THE COUNCIL FOR ACCESS TO THE PROFESSION OF ENGINEERING

ENGINEERING ACCESS PROJECT

FINAL REPORT

ON COMMUNITY ACTION RESEARCH TO ENGAGE STAKEHOLDERS IN DOCUMENTING AND ADDRESSING BARRIERS TO EFFECTIVE LABOUR MARKET INTEGRATION AND PARTICIPATION OF IMMIGRANTS WITH ENGINEERING BACKGROUNDS SETTLING IN ONTARIO

By

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The Council of Agencies Serving South Asians (CASSA) as Trustee of The Council for Access to the Profession of Engineering (CAPE) provided the management oversight for the 'Engineering Access' Project..

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EXECUTIVE SUMMARY

Between 1986 and 1997 there was a ten-fold increase in the number of immigrants with engineering backgrounds (IEBs) coming to Canada. Anecdotal evidence began to emerge about difficulties facing them in accessing their fields of expertise. In 1994 the Council for Access to the Profession of Engineering was established as immigrant difficulties in accessing the profession became increasingly evident. In June 2003 CAPE initiated the 'Engineering Access' project. Institutions (employers within the engineering field) in Ontario are expected to begin to eliminate systemic barriers to respond to ethnic, racial, religious and cultural diversity as a result of this project.

A systematic, integrated and strategic approach (SISA) was adopted for this community action research project. A situation analysis (Bambrah 2005) initially formed the basis for other components of this project. On-line community outreach, focus groups, consultative meetings, leadership development and coalition building strengthened the capacity of IEBs and CAPE to participate effectively in this project as well as other levels of society. Under 'Engineering Access' CAPE has developed a database of nearly 1100 IEBs and a coalition of fifteen community engineering associations having an estimated membership of over fifteen thousand IEBs. Employers (large and small) and other stakeholders have engaged in a multi-stakeholder consultation process resulting in an employment strategy for IEBs. A number of on-line tools have also been produced to promote curriculum for cross-cultural understanding and learning within the engineering field.

Skilled workers are essential for competitive advantage under globalization. Canada has attracted leading edge knowledge workers of who IEBs are an integral part, through its immigration policy since 1986. The paradox of free markets and liberalization of labor increasing important under globalization and the historical role of governments in protecting domestic workforces from foreign competition places Canada is in a transition from "Canadians First" to "Canada First". The highly-skilled and highly-educated immigrants with professional backgrounds in Ontario are the victims of failure to make this transition. Three key policy areas - sustainable economy, maintaining Ontario's economic advantage and building a knowledge economy provide the framework for understanding systemic barriers rooted in self-regulation and peer-review processes for accreditation, 'Canadian Experience' and non merit-based hiring services, assumed 'deficiencies' and bridge training, and risk adversity of employers**.** The multi-stakeholder employment strategy entitled 'From Canadian First to Canada First' released under this project on May 18, 2006 has identified three action areas as outlined in the table below.

I	*Systemic Change*	Outline strategies related to process changes, licensing, mobility and accreditation , standards and regulations and redefining the role of government
II	*Labor Market Strategies*	Informed decision making through the dissemination of accurate, reliable and up to date labor market information and to tackle employer risk adversity
III	*Support Strategies*	Outlining roles of communities and networks, education, training and empowerment, employment and new economic realities

LIST OF ACRONYMS

AIPSO	The Association of International Physicians and Surgeons
ACCES	Accessible Community Counseling Services
APT	Access to Professions and Trades
CAPE	The Council for Access to the Profession of Engineering (formerly known as the Coalition to Professional Engineering)
CASSA	The Council of Agencies serving South Asians (formerly known as the Coalition of Agencies serving South Asians)
CCPE	Canadian Council of Professional Engineers
CEAB	Canadian Education Accreditation Board
CPAC	Chinese Professional Association of Canada
EPCM	Engineering Procurement, Construction and Management
GATS	General Arrangements on Tariffs and Services
HRDC	Human Resources and Social Development
HRSDC	Human Resources Skills Development Canada
IEB	Immigrants with Engineering backgrounds
IEGs	International engineering graduates"
IPTBs	Immigrants with professional and trades backgrounds
ISAP	Immigrant Settlement and Adaptation Program
LINC	Language Instruction to Newcomers to Canada
LMLT	Labor Market Language Training LMLT
LPTF	Licensing process task Force
MCI	Ministry of Citizenship and Immigration
MTCU	Ministry of Training Colleges and Universities
NAFTA	North Atlantic Free Trade Area
OACETT	Ontario Association of Certified Engineering Technicians and Technologists
OSPE	Ontario Society of Professional Engineers
PEO	Professional Engineers Ontario
PROMPT	Policy Roundtable For Mobilizing Trades And Professions
SISA	A Systematic, Integrated And Strategic Approach
SISO	Settlement & Integration Service Organization
SLTP	The Settlement Language Training Program
STIC	Sector-Specific Terminology, Information, and Counseling project
TRIEC	Toronto Region Immigrant Employment Council

1. INTRODUCTION

In 1986, the Canadian immigration points system was adjusted to attract skilled workers and the formerly instituted requirement of pre-arranged employment ceased to be a condition for immigration to Canada. This resulted in a demographic shift from traditional to non-traditional source countries, such that the numbers as well as diversity of skilled immigrants to Canada increased significantly. In 1969, 70% of immigrants originated from the U.K., Western Europe and the Unites States. By 1987, 70% were from Asia, India, the Caribbean and Portugal. In terms of provincial dispersion, Ontario tended to attract the majority of these skilled immigrants (Bambrah, 2005)

Between 1986 and 1997 there was a ten fold increase in the number of immigrants with engineering backgrounds coming to Canada. Over 12,000 skilled worker principal applicants in 2000 were engineers according to statistics released by Citizenship and Immigration Canada (CIC). Thus, 72% of the skilled worker principal applicants in 2000 belonged to the engineering occupation. (Statistics Canada, 2000)

Anecdotal evidence also began to emerge in the 1980s indicating that immigrants with professional and trades backgrounds (IPTBs) were facing difficulties in accessing their professions and trades so they were facing high rates of under and unemployment. The Ontario government commissioned the Task Force on Access to Professions and Trades. This task force reviewed carried out a comprehensive review of the entry requirements for the professions in Ontario including legislation and regulations, licensing or certification bodies and educational institutions. In its report, released in 1989 the task force concluded that systemic barriers existed that were rooted in the practices of self-governing bodies for most professions. It recommended that broad, structural solutions were necessary to remedy the systemic barriers.

2. THE COUNCIL FOR ACCESS TO THE PROFESSION OF ENGINEERING (CAPE)

CAPE (formerly known as the Coalition for access to professional Engineering) was established by a small group of immigrants with engineering backgrounds (IEBs) between 1990 and 1993 in response to difficulties that IEBs were facing in accessing their profession in Ontario. In 1994 CAPE was founded by a body of immigrants with engineering backgrounds, individuals and organizations.

During its early years, CAPE was primarily volunteer-driven and relied on the infrastructure of a host agency called Skills for Change, an employment-training agency for immigrants and refugees. The CAPE agenda in this period focused primarily on improving the transparency of the licensing process and it achieved considerable success in engaging with the engineering regulator, Professional Engineers, Ontario. CAPE continued to build on this agenda until its evaluation in 1998, when CAPE began to broaden its focus beyond licensing to access to training and employment.

This led to the Work Experience Program (WEP) in 1999/2000 under which, CAPE engaged with the Ontario Hydro Services Corporation to help address Canadian Experience through work experience. At the same time CAPE started to reach out to internationally trained engineers through community organizations and held a number of focus groups to define the issues that were facing IEBs.

In 2000 CAPE began to develop an organizational structure and undertook a strategic planning exercise to reposition CAPE for systemic change. This was funded by The Maytree Foundation and carried out by Suzanne Gibson and Associates. The result was an operational plan for CAPE. Key elements of this were: broad research, a SWOT (strengths, weaknesses, opportunities, and threats) analysis and Community consultation with 27 experts and stakeholders. This plan among other recommendations included the development of a collective voice for immigrants with engineering backgrounds and a move into the same offices as organizations with similar focus such as the Association of International Physicians and Surgeons (AIPSO) which was housed by the Coalition of Agencies Serving South Asians (CASSA), Its other recommendations were that CAPE initiate a multi-stakeholder roundtable, engage employers and develop appropriate labour market information for immigrants with engineering backgrounds.

In late 2001 CAPE moved alongside AIPSO into CASSA under a trusteeship arrangement. A year later a comprehensive proposal was developed based on the CAPE strategic plan and employer consultations. This was initiated in June 2003 and came to be known as 'Engineering Access' and was subsequently funded by Canadian Heritage, Human resources Skills Development Canada (now known as Human Resources and Social Development) and in-kind contributions of CAPE members and volunteers. The present document reports on the outcomes of the Canadian Heritage funded component of "Engineering Access'

3. THE ENGINEERING ACCESS PROJECT

'Engineering Access' is a community action research project. The Canadian Heritage component of Engineering Access comprised the following as reported here:

a. Documentation of employer and IEB barriers, needs and strategies for change in order to achieve effective integration
b. Establishment of a multi-stakeholder Roundtable and consultations
c. Increased capacity of CAPE to be an effective and legitimate voice for IEBs
d. Development of tools for use in workplaces to promote cross-cultural understanding within the engineering field.

At the onset of this project, the reach and outcomes for this component of 'Engineering Access' were outlined as follows:

a. Employers would be directly engaged with IEBs and other stakeholders in finding solutions to systemic barriers to the effective labor market integration of IEBs

b. IEBs would have the capacity to participate collectively in multi-stakeholder forums as a legitimate and effective stakeholder
c. Employers would be better equipped to integrate IEBs in their workplaces.

The expected impact of the project was that institutions (including employers in the engineering field) in Ontario would eliminate systemic barriers to respond to ethnic, racial, religious and cultural diversity.

4 APPROACH AND METHODOLOGY

4.1 Community Action Research

Action research is also referred to as participatory research, collaborative inquiry, emancipatory research, action learning, and contextual action research. Basically, action research is "learning by doing" - a group of people identify a problem, do something to resolve it, monitor how successful their efforts are, and if not satisfied, try again. The difference between action research and common problem-solving activities, general professional practices or consulting, is the emphasis on scientific study. The researcher studies the problem systematically and ensures the intervention is informed by theoretical considerations so the researcher spends significant time on refining the methodological tools to suit the exigencies of the situation, and on collecting, analyzing, and presenting data on an ongoing, cyclical basis.

