as too bureaucratic [Professor David Melville, Chief Executive, Further Education Funding Council, UK, speech to the National Skill Standards Board on December 11, 1998]. Some business people viewed (and continue to view) the unit standards, and particularly, the "range statements" as too restrictive and inflexible. The range statements include extensive lists of contexts in which evidence of competency must be demonstrated before the standard is met. This means employers may be required to pay for training and assessment in of skills beyond those required in their workplace, and makes the assessment process

quite complex.

To address this problem, the QCA now expects assessors to follow more general guidelines. QCA monitors and accredits Awarding Bodies, and these bodies, in turn, monitor and accredit Assessment Centers. Rather than trying to assess the full range of competencies in the workplace, many employers that use the NVQ system rely on these Assessment centers. The Awarding Bodies conduct external verification of the quality of assessments conducted by these Assessment Centers. In 1998, the QCA released a report on a "Quality Audit" that monitored 34 Awarding Bodies and included 15 quality audits. The study found overall performance satisfactory, but called for improvements in external verification in order to improve the overall quality and consistency of the NVQs.

Another challenge was accurately measuring all of the skills and abilities needed for work in a system that focuses on demonstration of competence. As initially designed, the unit competencies reflected tasks and activities, with little emphasis on the underlying knowledge that allowed a worker to successfully perform those tasks. To overcome this problem, assessments were redesigned to include questioning of candidates on why they performed activities in a certain way, and what they would do in an unexpected situation. For example, the Construction Industry Training Board's package for assessors includes not only checklists for observation of specific skills at the workplace but also knowledge questions associated with each specific skill.

Yet another problem was the creation of large numbers of competing qualifications. Initially, the NCVQ tried to work with both existing training and certification organizations and the new industry bodies. By the mid-1990s, NCVQ recognized three different types of skill standards organizations—Industry Training Organizations, Lead Bodies, and Occupational Standards Councils. These groups had created over 1000 NVQs, many quite similar, and were competing to conduct assessment and certification. To address this problem, the government initiated a comprehensive evaluation of the NVQ system, known as the Beaumont report. This review led the NCVQ to merge and reduce both the number of NVQs and the number of industry organizations. Today, there are 881 NVQs and about 80 National Training Organizations.

Despite these problems and challenges, employers have gradually begun to use the skill standards system. Today 40 percent of medium and large employers offer NVQs to their workers, up from 25 percent three years ago. A 1997 survey conducted by the Confederation of British Industry found that employers that use them are satisfied or very satisfied with NVQs. The QCA is currently revising the skill standards system to make it more user-friendly.

As the first English-speaking nation to develop a comprehensive system of skill standards, the UK provided a model for Australia, Chile, New Zealand, and South Africa. Each of these countries has drawn on elements of the UK system in developing its own unique approach to skill standards. In 1997, when the UK government invited 20 nations to a conference on the NVQ system, 40 more countries decided to attend at their own expense. The conference was used to launch British Training International, a company that currently markets the NVQ system overseas.

## Scotland

## Economy and People

The Kingdoms of England and Scotland were united in 1603, and the 1707 Act of Union joined the two nations under one Parliament. The Act of Union allowed Scotland to maintain its separate legal system, national church, and currency. Today, the United Kingdom governs Scotland through the Secretary of State for Scotland who directs the Scottish Office and reports to the British Parliament. As of 2000, Scotland will again have its own Parliament.

Scotland is a northern European country made up of mountainous Highlands, a densely populated urban area including Glasgow and Edinburgh, and a rural southerly area. In 1998, the population was 5.1 million, including a workforce of about 2 million.

Over the past two decades, the Scottish economy has undergone a rapid transformation. The heavy manufacturing industries that dominated the urban areas have disappeared (with the exception of some shipbuilding). Today, Scotland is the home base for multinational computer and electronics firms that develop and manufacture there [Nigel Paine, "Technician Manpower Development in Scotland," in James R. Mahoney and Lynn Barnett, eds., Developing Technicians: Successful International Systems, Washington, DC: American Association of Community Colleges, 1998]. In 1996, Scotland's GDP was about \$34.9 billion.