4.2 The Systematic, Integrated and Strategic Approach

The systematic, integrated and strategic approach (SISA) developed by the author (Bambrah 1989; Bambrah 1998) over the last 15 years is one such action research approach that particularly lends itself to addressing complex issues. It comprises the following:

- Identification of the research community and systematic analysis of the issue it wishes to address. This includes stakeholders involved in it, the community vision and objective, the roles and responsibilities of all stakeholders, the limitations and constraints faced and an integrated solution that meets the goals and satisfies the constraints
- Implementation of the solution to achieve maximum impact with minimum inputs and change as well as monitoring the impacts and outcomes on the community and other stakeholders.
- Depending on the level of achievement either up-scaling of the solution to increase impact or refinement of the solution to meet the goal more effectively.

4.3 The Approach to 'Engineering Access'

Clearly, the issue of integrating IEBs into the engineering workforce of Ontario is a complex one involving a multitude of stakeholders in both the public and private sectors. While immigration and human resource policy fall within the federal jurisdiction,

occupational regulation is a provincial responsibility. For most professions in Ontario, the responsibility for regulating and administering the licensing of practitioners has been devolved to self-regulating professional bodies. The relationship between licensing and employment is equally complex. In order to be effective, policy and program approaches to this issue must address the complexity by tackling different levels of relations and creating adaptive strategies.

The systematic, integrated and strategic approach (SISA) is ideally suited to these requirements and was adopted for the engineering access project. This approach is flexible and allows use of different analytical tools that can be selected on the basis of the requirements of the research. For instance an environmental scan can be adopted if the focus is the identification of stakeholders only, or needs assessment can be used where it is felt that a representative community is already well established and has a particular need. For 'Engineering Access' the process had to begin with background research and among other tools a multi-level matrix based systems analysis, dynamic modeling and action planning were selected. Key elements of this approach included:

- A systematic situation analysis including a literature review, review of on-going initiatives, identification of systemic constraints and limitations, data collection and analysis and contextual understanding;
- Community outreach to build an effective voice for immigrants with engineering backgrounds
- Coalition building and leadership development to engage various members of the community of immigrants with engineering backgrounds settled across Ontario
- Stakeholder collaboration to engage employers and others in an employment driven roundtable consultation;
- Strategic action planning to derive a multi-stakeholder driven employment strategy for immigrants with engineering backgrounds
- Development of appropriate advisory and support tools to assist immigrants with engineering backgrounds to link with other stakeholders and to involve employers in understanding the skills and experience of immigrants with engineering backgrounds.

4.4 Components of the 'Engineering Access' Project

The 'Engineering Access' project included the following elements:

4.4.1 Systemic Barriers

The barriers to recognition of credentials and experience of immigrant professionals (of who those with engineering backgrounds area dominant group) and the dramatic under-utilization of their skills and experience has become an increasingly urgent issue. Ontario, as the recipient of the majority of these knowledge workers is an excellent study of the ineffective integration of IEBs.

The impact of having thousands of underutilized immigrants IEBs on their families and communities in social and economic terms can be felt across the Canadian society and at all levels of government in the form of inequities, loss of productivity and social expenditure. Identification of the barriers facing both the IEBs as well as employers was a key component of 'Engineering Access'

4.4.2 Employer Engagement

Through this action research process a community of employers, IEBs and other key stakeholders were identified as potential partners in improving the social and economic integration of IEBs into their fields of expertise. These stakeholders involved in identifying systemic barriers preventing labor market integration IEBs in their fields of expertise.

4.4.3 Multi-Stakeholder Roundtable

A multi-stakeholder roundtable was established to provide an opportunity for all relevant stakeholders with particular emphasis on employers and IEBs to come together to grapple with the barriers preventing IEBs from taking their rightful place in the engineering field and to develop credible solutions to correct this situation. The research provided content analysis and highlighted priority areas for the roundtable to address. The strength of the roundtable was in the diversity of experience and the expertise all parties brought to the roundtable.

4.4.4 Effective Participation of IEBs

IEBs played a critical role in the multi-stakeholder forum. In order to ensure that IEBs had the capacity to participate effectively in the roundtable, ongoing leadership development was essential. The leadership of IEBs came from the Council for Access to the Profession of Engineering. A series of professional development workshops provided the foundation for leadership skills in the areas of public speaking, working with the media, negotiation skills and the policy development process. IEBs also participated and further developed their capacity through involvement with such initiatives as the Policy Roundtable for Mobilizing Trades and Professions (PROMPT)

4.4.5 Workplace Training Needs

Through the roundtable, workplace training needs were explored and identified by all stakeholders to provide support to both employers and their staff in integrating IEBs into the workplace. Training strategies were geared to meet the specific demands of workplaces focusing on the particular challenges identified by employers and their staff. The relationships developed with employers through both the research and the multi-stakeholder roundtable provided the opportunity to engage 'employer champions' who will contribute to the development of training solutions and promote training with other employers. Training will developed on the basis of these tools that will be offered on fee-

for-service basis that will include the development of the curriculum, the promotion of a model of this curricula and relationship building with employers.

5 SITUATION ANALYSIS AND FINDINGS

5.1 Canadian 'Experiments in Diversity'

The detailed systematic analysis of the situation of IEBs in Ontario and findings from this have been published in Working paper number 41 of the Joint Centre of Excellence for Research on Immigration and Settlement – Toronto and is entitled Canadian 'Experiments' in Diversity: The Case of Immigrants with Engineering Backgrounds Who Settle in Ontario, (Bambrah 2005). In brief these include the following.

5.2 Literature Review

The preliminary literature review for 'Engineering Access' revealed that most of the evidence on the employment and licensing situation of immigrants with engineering or other professional backgrounds in Ontario was anecdotal. This indicated the need for further investigation, data collection, and assessment in order to develop a factual basis to enhance the understanding of the 'situation' of IEBs. In addition, it was evident that the existing raw-data collection pools lacked coordination; so, for example, if one organization had evaluated an applicant's credentials for immigration purposes, another organization held the information about the applicant's arrival, and a third had partial information about where this individual settled, and the licensing body only had information on the total pool of IEBs who had applied for a license. Obviously these lacunae present problems in the coordination of information necessary for understanding the situation of IEBs. A situation analysis aimed at an improved understanding of the issues, actions, constraints and opportunities available to/for social and economic integration of IEBs was the first activity carried out.

5.3 On-Going Projects

A national survey carried out by the Canadian Council of Professional Engineers (CCPE) in 2002 found that 12 per cent of Canada's professional engineers received their education in other countries. This survey also showed that the process from when an immigrant with an engineering background (IEB) first considers immigrating to Canada until she or he is integrated into the engineering workforce was not necessarily smooth. Furthermore, according to the latest analysis of the skilled-worker principal applicants who identified an intended occupation, 44 per cent were pursuing work in a regulated occupation in Canada. Of those, 66 per cent indicated engineering as their intended occupation. Subsequently, at a meeting in Halifax in October of 2002 representatives of the engineering profession's regulatory bodies unanimously agreed to work together to facilitate the integration of "international engineering graduates" (IEGs) by ensuring they could obtain their professional license more efficiently, without compromising either admission standards or public safety. This resulted in the emergence of "From

Consideration to Integration," a partnership between CCPE and Human Resources Development Canada (CCPE 2005).

According to the overview of this project, immigration policy is closely linked to the Government of Canada's Innovation Strategy. Moreover, the engineering profession has strongly endorsed, and is part of, an effort by the federal government to attract, develop, and maintain a world-class labor force. The project recognizes the important role that IEGs can play in helping Canada remain at the forefront of innovation. "From Consideration to Integration" is a three-phase project. The first Phase was focused on understanding the IEG experience, examining provincial and territorial engineering licensing procedures, and learning from those who work with and employ IEGs. Phase II analyzed the information obtained in Phase I, and determined where the process of integration needed improvement. This resulted in seventeen recommendations relating to research, information, culture and education, licensing, and employment. In Phase III (yet to be completed), the CCPE and its partners plan on working with key stakeholders to implement the recommendations and to develop supporting communications materials (for example, fact sheets and Power Point presentations).

5.4 IEB Survey

Since May 2004 the Council for Access to the Profession of Engineering (CAPE) has surveyed 1031 IEBs from across Ontario (CAPE 2006). These individuals come from 74 countries, and the sample profile conforms well to the national profile of immigrant source regions. This survey shows that:

- 56 per cent of the sample are unemployed, 28 per cent are under-employed and working outside of their field of expertise. Just over 15 per cent hold jobs that relate to engineering;
- The average number of years of professional international experience held by the sampled IEBs is over 12 years, 10 per cent have more than 20 years of experience and less than one percent have over thirty years of engineering experience.
- 65 per cent of the sample hold at least a Bachelors degree, 29 per cent hold a Masters degree, and 4 per cent have doctoral degrees; and
- Nearly 80 per cent of the sampled IEBs have been in Canada for over two years .

5.5 Community Outreach

Ethno-cultural associations representing IEBs presented a useful conduit for this purpose, particularly since so many of them are community-based engineering associations. A telling observation readily presented itself. Membership within certain ethno-cultural groups often was clearly dichotomous in that the demographics were representative of waves of immigration (as in the pre-1967 and post-1986 periods). There was no overlap or succession of membership. Consequently, some of the pioneer ethno-cultural associations were disappearing as a result of natural attrition (an example of this is the now-defunct Latvian engineers' association formed in the early 1950s). The immigration boom of the post-1986 period contains members of the 'knowledge' generation. This has

been reflected in the establishment of a fresh wave of ethno-cultural associations, some of which have emerged to deal specifically with professional affiliations.

On October 15, 2003 representatives from nine ethno-cultural associations – having an approximate membership base of six thousand IEBs and other professionals – and three coalitions of community associations advocating on behalf of IEBs participated in a focus group organized by CAPE. This was a tremendous response considering representatives from a total of fifteen groups with a membership of some eight thousand individuals originally had been invited to the focus group. The focus group had a two-fold purpose:

> a) To identify community groups serving IEBs and establish the role played by these groups in servicing IEBs, and to identify barriers faced by these groups in providing the services to IEBs and
> b) To bring together CAPE and community groups to build some degree of synergy towards the common goal of integrating IEBs into the Ontario professional workforce (CAPE 2003).

Based on the findings from this focus group shown in Table 1 below, the situations facing newcomers in the pre-1967 and post-1986 periods were found to be distinctly different. The economic situation and market demand clearly affected the accreditation process. Further investigation revealed a demographic shift in race and place of origin among immigrants had indeed taken place over this period, a change reflected in the influx of IEBs in the pre-1967 and post-1986 periods (Figure 1).It was clear that a number of factors (immigration, ethnicity, culture, social and economic among others) had led to formation of the community associations serving IEBs.

Table 1: Summary of Findings of Ethno-Cultural Associations Focus Group

Criteria	*Pre-1960*	*Post-1986*
Economy	Economic Boom times	Uncertain economic times and development paradigms
Language	Significant language disconnect	Partial language disconnect with some immigrants only; Middle–Eastern, East Asian and Eastern European groups
Place of origin and race	Mostly Northern and Eastern European	Mostly Asian
Religion	Mostly Judaic-Christian	Diverse – Islamic, Hindu, Buddhist, Agnostic etc.
Skills and education	• Mostly mixed technical and technician skills. • Country-of-origin experience	• High-level academic and experiential skills • Global experience

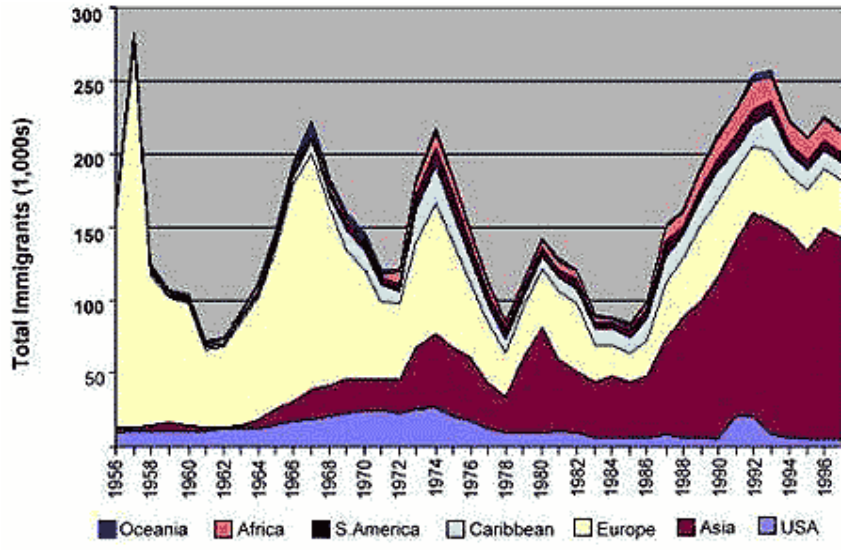


Figure 1: Demographic Shift between 1960 and 1995 (CIC 1998)

5.6 Historical Analysis

It was clear that a number of factors (immigration, ethnicity, culture, social and economic among others) had led to the formation of the community associations and to the emergence of newcomer employment-related settlement-support services, and credential-assessment services. It is widely felt that the employment outcomes for IEBs have been far from satisfactory for too many individuals. How, it might be asked, did these various factors combine to create the poor employment outcomes being observed for IEBs and other immigrant professionals?

Understanding the role of these factors through the lens of a contextual history which studied both the 'design' and the 'context' defining employment outcomes presented itself as a research methodology suitable for an inquiry such as this. Design here refers to the specific policy and institutional structures and the consequent issues, constraints, and opportunities that flow from them. Context includes a range of economic, social, political, and cultural factors. Such a contextual history of the immigration of IEBs is not only an intellectual challenge, and a topic of considerable interest to students of immigration, but also of great relevance for the wider public, policy-makers (in government and industry), and the engineering community as a whole. Using a systematic multi-level matrix analysis, a contextual history of the following was developed to gain a better understanding of the employment situation of IEBs:

- multiculturalism and ethnicity (race, ancestry, identity, language and religion);
- governance and institutional development;
- immigration and policy;
- socio-economic development; and
- Regulation of the engineering profession.

5.7 Dynamic Model

Given the disparate nature of the information available, a systematic multi-level matrix was used to capture the historical interplay between immigration, multiculturalism, socio-economic development, and engineering practice in Canada. This resulted in the dynamic model of comparative historical trends, presented in Figure 2. The model is not drawn to scale, but is intended to simulate, with reasonable accuracy, the interplay between the range of complex processes that have characterized Canada's social, cultural, and economic development. These processes have evolved over various periods of Canadian history from 1540 until the present. In summary, they include:

- the frameworks that have shaped Canadian development since 1540, including economic growth and sustainability;
- the employment sectors that have dominated the economy at various times;
- the development of engineering regulation;
- the development of the multiculturalism policy;
- Canadian relations with the United States, including free trade and globalization;
- demographic changes, especially the increase in sources of ethnic diversity; and
- The rates of immigration and the key immigration policy drivers.

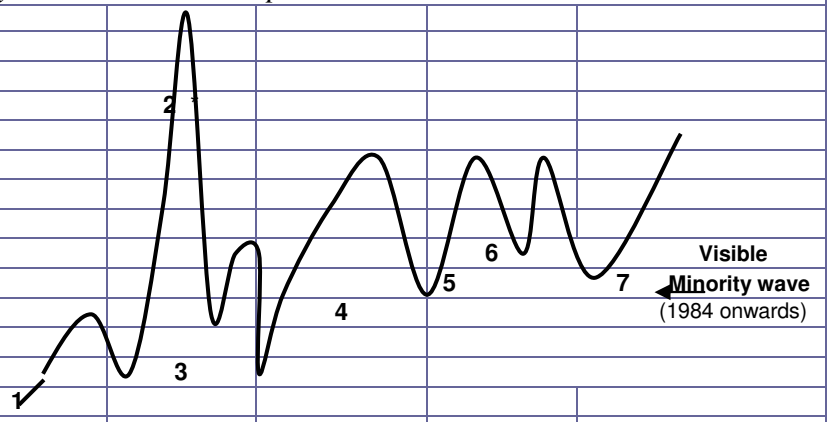
5.8 Dynamic Analysis

As seen from this dynamic model, four distinct clusters of immigrants have arrived in Canada since 1867 when Canada confederated. For the engineering profession, it has been the impact of each cluster of immigrants on the following clusters combined with above factors that has influenced the access of skilled immigrants in general, and immigrants with engineering backgrounds in particular, to employment in Ontario.

5.8.1 First Cluster (pre 1945)

The first cluster of engineers came mainly from Great Britain and the United States with a smaller number in the 1930s from the 'White Commonwealth countries. This cluster agitated for, and devolved to the provincial level the institution of professional licensing and reservation of the title 'Professional Engineer.' This can best be viewed as a reaction both to a purported oversupply of foreign engineers during periods of instability associated with the First World War and to the perceived risk associated with the mixed engineering skills of this immigrant wave. The Federal Government, by default, delegated its legislative authority for licensing to the provincial governments, who, in turn, delegated it to membership-based, self-regulating professional associations (the PEO in the case of Ontario) that had no responsibility to the public.

Figure 2: Dynamic Model - Comparative Historical Trends Canada



	1897-1945	1945-1967	1967-1986	*1986 and after*
Source Countries	Immigrants from preferred countries – white commonwealth Britain, United States, Newfoundland, South Africa, Irish Free State, New Zealand, Australia	Preferred countries – European	Mostly preferred countries but few non-traditional countries	*Overwhelmingly non-traditional countries*
Employment Sectors	Mainly Primary extractive industries. Small secondary (construction and manufacturing) and tertiary (services) sectors	Reducing Primary, increasing secondary and small tertiary	Shrinking Primary and secondary sectors. growing tertiary sector	*Insignificant primary sector. Small growth in Secondary sector. Growing tertiary, new (*Quaternary*) information and knowledge sectors*
Immigrant skilled wave component (as labeled on graph)	**1** - Miners, engineers scientists **2** - Military engineers **3r** - Unskilled, Refugees	**4 –** unskilled (trades and technicians) and few professionals	**5 and 6** Prearranged Employment for skilled workers	**7 -** *Highly skilled knowledge workers Majority are economic immigrants. No pre-arranged employment*
Labour Market Situation	Oversupply of engineers	Under-underutilization of trades persons	Addressing labour market needs	*OSPE – oversupply and "Canadians first" Employers –" and globalization*
Regulatory Trends	Licensing and regulation introduced	Reserved title, certification of technicians, OACETT (1961)	Protection of life, health, property and public welfare (1984)	*Canadian Experience (1990), Open hearings for discipline cases and provisional licenses (2003),*
Support Services	Few settlement organizations	Ethno-cultural community organizations	Formal settlement services	*Settlement mandate extended to include employment support*
Disconnect	No language, religious, social, ethnic or cultural disconnect	Language and cultural disconnect	N/A	*Partial language and nearly complete ethnic, social, cultural, religious disconnect*
Economic Status	*Colonization and First World War instability*	*Post-World War II boom*	*Restructuring and slow down*	*Globalization, sustainability and free trade*

5.8.2 Second Cluster (1945 -1967)

The second cluster originated mainly from non-preferred, non-commonwealth European countries during the post-Second World War boom. This cluster suffering from a language, education and training disconnect with the host population, created ethnic silos set up a voluntary settlement-service model to address these. Service providers based on this model were meant to address the problems of a large number of refugees and tradespersons, whose skills often were under-utilized in Ontario. Consequently, the certification of engineering technicians and technologists was introduced in Ontario in 1961. Also, during the 1950s and 1960s, Ontario's post-secondary education system, was expanded and diversified to deal first with returning service people from the War and then to provide more education for the under-skilled and under-educated segment of the population.

5.8.3 Third Cluster (1967-1986)

The third cluster originated mainly from European Countries, but included a small number from non-traditional and some newly-independent Commonwealth countries during a period of economic restructuring and slowdown. Although high unemployment prevailed in the large, under-educated labor force in Ontario, employment was not an issue for the skilled immigrants of this period. This was the case because pre-arranged employment was a condition for immigration and, in any case, Canada was suffering from a shortage of skilled workers at this time. The government withdrew from the direct funding of settlement services, and shifted to funding voluntary settlement services for newcomers based on the models developed for underutilized tradespersons during the second cluster.

5.8.4 Fourth Cluster (post 1986)

The current and fourth cluster has been arriving since 1986 at a time of economic uncertainty, global competition, and increased awareness about sustainable development. The members of this group arrived in Canada much more highly-educated and qualified than the general Canadian population because of a immigration policy that had been geared to attracting knowledge workers in large numbers. These immigrants overwhelmingly have come from non-traditional countries, many of which belong to the Commonwealth. They have a significant social, religious, cultural, and racial disconnect with the host population. Their language, education, and training disconnect with the host population, however, is less significant.