### Development of Skill Standards

To accommodate the rapid changes in its economy, Scotland has created an extensive system of skill standards and certification. In 1985, the government of Scotland created the Scottish Vocational Education Council (SCOTVEC). SCOTVEC reviewed and revised existing vocational education curricula, creating new, modular competency units. Upper secondary students could combine these competency units to attain National Certificates. These new certificates proved attractive not only to individual students, but also to major north sea oil companies, which constructed integrated education and training programs around them. National Certificates also informed the curricula of government training programs, adult education centers, and prisons.

By 1987, over 1900 competency units had been developed, many based on local needs. SCOTVEC had also reviewed college-level vocational curricula, creating higher-level competency units that could be combined into a Higher National Certificate or Higher National Diploma. As SCOTVEC created its competency units, the National Council for Vocational Qualifications and associated industry lead bodies were engaged in a similar process for England, Wales, and Northern Ireland. During the late 1980s, many of the English industry lead bodies reached agreements with SCOTVEC to create joint certificates. To coordinate the two systems, SCOTVEC began in 1990 to review the British NVQs and align them with the Scottish competency units and National Certificates."

With the assistance of eight industry sector boards, SCOTVEC reviewed, and sometimes modified, the competency units included in the NVQs to create Scottish Vocational Qualifications (SVQs). By 1998, about 700-800 competency units had been combined into SVQs for nearly 300 occupations, covering almost the entire Scottish economy.

In 1997, the Scottish Enterprise Board (a quasi-governmental economic

development agency) and SCOTVEC were merged to create the current Scottish Qualifications Authority (SQA). SQA is governed by a 21-member board, including representatives from industry, education, trade unions, and professional groups.

Like England, Scotland also created a system of broader skill standards to introduce full-time students to an industry sector. These General Scottish Vocational Qualifications (GSVQs) are aligned with the National Certificates, and can be used to prepare either for employment or further postsecondary education.

### **Government Support**

Through the Scottish Office, the UK government invested heavily in SCOTVEC as it analyzed vocational curricula to create National Certificates during the 1980s. During the same period, the UK government in England provided funds to create and support industry lead bodies to develop unit-based competency standards. These seed funds laid the groundwork for today's SQA, which is almost entirely self-supporting.

The current (1998) SQA budget is about \$16.3 million, of which \$13.9 million (85 percent) comes from fees paid by candidates for assessment and certification. The remaining funds are provided by both the UK government (in the form of research and implementation grants) and consulting fees.

### **Implementation**

After 14 years (since 1984), Scotland has fully implemented its system of skill standards and certification. Skill standards and certificates are widely used not only by high schools and colleges but also by employers. Currently, SQA has approved about 1000 organizations to offer SVQs. Among these, about 45 percent are colleges, and 55 percent are other employment and training providers, including private employers.

As noted above, some large employers began to use National Certificates during the 1980s. Today, many employers, large and small, are working with SQA, with industry, and with local schools and colleges, to help their employees obtain SVQs. Because the SVQs are built up out of modular competency units, SQA can also work with employers to create "tailored awards." These are skill certificates created by combining competency units into vocational qualifications that meet the needs of a particular employer.

The Scottish government has helped to create a "training culture" through its Investors in People award. To attain the award, an organization must make a commitment to train and develop all employees. By 1998, 883 companies had obtained the award and another 3,000 had made commitments to achieve it. The Scottish Office was the first government department in the UK to be assessed and receive an Investor in People award in August 1997.

Because they recognize that SVQs and GSVQs can help enhance their careers, students and workers are also using the skill standards system. In 1994, about one fifth of the population was enrolled in vocational training leading to SVQs, and over 80 percent of upper secondary school students were obtaining a National Certificate or GSVQ. Students or workers seeking SVQs may obtain assessment and certification from either SQA assessors or industry lead bodies. In 1996,

around 350,000 individuals were being trained to attain SVQs. This represents an increase from about 250,000 annually in the early 1990s.

The SQA maintains a database that records each competency unit successfully completed in an individual portfolio, called a Record of Education and Training.

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