6 AN FFECTIVE AND LEGITIMATE IEB VOICE

6.1 Identifying Immigrants with Engineering Backgrounds

The objective was to increase the capacity of CAPE to be an effective and legitimate IEB voice through the development of factual understanding of the 'situation' of IEBs by

engaging them with CAPE. An initial environmental scan of immigrants with engineering backgrounds showed that the main entry and contact points for this community comprised the following**:**

- Ethno-cultural associations representing IEBs
- Immigrant settlement agencies serving IEBs
- Areas in which Immigrant communities were concentrated across Ontario
- Events and job search related forums targeting IEBs

Under the Canadian Heritage component of 'Engineering access', IEB outreach was also structured to building the capacity of IEBs to ensure their effective participation in policy, programs and other forums relating to this community. To initiate this outreach and build the capacity, a number of mechanisms were used:

- Focus groups and mini-consultative meeting to understand the issues and needs of IEBs and to make presentations on developing IEB capacity to participate collectively
- Strategic leadership planning sessions to develop an agenda and vision of how to frame this collective participation
- Leadership development to strengthen links between CAPE and community associations

6.2 Strengthening the CAPE Steering Committee

The first step in building the capacity of the Council for Access to the profession of Engineering to be an effective and legitimate voice for IEBs was to strengthen its steering committee by increasing the volunteer representation of immigrants with engineering backgrounds in this committee. This committee met voluntarily on a monthly basis throughout the duration of this project and eventually grew to a total of some thirty members, nearly seventy percent of who were immigrants with engineering backgrounds. The capacity of this committee was strengthened through leadership training and action planning sessions. A consultative process was adopted to develop the terms of reference for this committee which comprised those who were licensed as well as those seeking licensure. In the last six months this steering has transformed itself into the first interim Executive Board of CAPE while the terms of reference have eventually developed into its by-laws. CAPE will shortly be incorporated as an independent membership based organization for immigrants with engineering backgrounds. Key members of the steering committee are listed in Appendix 1 to this report.

6.3 Outreach

6.3.1 Consultative Meetings

Two consultative meetings were held initially to develop an outreach action plan and to design a survey questionnaire to collect factual information on IEBs. Three further

consultative meetings were held to obtain evaluative feedback to verify issues and needs identified. IEBs were the major participants in all these meetings

6.3.2 Focus Groups and mini-consultative meetings

A total of 14 focus groups were held under the 'Engineering Access' Project. Six in Toronto, one each in Hamilton, Ottawa, Oshawa, Kingston, Waterloo, Windsor, and two in greater GTA in Missisauga, Scarborough. The main partners in these meetings and focus groups were immigrant settlement and service agencies serving IEBs. These included the Settlement & Integration Service Organization (SISO) in Hamilton, LASI World Skills (Ottawa), Skills for Change and Accessible Community Counseling Services (ACCES) in Toronto, Windsor unemployment center, Kingston and District Immigrant Service, the Don Valley employment coalition, Ontario Council of Associations Serving Immigrants, COSTI, and the New Canadians program amongst others.

6.3.3 IEB database

Using its volunteer base, CAPE has developed an extensive interactive website to serve IEBs Through it interactivity which has become the hallmark of CAPE, a strong collaborative community of nearly 1100 and growing numbers of immigrants with engineering backgrounds has been established. Detailed findings from a survey of 1003 IEBs in January 2006 (Bambrah 2006) drawn from 73 countries revealed that majority (77%) of the immigrants with Engineering Backgrounds arrive from Asia with China and India being the two leading countries.

The survey also showed that over 80% of the sample held a Bachelors degree; more than 28% held a Masters degree and over 4% held PhDs. This compares with less than 13% being enrolled for Masters or PhD degrees combined in universities in the Province of Ontario. Over 94% of the IEBs surveyed were trained in five major engineering disciplines; electrical and electronic engineering, mechanical engineering, civil engineering, engineering management and industrial and manufacturing engineering. The average length of working experience held by the IEBs surveyed was 12.11 years. Over 83% of the of them had been in Ontario for more than two years.

For 50 years, PEO conducted the annual Ontario Engineers' Salaries Survey as a service to engineers and their employers, a responsibility that was handed over to the Ontario Society of Professional Engineers (OSPE, 2004) in 2004. 26 benchmarks have been set up by Professional Engineers Ontario (PEO 2003) for the purposes of this salary survey. A length of experience and education benchmark analysis for the IEBs surveyed, showed that 60% of the 899 IEBs who had provided data on their dates of graduation with the Bachelors degree fell under responsibility levels associated benchmarks effectively equating them to the professional engineer as opposed to entry level responsibility benchmarks.

Appallingly, the unemployment rate among the surveyed IEBs was 56.36%. Only 15.21% were employed in engineering occupations. The rest were under-employed. This compares with an unemployment rate of 2 to3% amongst the engineering workforce in the mainstream (Job Futures Ontario 2006)

The Engineers salary survey for 2004 carried out by OSPE provides data on the salaries earned by engineers associated with the various levels of responsibility benchmarks According to these the median salary of IEBs based on the minimum education and experience benchmarks should be $56,700 while over 50% should be earning over $83,471. In reality the 15% of the immigrants with engineering backgrounds survey who are employed in engineering occupations earn less than $35000 per year.

6.4 Leadership Development

Four strategic leadership planning meetings were held to derive the framework for an effective and legitimate voice for IEBs, These included IEBs from various engineering disciplines. In addition to this, over ten leadership training sessions were held with individual community associations including the Chinese Professional Association of Canada (CPAC), The Association of Iranian Engineers and Architects, The Association of Bangladeshi Engineers of Ontario, The association of Bulgarian Engineers of Ontario, The Arab Community Center, Canadian Association of Latin American Professional Trades-people and Entrepreneurs, the upcoming Gujarati Engineers in motion, The Malayalee engineering graduates association, the association of Architects, urban Planners and Planners and an association being set up for Latin American immigrants with engineering Backgrounds. Strategic alliances were also developed with the Association of Polish Engineers, The Jadavpur University Alumni, the Indian Institute of Technology (IIT) Alumni, The Bengal Engineering College Alumni Association of Canada and the Associations of Romanian and Hungarian Engineers of Canada.

6.5 Community Coalition

Eventually a coalition of the about fifteen community Associations was established by CAPE and four leadership meetings of the coalition were held on a quarterly basis. This community coalition has an estimated combined membership of over fifteen thousand immigrants with engineering backgrounds. Through a process of consultative and strategic collective representation a CAPE community coalition action plan and collaboration has been developed.

6.6 Legitimate and effective voice

Through its interactive website CAPE has build an interactive community of nearly 1100 IEBs. Using this mechanism combined with its community coalition CAPE has created an effective dissemination mechanism for information and feedback on topical issues to /from this community and others as well as to respond to changes and positions being adopted by other stakeholders on these issues. CAPE is increasingly recognized as the legitimate and collective voice of immigrants with engineering backgrounds so that:

- CAPE has made submissions and presentations to MTCU, CIC, MCI, The George Thompson Commission and PEO and CAPE is constructively engaged with and been invited to contribute to the initiatives being taken by these stakeholders
- CAPE has a been actively involved in the Policy Roundtable on Mobilizing Trades and Professions (PROMPT) particularly in the production of its research papers entitled 'In Public Interest' and 'Recasting Equity',
- CAPE has participated fully in the working committees of the From Consideration to Integration Project of CCPE as well as those of TRIEC.
- CAPE is invited to many of the events, conferences, seminars and focus groups being organized around the issue of Access to Professions and Trades such as the metropolis conference at which CAPE has presented a number of papers, CERIS seminars and Public Policy Forum to name a few.

7 EMPLOYER ENGAGEMENT AND ISSUES

7.1 Outreach

The data from the IEB survey carried out by CAPE has provided a general understanding of the participant's country of origin, fields of specialization, education and qualifications, previous employment and experience, employment status and experience since arrival in Canada as mentioned above. These findings have been published in the Final Survey Report (CAPE 2006) under the HRDC component of 'Engineering Access' For a comparison of this data to that of Canadian Engineers in the host population, it is necessary to have parallel information on the latter.

Early attempts to interest employers and professional engineers in interviews to obtain this parallel information were futile as employers were not interested in an association of immigrants that they "assumed" was headhunting for its members.

7.2 Engineering Employers in Ontario

Engineering is regulated by the Professional Engineers Ontario (PEO) through a tightly enforced licensing system. Using information publicly available on the PEO website a detailed analysis of the number of professional engineers and those employing them was carried out**.** The total number of PEO members comprises the categories shown in Bar Chart 1 below.

The total number of professional engineers and the number of companies employing them in Ontario are provided in Table 2: below. Approximately 7000 professional engineers are employed in other provinces of Canada, the rest of North America or other Countries. It was not possible to ascertain the employers for about 11,000 Professional engineers who are members of PEO

Bar Chart 1: Professional Engineers of Ontario Membership (October 2005)

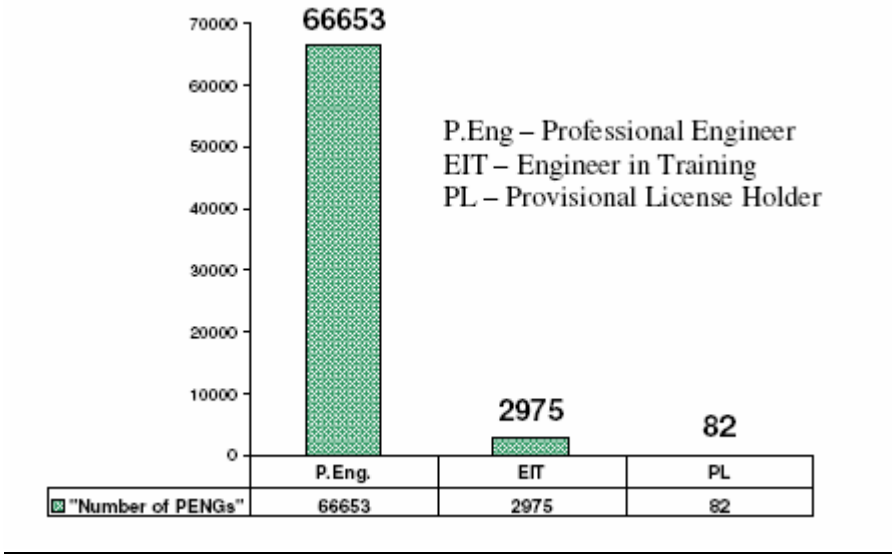


Table 2: Total Number of Companies (October 2005)

Number of professional engineers employed	Number of engineering companies	% of Total number of companies	Total number professional Engineers Employed	% of Total number of employees
More than 500	4	0.02%	3186	6.49%
101 - 500	43	0.22%	8996	18.33%
51 - 100	57	0.29%	4077	8.31%
11-50	440	2.23%	8593	17.51%
6-10	120	0.61%	767	1.56%
2-5	3149	15.95%	7513	15.31%
1	15935	80.69%	15935	32.47%
TOTAL	**19748**		**49067**	

The type of employers, their share of employment of professional engineers and size of the employer measured by the number of professional engineers employed is shown in Table 3 below.

Table 3: Typical Employers and Employment Share (October 2005)

Number of professional engineers employed	% of Total number of employees	Typical Employers in Category
More than 500	6.49%	• Power Generators • Vehicle Manufactures • Information technology
101 - 500	18.33%	• Universities • Government Federal and Provincial) • Cities • Power Generators • Vehicle Manufacturers • Plane Manufacturer
51 - 100	8.31%	• Universities • Consulting • Corporations • Cities
11-50	17.51%	• Colleges • Banks • Consulting • Information technology support • Construction
6-10	1.56%	• District School Boards • Materials testing • Industrial • Information technology support
2-5	15.31%	• School Boards • Recruiters
1	32.47%	9. Employment support 10. Industrial and commercial 11. Sales and marketing 12. Small building projects 13. Property Management

7.3 Employer Engagement and Survey

The next attempt to engage employers was a questionnaire survey to collect parallel data from the mainstream engineering fraternity on the qualifications, skills and attributes of those working as professional engineers, engineering technicians and engineering technologists in Ontario.

To overcome the fears of the employed professional engineers that CAPE was a 'headhunter' This questionnaire contained a preamble stating why it sought to collect data on the participant's academic profile, professional development highlighting skills developed, experience, workplace culture in Canada and language of instruction. It also contained a privacy statement and did not require the candidate to either supply her/his name or employer details. It required some written answers. The idea was to profile how

skills developed at each stage by the Canadian engineer compared to career development paths adopted by IEBs. Not a single Canadian engineer out of approximately 150 who were contacted was willing to answer this questionnaire.

A mainstream senior engineering recruiter who had experience of working with numerous engineering employers offered to assist with this survey. The recruiter started off by modifying the length of the original questionnaire and limiting the answers by multiple choices. He then tried to elicit a response to this from 100 engineers holding professional engineering positions across a number of engineering disciplines. Not one of them responded to the questionnaire but several responded by stating that they did not see any point in an immigrant association inquiring about Canadian Skills. They also pointed out that what needed to be done was for the immigrant association to ask the Canadian Engineers to identify what skill sets the immigrants needed to acquire. The recruiter finally prepared a third questionnaire in consultation with an employer focusing on deriving the skills and competencies that Canadian engineers and employers required of the immigrants. Out of the 50 engineers and employers who were invited to answer the third questionnaire, only nine responded and all nine were immigrants themselves. The analysis of these responses is presented in Table 4 below. This questionnaire highlighted the main concerns of the employers as seen from the summary of the analysis of the responses:

Table 4: Employer Response to Questionnaire on skills requirements for IEBs

Issue	% response
Employers confirming they would hire IEBs with or without a Professional License	100%
Employers offering professional Development or training courses	66.7 – 73.3%
Employers offering language training	0%
Hiring process driven by project managers, recruiters and advertising	73.3%
Hiring process driven by Human Resources	33.3%
Referrals encouraged	66.7%
International clientele and employees from same countries	66.7%
Emphasis in hiring process: • Education and training • Project specific experience • Communication skills	 66.7 to 73.3 % 100% 87-100%
Percentage of respondents for whom English was a second Language	66.7%
Percentage who felt Language skills held them back	11.1%
Percentage who ranked their own communication skills as: • Excellent • Good • Fair	 44 -55% 11 -33% 11-22%
Percentage recommending English language training for IEBs	100%
Percentage recommending policy and guideline support for IEBs by all levels of Government	44 -67%
Percentage willing to equate Canadian credentials with other credentials	44%

8 CROSS CULTURAL LEARNING AND TOOLS

8.1 Rationale

Beginning in 1986, the Canadian immigration system adapted its criteria to attract skilled workers by increasing the points required to 70 points. Equally significant, it eliminated the requirement for prearranged employment. As stated in Bambrah (2005) for the first time, the majority of immigrants coming to Canada are from the "skilled workers" category, a significant proportion of these immigrants have engineering, technician, or technologist backgrounds;

Upon arrival in Ontario, many of these skilled immigrants have been drawn into formal employment support and settlement services, many of which were founded on the basis of a service model created to meet the needs of refugees after the World War II. This has subsequently been adapted to include employment-preparation programs for skilled workers based on language training, résumé writing, cold calling, networking, and work-placement programs for unskilled immigrants;

The vast majority of the immigrants with engineering backgrounds in the last and fourth cluster have come from Commonwealth countries whose educational systems are not very different from the one found in Canada, and they have high levels of educational attainment and experience. Yet they have been subjected to accreditation systems developed for post-Second World War immigrants who originated from non-Commonwealth countries that had distinctly different education and training systems from those in Canada. Although many of the recent skilled immigrants possess more highly-developed technical skills and more widely-based experience than their predecessors, and despite their language disconnect being only partial, many of them have become increasingly marginalized because of a mindset focused on ethnic silos that is common within the system of settlement services that were developed for the unskilled trades-people who came in the second cluster; The lack of capacity of this sector to understand the knowledge content of this last cluster has resulted in the de-legitimizing of the credentials and deskilling of skilled immigrants in the recent cluster of immigrants.

It was not surprising therefore that in the focus groups that were held with IEBs, the following were the major issues identified:

- Lack of information regarding employment support, licensing, certification and employer information
- Frustration at the quality of community employment support available to the IEBs who were able to access these upon arrival
- Inability to network, futility of cold-calling, inability to access work placements even on a volunteer basis
- Lack of response from on-line human resources departments and recruitment agencies
- Lack of direct access to employers

Through participation in the employment working group of the Toronto Region Immigrant Employment Council (TRIEC), evidence began to emerge that showed that the employers were unhappy with the nature of resumes that they were receiving from immigrants with engineering backgrounds. As one employer remarked; 'what are these stories the immigrants keep presenting to us? We want to know what engineering projects they have worked on, not how social they are!"

Engaging employers in this research was critical to understanding the barriers to immigrant access to the profession of engineering. In keeping with the action research methodology, employers had to be actively involved in the 'learning' process that was evolving from this project. Consequently the basis of employer engagement with 'Engineering Access' was cross-cultural learning through the following:

8.2 Self Assessment Support

Recognizing the information needs of immigrants with engineering backgrounds, priority was given to developing a single source of information to enhance the understanding of immigrants with engineering backgrounds about the practice of engineering in Ontario. An online self assessment tool was developed and is being piloted that navigates the user through a systematic learning of the employment situation of IEBs in Ontario, the regulation, licensing and certification procedures for engineers, engineering technicians and technologists, understanding the implications of reserved titles and licensing and certification of engineers, engineering technicians and technologists in Ontario, self identifying as an engineer, engineering technician, technologist or tradesperson among other learning

8.3 Engineering Procurement, Construction and Management (EPCM)

A literature review revealed one typical model for an engineering organization that is globally recognized as well as widely accepted in Canada. This is known as the Engineering, Procurement, Construction and Management (EPCM) model for a company that carries out total engineering works from inception to operation. These companies are referred to as 'EPCM' companies. Using this as a tool for cross cultural learning, a retired and professional Canadian engineer with extensive experience in an EPCM company in Ontario was invited to hold a consultation with the 'Engineering Access' research team. Upon the basis of several learning sessions with this engineer a template was developed of typical engineering positions, functions and titles for these positions within EPCM companies. This template was than shared with a multi-disciplinary group of immigrants with engineering backgrounds. As expected, it was found that given this tool most immigrants with engineering backgrounds could identify with a position or function within this model.

This template therefore provided a good support tool upon the basis of which the IEBs could develop their resumes for an engineering position.

8.4 Resume Builder

Having developed the template for the EPCM model, the next development was to help IEBs to develop resumes tailored to the requirements of the engineering employers. Again a recruiter and a number of professional engineers were engaged in defining the elements of an engineering resume. Extensive research was carried out to develop the understanding of skills and competencies matching contained in Bambrah (2006) that reports on the results of the survey of 1003 IEBs. This information was used to develop an online resume builder that can be universally used by engineers. This is currently being piloted. This also includes information on the National Occupations Classification and built in templates to support engineering terminology and functions.

8.5 Locating Employers

In response to the need for IEBs to link directly to employers an extensive analysis of employers hiring professional engineers has been developed into an online tool that maps the location of the employers using local telephone codes. From this IEBs can directly link to the employer websites and career pages within an area defined by the telephone code.

8.6 Structured Employer Support

Research and findings of competency matching of immigrant skills and attributes with the OSPE employer salary survey benchmarks has been made available online for employers. In addition to this structured presentations for employers on globalization and international systems of accreditation, demonstration of how engineering is combined with information technology expertise for institutional strengthening, developing an understanding of human resources practices for effective utilization of the skills and experience of immigrants with engineering backgrounds through merit-based hiring have been prepared and made to several employers. These have been piloted to a limited extent and will be developed further.

8.7 Supports for Service providers

Demonstrations have been given to a number of our partners from the community service organizations of the on-line information and support tools that CAPE is developing. These partners have expressed a keen interest in learning about and using these tools to build their capacity to serve IEBs. CAPE is now working on offering training sessions to employment counselors for IEBs, working in the service sector.

8.8 Informational Supports for Other Stakeholders

Power-point presentations, proceedings of focus groups and other such events, updated survey reports, conference papers, research papers, position papers, submissions and an events calendar have been incorporated into the CAPE website to keep stakeholders informed about developments taking place within the IEB fraternity.

9 AN ANALYSIS OF THE BARRIERS TO LABOUR MARKET INTEGRATION OF IEBS

Barriers to the labor market integration of immigrants with engineering and other professional backgrounds in Ontario are rooted in the challenge to make this transition from "Canadians First" to "Canada First". The highly-skilled and highly-educated immigrants with professional backgrounds have been the victims of this failure and the nature barriers facing IEBs in accessing their profession is discussed below. Three key policy areas - sustainable economy, Canada's social foundations, and Canada's place in the world provide the framework against which Barriers facing IEBs are best structured.

9.1 Sustainable Development

At the World Summit on Sustainable Development (WSSD) in 2002, Canada defined sustainable development to mean that environmental, economic, and social activities and policies were mutually reinforcing (Government of Canada 2002c). A sustainable economy under this type of development is deemed to include economic stability and competitiveness, employment and education, a healthy environment, and sound environmental practices. These considerations have since dictated Government policy. Pacing the well-being of Canadians at the heart of economic, environmental, and social policies meant the government had to transform its approach to environmental sustainability through a competitiveness and environmental sustainability framework to better align environmental, social and economic signals. To build a globally competitive economy, the Government of Canada committed itself to pursuing investing in skilled knowledge workers, cutting-edge research, science, and innovation. (Treasury Board of Canada, 2005) It also committed itself to attracting highly skilled and educated immigrants many of who had professional backgrounds.

Continuing on this theme over the course of its mandate, the present Government of Canada (2006) will promote a more competitive, more productive Canadian economy. To achieve this it will seek to improve opportunity for all Canadians, including new immigrants. It will take measures to achieve tangible improvements in our environment, including reductions in pollution and greenhouse gas emissions. Consequently the vision of the Government in bringing the skilled immigrants to Canada is rooted in creating a world class and globally competitive workforce to make Canada more productive.

9.2 Ontario and "Strong people, Strong Economy"

The Government of Ontario (2006), in its progress report, is driven by the vision of strengthening Ontario's economic advantage. Within this theme Ontario recognizes that its greatest asset is its people and that in the knowledge economy, the most valuable commodity is a highly skilled workforce. It has defined this priority as "Strong people, Strong Economy". But Ontario also positions itself as already having a leading edge knowledge workforce which it must strengthen to maintain its competitive advantage. Paradoxically then it must define highly educated and experienced knowledge workers from other parts of the world (of who immigrants with engineering backgrounds are an integral part) as 'deficient' vis-à-vis its own domestic leading edge knowledge workers. Therefore "Capitalizing on Diversity" and accelerating the integration of immigrants into the workforce to strengthen Ontario's economic advantage means that the target becomes one of increasing the percentage of internationally trained people 'becoming qualified' to work in Ontario.

While Government of Canada views highly educated and experienced immigrants are a part of the knowledge workers in its vision of a sustainable economy, the Government of Ontario envisions itself as 'helping' these immigrants to overcome 'qualified' by overcoming assumed 'deficiencies'. Thus highly skilled immigrants are perceived to be a liability in which the Government must invest through 'credential recognition', and 'deficiencies' in 'language' and 'workplace culture'. In this framework the 'knowledge workers' that the Federal Government is attracting through its immigration policy become 'deficient workers' upon arrival in Ontario.

9.3 The Knowledge Economy

Neo-classical growth driven economics of the last two centuries has recognized only two factors of production: labor and capital before which time Land and labor tended to the recognized factors of production. Information and knowledge are now replacing capital and energy as the primary wealth-creating assets at the same time as technological developments in the 20th century have transformed the majority of wealth-creating work from physically-based to "knowledge-based". Technology and knowledge are now the key factors of production. With increased mobility of information and the global work force, knowledge and expertise can be transported instantaneously around the world, and any advantage gained by one company can be eliminated by competitive improvements overnight. The only comparative advantage a company will enjoy will be its process of innovation--combining market and technology know-how with the creative talents of knowledge workers to solve a constant stream of competitive problems--and its ability to derive value from information. We are now an information society in a knowledge economy where knowledge management is essential.

A key dimension of this new development is that knowledge cannot be contained within defined borders. Recognizing this development the government of Canada has endorsed several international trade agreements (for example, NAFTA and GATS) designed to facilitate both a seamless access to markets and the migration of knowledge workers. The

fourth cluster of immigrants represents the leading edge of labor migration associated with this migration.

However, Ontario positions itself to be a leading edge knowledge based workforce to strengthen which to maintain its competitive edge greater investments must be made in its education and training systems for the domestic workforce.

9.4 Foreign Credential Recognition and Reserved Title

Under the Canadian constitution, provincial governments have exclusive responsibility for all levels of education. Canada is a federation of ten provinces and three territories. There is no ministry or department of education at the federal level. The quality of postsecondary programs is ensured through a combination of legislative and administrative mechanisms rather than by a single system of institutional or program accreditation. Foreign credential recognition is used to assess the 'equivalence' of 'knowledge' obtained in different jurisdictions.

The mechanism under foreign credential recognition of the reserved title of Professional Engineer (P.Eng) or even 'Engineer' in some cases strips an immigrant with an engineering background of the right to the practice of engineering or credentials previously possessed by him or her upon arrival in Ontario. Consequently Knowledge workers (of which immigrants with engineering backgrounds are an integral part) from outside the province are assumed to be 'deficient' until they have fulfilled the requirements of the provincial credential recognition. In Ontario, this has translated into an institutionally rigid foreign credential system so that an accreditation has to be obtained for any route to access one's profession in Ontario be it higher education, licensing or employment. Appallingly, despite great strides in information technology, these services have not been able to keep up with rising diversity amongst immigrants with engineering and other professional backgrounds. Credential recognition systems based on time honored peer-review processes on an individual, case-by-case and need by need basis, through evaluation networks have becoming increasingly questionable creatures of confusion and disconnects

9.5 Engineering Regulation

Engineering is legislated as a regulated profession in Canada under the Professional Engineers Act R.S.O. 1990, CHAPTER P.28. Licensing of Engineers in Canada is a Provincial responsibility. The authority to regulate this profession in the Province of Ontario has been delegated to Professional Engineers Ontario (PEO).

In a 1998 report to the Canadian Council of Professional Engineers, the International Affairs Committee of the Canadian Engineering Qualifications Board acknowledged that it had been caught off-guard by the frenzied pace of international trade initiatives. That the Canadian engineering community at large did not understand fully what was happening on the international front and needed to get proactively involved in the

international trade negotiations so as not to be lumped into the trade negotiations with other professions and services finally was acknowledged (Roter 2003).

In Ontario, Norbert Becker (President, The Becker Engineering Group, a PEO Councilor-At- Large, and the Chair of the PEO Globalization Strategic Planning Task Group) argued in 1998 that when the federal government joined more than 110 nations in signing the General Agreement on Trade in Services (GATS) in 1994:

"…By signing this agreement, pursuant to the rules of the GATS, Canada must ensure that all accreditation and licensing requirements for such self-regulating professions as engineering are open, transparent and non-discriminatory. Moreover, our systems of accreditation and licensing must encourage liberalization of trade by being objective and no more burdensome than necessary.… It was binding not only on our federal government, but also on provincial governments and non governmental bodies acting in a regulatory capacity (e.g. PEO)." (Becker 1998, 42)

Becker then proceeded to raise alarm that:

"… Although GATS was not intended to pressure any nation into compromising its existing standards for self-regulating professions, it seems destined to do so for the engineering profession in Canada. Canadians who have practiced outside Canada can attest to the fact that engineering in most countries is either poorly regulated or not regulated at all: Anyone can claim to be an engineer with impunity in some jurisdictions (e.g. the U.S.); the accreditation requirements for engineers in many countries more closely match those of Canadian technologists or technicians than Canadian professional engineers; and the practice of engineering is regulated only in specific areas of practice in some other countries…. It is naive to believe that the unregulated and under-regulated world of engineering will agree to adopt Canadian standards for professional accreditation. In all likelihood, the Canadian federal government will be pressured into making PEO an offer that it cannot refuse. Either PEO agree to harmonize its admissions standards with the rest of the world, or the engineering profession will be partially or entirely deregulated. After all, if the rest of the world doesn't need the protection afforded by a strict regulation of engineering, why does Canada? "(Becker 1998, 43

The stated position of PEO (2006), is that "It is in the public's interest to maintain the current Canadian regulatory model for the practice of engineering, which relies on one act and one regulatory body within provincial and territorial jurisdictions, to promote transparency and accountability and that the public is best served by having those taking responsibility for engineering practice meet an appropriate and consistent high standard of education and experience, with one body determining standards of practice. Not only is there no public documentation of these standards of practice but this model is also totally disconnected from the federal government to which immigrants with engineering backgrounds apply for admission to Ontario and other provinces of Canada (with the exception of Quebec).

Over the last 30 years not only has the scope, complexity, and size of the profession changed but the applicants who are applying to practice engineering in Ontario have also changed from mainly being graduates of Canadian engineering schools to a highly diverse group in terms country of origin, academic background, and work experience. Recognizing that existing regulatory policies, practices, and approaches had to be evaluated, the Ontario Regulators for Access, an informal coalition of professional regulatory bodies in Ontario endorsed Guiding Principles for Regulators calling for fairness, objectivity, transparency, accountability and collaboration.

Following from this Professional Engineers Ontario (PEO) Council established the Licensing Process Task Force (LPTF) to review its licensing process. This is the first time that PEO has undertaken a thorough, fundamental review of its licensing criteria and processes. LPTF has taken the position that PEO's enabling legislation (the Professional Engineers Act and Regulation 941) is not perfect and should not be considered sacrosanct. At the same time it has based its recommendations for possible changes to PEO's enabling legislation on the recognition that Regulation changes are much easier and quicker to accomplish than Act changes. LPTF takes the stand that the peer review process must unquestionably be retained and PEO licensees should continue to be engaged in activities to assess applicant qualifications for licensure through participation in reviews and interviews of the academic requirements committee (ARC), experience reviews and interviews of the experience requirements committee (ERC), registration hearings of the Registration Committee (REC), administration of Professional Practice Examinations (PPEs), acting as supervisors, monitors, and referees for engineering interns, and acting as members of visiting teams for CEAB accreditation.

In committing itself to this stand, LPTF has placed itself in the untenable position of promoting a subjective process that can only be a reflection of the personal competence and global knowledge (or not) of the PEO licensee. The whole process once again becomes grounded in an assumption of 'deficiency' of all credentials obtained outside of Ontario so equivalency must be established. The engineering academic peer review process relies totally on the principle of equivalency on an individual by individual assessment and a limited database of accredited foreign engineering schools and universities, the development of which has not kept pace with the tremendous increase in diversity over the last thirty years in spite of huge strides in the development of information technologies. Neither does PEO recognize the Mutual Recognition Agreements signed by the Canadian Council of Professional Engineers (CCPE) to facilitate recognition of credentials obtained outside Canada.

Following close on the heels of these developments has been the release of the George Thompson Commission on a review of the appeals processes in regulated professions. Based on the recommendation from this report that if the regulatory processes are fair, then there would little need for the appeals mechanism, the recently established Ministry of Citizenship and Immigration (2006) is in the process of introducing Bill 124 to provide fair registration practices in Ontario's regulated professions. The first reading of this act took place in early June 2006. The purpose of the bill is to help ensure that regulated

professions and individuals applying for registration by regulated professions are governed by registration practices that are transparent, objective, impartial and fair

9.6 Canadian Experience

For the second part of the regulatory peer review process known as the experience assessment no clear definition of equivalency has yet been established. Under Sections 33 of the regulations, the applicant must acquire 12 months' experience in a Canadian jurisdiction under a PEO licensee. This is deemed necessary to ensure that the applicant is familiar with Canadian codes and standards of practice. This knowledge can be acquired through simulated teaching or self-learning as is the case in the rest of the world. Further if the applicant has obtained experience outside of Canada, the underlying rationale behind recognition of three years or more of experience gained elsewhere as being equivalent yet not recognizing an extra year to meet the full four year requirement is unclear. Thus to add to all the other confusions in the labor market, the term "Canadian experience" is continually utilized, when in truth, no one can identify, describe or define its constituent elements

In the interests of fairness, the LPTF has recommended that the fundamental admissions criteria should be redefined to include knowledge (as opposed to academic record,), skill (as opposed to experience) and character (or attitude). One fails to understand how these admissions criteria are to ensure objectivity and avoid ambiguity in the regulations and the peer review process. What will be the criteria to assess an attitude for instance? How is foreign experience to be assessed by a PEO licensed engineer who has never worked outside Ontario? And if an engineer who has only ever worked in Ontario can assess the experience of the foreign trained engineer then the converse (that the foreign trained engineer can assess 'Canadian' experience without having worked in Ontario) must also hold true as is the case in many countries around the world where they have clearly defined and publicly documented procedures and standards. Where then does the twelve month 'Canadian' experience derive its specificity? How does this reflect on the fairness of the peer review process?

Another assumption is that all PEO licensees possess the knowledge, skills and attitude being re-defined under the fundamental admissions criteria. Placing new applicants at the mercy of PEO licensees without putting them to the proof of justifying this assumption is selective application of the principle of fairness. Also, the institutional capacity of PEO relying as it does on volunteers to undertake the peer review process is already stretched. Introducing a more onerous process including formal internship and requiring every applicant to go through will overburden PEO licensees. There is a real danger that volunteers with inadequate post licensing experience will be pulled into the peer review process putting public safety at risk.

9.7 Employment and licensing

In 2001 PEO amended its by-laws to introduce open hearings for discipline cases and to establish provisional licenses, valid for one year. This license was for qualified applicants who had satisfied all legislated licensing requirements as a P.Eng. with the exception of obtaining at least 12 months of engineering work experience in a Canadian jurisdiction and under the supervision of a Canadian professional engineer. It represented a category of license that the PEO assumed would allow it to both maintain its high standards for qualification to serve and protect the Ontario public and benefit employers and immigrants with engineering backgrounds alike.

Unfortunately, this initiative has unintentionally created a new obstacle for IEBs because it placed a time limit on the validity of the license and on the acquisition of the required experience.

Requirements for Canadian work experience link licensing and, in turn foreign-credential and experience recognition, to the employment of immigrants with engineering backgrounds. This serves to create a context of additional risk for already risk-averse employers.

In 2000, PEO conducted a referendum of its members, and received an 80 per cent affirmative vote for the creation of a new member-interest advocacy body. In April 2000, the Ontario Society of Professional Engineers (OSPE) was born. In 2001 OSPE initiated a bridging program known as 'Pathways' to provide the 'Canadian experience' to applicants who held 'Provisional Licenses' but was unable to attract sufficient 'buy in' to this program by employers. Consequently OSPE is expressing concern about the purported oversupply of engineers and using this argument in its lobbying effort to both defend its policy in support of the first right to employment of Canadian engineering graduates and to explain away the unemployment and underutilization of IEBs

Employer non-recognition of foreign credentials and experience is a critical barrier to the access to the profession of engineering by IEBs.

9.8 Recruiting and Hiring Practices

Technological developments have increasingly divorced physical labor from material rewards, while competency requirements for accessing these rewards have risen. Even at the end of the First World War, cultural interpretation still controlled access to "work" by a number of means; for instance, women could only access specific jobs and professions, while men were given professional positions and retained through "loyalty for security" social contracts.

This practice persisted until the late 1970s when job-search strategies based on credentialing and networking were introduced. The advent of relatively inexpensive mini-computers in the early to mid-1970s permitted the computerization of many human resource management (HRM) practices in a broad range of organizations that had

previously been unable gain access to a mainframe. This period, which crystallized around 1982 in Canada, marked a change in candidate-search practices both as the new job-search practices spread and as human resources (HR) departments began to be swamped with resumes. From this period onwards, credentialing centered on matching predefined candidate search requirements in such areas as degrees, work experience, and "bare-bones" resumes with formal candidate search procedures. Networking required appropriate credentials, but relied on additional opportunity information via personal and professional networks. Networking increasingly took advantage of informal candidate search procedures

A number of studies on the effects of different sources of recruitment in the 1990s clearly showed that informal sources of recruitment tended to produce candidates who had a lower turnover rate and were a better "fit" than recruitment through more formal channels. These were less expensive than formal processes and dovetailed nicely with the emphasis on networking in the new job-search practices. Continued HR cost-cutting pressure interacted with newer computer technologies, primarily scanning software and web development, and ensured that HR departments became the driving force behind many corporate websites. The resulting shift towards internet-based recruiting resulted not only in the restructuring of HR departments and the ability to cut costs, but also the ability of recruiters to both find appropriate candidates and keep abreast of current issues. This has served to distance the potential job-seeker from the employer, and has placed the onus for understanding employer needs squarely on the shoulders of the recruiter.

The effect of this on immigrants with engineering backgrounds is that their entry to the profession now depends almost entirely on recruiters. The recruiters are driven by profits earned from the placement fees. The recruiters have played upon the comfort zone of employers of a familiar workplace culture and language proficiency by defining employer needs to mean that only "exact fit" or 'Canadian First' candidate choices defined as having experience in the domestic market are job ready. Consequently recruiters have closed off the profession by focusing almost completely on the existing and domestic pool of engineers in search of 'exact fits' for quick placement profits and turnovers. This in combination with the development of email, OCR scanners, and web-based application systems to automate initial cuts on candidates, have allowed recruiters to readily scan out entire groups of jobseekers, such as skilled immigrants, through the use of such terms as 'Canadian experience' and 'P.Eng'.

9.9 Newcomer Support and Bridging

In 1974, the Department of Manpower and Immigration expanded its settlement mandate from the mere reception of immigrants to employment, accommodation, and settlement assistance. It also took over responsibility for the overall coordination of voluntary organizations providing immigrant adjustment and settlement assistance. This led to the establishment of the Immigrant Settlement and Adaptation Program (ISAP), which was started to fund initial settlement services, such as information provision, orientation, and referral to mainstream service agencies

The Settlement Language Training Program (SLTP) created in1986 was designed to meet the needs of adult immigrants, primarily women and seniors, who were not destined for the labor force. Immigrant organizations received substantial funding to enter the field, with school districts and colleges serving as the actual language-training providers. Many agencies formed alliances with already existing providers in the development of new and innovative programming, particularly in the Toronto region, where a number of agencies partnered with local school boards. Over time, deficiencies also became apparent in the SLTP. In 1992, two new immigrant-training programs for adults were initiated by the federal government: Labor Market Language Training (LMLT) and Language Instruction to Newcomers to Canada (LINC). LINC has become the dominant adult second-language-training structure in Canada. It has gradually replaced almost all other English training programs in the country, and has been instrumental in the development of a myriad of national assessment and curriculum projects (Bambrah 2006).

In 1989, a task force sponsored by the Ontario Government reviewed all the rules and practices related to access to professions and trades and observed that there were systemic barriers, rooted in the practices of self-governing bodies. Specifically, the Report identified barriers in prior learning assessment, licensure testing, Language training, Language testing, retraining and reviews of decisions. It recommended creation of a government agency called PLAR – Prior Learning Assessment Network. In Ontario, the Access to Professions and Trades (APT) unit was established in the Ministry of Training Colleges and Universities, in 1995. This APT unit initially focused on providing information about licensing, funded creation of a credential assessment service (World Education Services), developed fact sheets, and funded development of pilot projects such as the STIC program (Sector-specific Terminology, Information and Counseling) and bridging programs for immigrants with professional and trades backgrounds.

With more evidence emerging of the difficulties immigrants with professional backgrounds were facing in accessing their professions, the Government of Ontario introduced bridge training into its agenda. In April 2002 it provided over $3.6 million for nine bridge training programs. Bridge training projects are intended to help qualified internationally trained individuals to move quickly into the labor market by assessing their existing skills and competencies and providing training and Canadian workplace experience without duplicating what they have already learned. Obviously then this is based on an assumption of a ‘Gap’ or ‘deficiency’ of credentials. Three such programs have been implemented for immigrants with engineering backgrounds.

- Skills for Change, with funding from HRDC and MTCU developed the Sector-Specific Terminology, Information, and Counseling project (STIC), a six-week employment preparation program for foreign-trained engineers, accountants, information technology, and health care professionals. It provided occupational terminology and an opportunity to learn about Canadian business practices and workplace culture. The program was developed in cooperation with the regulators in each field. STIC provided training manuals and self-assessment tools to foreign-trained professionals (in accounting, engineering, health care and IT professions) to speed up their entry into the province's labor markets

- The Ontario Society of Professional Engineers (OSPE) in partnership with PEO (the regulatory body), APT, and other groups developed the Pathways employment experience program for internationally trained engineers. This provided a six-week classroom training for a fee and included work placement to enable applicants to gain the necessary 12 months' Canadian experience required for licensing. The project was intended to "bridge the Canadian experience gap" identified as a major hurdle for foreign applicants

- The Options: Choosing the optimal Route to Success project developed in partnership with the Center for Language Training and Assessment (CET) and the Ontario Association of Certified Engineering Technicians and Technologists (OACETT). Applicants to this program were provided with the language and employment readiness skills, contacts and networking opportunities required for independent job seekers. The applicants paid a fee for a certifying examination under this program and were provided with employment preparation tools.

All these three programs have since ceased. A survey was carried out by CAPE aimed at investigating the outcomes of these and other similar employment supports. This survey questionnaire was sent to just under 1000 immigrants with engineering backgrounds. 144 responses were received and the analysis of these responses is shown in Table 5 below. As can be seen from this survey less than 12% of those who attended these programs were able to access gainful employment.

In spite of these poor outcomes the Government of Ontario (2006) has recently announced that:

- A federal-provincial agreement will quadruple funding over the next five years for settlement, language training, integration and programs for immigrants who come to Ontario.
- To help newcomers get a start, more than 35 bridge training projects are helping internationally trained individuals become qualified to work in Ontario.
- Thirteen Enhanced Language-Training projects, will be funded by the federal and provincial governments, focused on higher-level, occupation-specific language training
- The government is working with professional regulatory bodies to eliminate barriers facing internationally trained newcomers.

On May 18, 2006 the Ontario government announced that it is investing almost $14 million over the next three years in 24 new bridge training programs for over 100 trades and professional careers. This will help more than 3,000 internationally trained professionals and trades people upgrade their language skills and training, prepare for exams, and work in their field faster. $513,472 will be invested in Accessible Community Counseling and Employment Services for New Canadians to provide support to 150 newcomers, who were trained as engineers, to find employment in their field of expertise, for example civil, chemical, mechanical and industrial engineering.

Table 5: Outcome Assessment – Community Employment Supports

Employment tool	Number of users	Percentage
1. Number who responded to the survey	144	78.26%
2 Duration of employment preparation program • Less then one week • One-Three Week • Four-Six weeks • More	 33 27 54 29	 22.92% 18.75% 37.50% 20.14%
3. Program assessed to be: • Excellent • Good • Fair • Poor	 16 56 51 20	 11.11% 38.89% 35.42% 13.89%
4. Engineering resume writing assistance assessed to be: • Excellent • Good • Fair • Poor	 12 61 45 26	 8.33% 42.36% 31.25% 18.06%
5. Licensing information support rated as: • Excellent • Good • Fair • Poor	 18 54 34 33	 12.50% 37.50% 23.61% 22.92%
6. Networking and cold calling support rated: • Excellent • Good • Fair • Poor	 14 48 57 24	 9.72% 33.33% 39.58% 16.67%
7. Work Placement rated to be: • Excellent • Good • Fair • Poor	 8 22 23 81	 5.56% 15.28% 15.97% 56.25%
8. Mentoring Program ranked to be • Excellent • Good • Fair • Poor	 9 23 28 69	 6.25% 15.97% 19.44% 47.92%
9. Found employment upon completion: • Yes • No	 17 124	 11.81% 86.11%

9.10 Findings

The government of Canada driven by a vision of sustainable growth has endorsed globalization by signing several international trade agreements (for example, NAFTA and GATS) designed to facilitate both a seamless access to markets and the migration of knowledge workers. The fourth and last cluster of immigrants represents the leading edge of labor migration associated with globalization.

The Government of Ontario on the other hand is driven by the vision of maintaining the competitive edge that it believes its knowledge workforce already possesses by investing in more education and innovation. Skilled immigrants are necessarily considered to be 'deficient' in relation to the knowledge workforce of Ontario under this vision. Consequently regulatory and employment supports for the professions are based on an assumption of 'investing' in the 'deficiencies' of skilled immigrants through bridge training. However employment outcomes of the bridge training being provided for immigrants with engineering backgrounds have been poor largely because of a poor buy-in to these programs be employers.

Employers feeding off the same perceptions about the mixed engineering skills that immigrant with engineering backgrounds bring to the profession. They are risk averse and wish to remain in a comfort zone associated with a familiar set of skills, including language proficiency and a recognized work culture. This position has been reinforced by human resource departments and recruiters to whom employers outsource for staffing solutions. The hiring practice is to out whole groups of jobseekers based on criteria such as 'Canadian experience', language proficiency and undefined 'soft skills'. Such criteria often have been difficult to define in any distinct way. Moreover, the notion of 'Canadian experience' has become the 'best practice' to overcome employer risk, without providing the specifics concerning its definition.
Advocates for professions, such as OSPE in the case of engineering, are further reinforcing these fears through claims that Canadians must be protected from an oversupply of engineers due to an immigrant invasion of the profession. By closing the door to the professions to immigrants with engineering and other professional backgrounds through these mechanisms, the knowledge workers in this fourth cluster have been frustrated in their attempts to make use of the skills and education that formed the basis for their admission to Canada. In short, many of these immigrants have not been allowed to demonstrate their potential for economic contribution to Canada, which is not the same as alleging that these immigrants have performed poorly.

The Governor of the Bank of Canada (Dodge D. 2004) has stated that the most obvious adjustment for Ontario under the globalization framework is the transformation of manufacturing processes around the world. As low-cost, highly efficient capacity is built in Asia tremendous competitive pressure will be created on industries that have traditionally been mainstays of the Ontario economy. These include automobiles and parts, other transportation equipment, light manufacturing and increasing pressure on industries such as steel and heavy manufacturing. Higher energy costs in the years ahead is a major global issue calling for adjustment from Canada and Ontario, which are

energy-intensive by world standards. Further adjustments will be fuelled by greater demand from the booming economies of Asia for non-energy commodities such as nickel and iron ore and the significant global efforts to find new sources for improved processes to extract these.

Further, services which were once thought to be non-tradable are becoming open to worldwide competition largely as a result of changes in technology. This is bringing Ontario's service industries face to face with increased competition from new suppliers, such as India's burgeoning information technology and business services industries. Ontario's service sector's greatest challenge will be from the continued consolidation within financial services industries around the world, which is creating competitive pressure within an industry that is of vital importance to the Greater Toronto Area. Financial services companies are concentrated around Toronto and the finance, insurance, and leasing sector represents almost 15 per cent of the provincial GDP. Increasing Ontario's industrial productivity and market efficiency will be the key to retaining our competitive position in the world.

9.11 From 'Canadian First' to 'Canada First'

Interestingly, the findings reported above have been validated by Maynard who argues:

"Pockets of the business community are generating great pressure upon the government to facilitate borderless access to both the marketplace and the labor pool. Access to the global marketplace is a function of trade agreements and reduction of protectionist tariffs. Access to the global labor pool is a tougher nut to crack, as the historical role of the government has been to protect its population from competition for domestic employment positions. Protection of domestic employment opportunities is a legitimate concern of government, and is historically the primary consideration when determining entry of a foreigner into the Canadian labor pool.… We are in the midst of a transition of focus from 'Canadians first' to 'Canada first.' The NAFTA and GATS agreements have opened the door for entry of foreigners into specific occupations without HRDC validation in some occupations. The implementation of pilot projects for entry of IT and software professionals for instance has widened the door, in the interest of assisting Canadian businesses to be competitive in the global marketplace, and are paving the way for broader adoption of sectoral agreements and other mechanisms that will ease labor market borders for specific segments of the economy (Maynard 2000)"

10 MULTI-STAKEHOLDER ROUNDTABLE ON AN EMPLOYMENT STRATEGY FOR IEBS

10.1 Constructive Engagement

On October 16, 2004 CAPE, under the 'Engineering Access" project, launched its multi-stakeholder roundtable through its first Multi-stakeholder forum on ***Globalization, International Mobility and Canada in the 21st Century.*** The following organizations made contributions to this event:

- Hon. Joe Volpe, the Minister for Human Resources and Skills Development
- Hon. Mary Ann Chambers Minister of Training Colleges and Universities, Ontario
- The Council for Access to the Profession of Engineering (CAPE)
- Jacques Whitford Ltd. Consulting Engineers
- Brunel Multec. Recruiters
- Professional Engineers of Ontario.
- Lt. Governor appointed Councilor, Professional Engineers of Ontario
- Canadian Council of Professional Engineers
- Association of Bangladeshi Engineers of Ontario
- Council of Agencies Serving South Asians
- Policy Roundtable Mobilizing Professions and Trades (PROMPT)
- Ontario Society of Professional Engineers.
- Skills for Change

The forum started with a plenary session in the above key stakeholders were invited to make short addresses to define their stakes, issues, constraints and opportunities with regards to immigrants with engineering backgrounds settling in Ontario. These short addresses were video recorded and published as written proceedings (CAPE 2004).

Through this forum a constructive engagement exercise was initiated to engage IEBs, employers, professional associations, regulatory bodies, educational institutions and service providers in a multi-stakeholder roundtable to develop an employment strategy on how to integrate immigrants with engineering backgrounds into the Ontario engineering workforce. Constructive Engagement (EPA 2006) is both a value and an approach to bringing communities, workers, industry, and government together to address mutual concerns. As a value, it is founded on a belief in the benefit of bringing together people with different points of view to communicate with each other about the issues that concern them. As an approach, Constructive Engagement processes are designed to provide forums in which meaningful and timely discussions can take place among workers, government regulators, industry representatives and community groups. This belief and approach was the basis of the CAPE multi-stakeholder roundtable.

10.2 Multi-stakeholder Roundtable

To initiate this roundtable approach:

- A credible means of initiating the process and ensuring appropriate participation had to be established.
- An effective process had to be designed including ground rules, conducting meetings, decision-making, and disseminating information to participants.
- Mechanisms had to be developed to address power differentials among stakeholders.

The process adopted for the constructive engagement exercise comprised three components as detailed below:

- Constituting a credible multi-stakeholder roundtable of participants to address the employment situation of immigrants with engineering backgrounds. To achieve this, the live as well as documented proceedings of the multi-stakeholder forum on "Globalization, International Mobility and Canada in the 21st Century" were circulated to all the stakeholders who had made presentations at this forum and they were invited to join the multi-stakeholder roundtable of CAPE on developing an employment strategy for immigrants with engineering backgrounds. These stakeholders were also invited to suggest other stakeholders who could constructively be involved in the roundtable discussions to ensure as broad a spectrum of stakeholders as possible
- Although fifty eight stakeholders participated in the roundtable discussions due to resource constraints the number of participants at each roundtable had to be limited to between 15 and 25 participants. Participants identified were given the option of attending all or some of the roundtables. A clear structure was adopted for the roundtables so that an average of twenty participants attended all the roundtables.
- Clear discussion rules were established for the roundtables from the start and participants were allowed the flexibility of asking these to be changed whenever this was necessary. The communication structure was also set out clearly at the first roundtable. This required that a matrix of strategies be developed and used as the baseline for the strategy from roundtable one onwards. Detailed proceedings and discussions of each roundtable were also produced and circulated to the participants well ahead of the next roundtable.

10.3 Multi-Stakeholder Roundtable Meetings

A series of six multi-stakeholder roundtable meetings were organized between October 2004 and May 2006, as detailed in Table 6 below. The objective was to develop a forward looking multi-stakeholder driven employment strategy for immigrants with engineering backgrounds settling in Ontario. Baseline issues identified at the first multi-stakeholder forum formed the agenda for the first roundtable on April 6, 2005.

Table 6- Multi-stakeholder Roundtables

RT	Date	Title	Focus
1	April 6, 2005	The Inevitability of Change	Extensive matrix of employment strategies favored by various stakeholders
2	June 30, 2005	Integrating Stakeholder Employment Strategies and consensus building	Building consensus to derive a matrix of selected employment strategies or solutions that all stakeholders collectively felt could help integrate IEBs into meaningful engineering occupations in Ontario
3 4	October 20, 2005 February 10, 2006	Defining stakeholder roles and responsibilities	Developing activities/actions and partnerships to implement the strategies in the matrix
5	Mar 31, 2006	Determining outcome and performance measures	Defining expected outcomes and performance measures
6	May 18, 2006	From 'Canadian First' to 'Canada First'	Public Launch of the Employment Strategy

10.4 The Multi-stakeholder Employment Strategy for IEBs

The multi-stakeholder strategy derived from these consultations comprises three components as summarized in the table 7 below. Key strategies are outlined in this document and can be read in conjunction with the detailed proceedings of roundtable outputs that accompany this strategy and that are available on the CAPE website: www.capeinfo.ca. The rest of this report elaborates on the action plan derived from the roundtable consultations.

The action plan breaks down strategies into three major sections Systemic Change, Labor Market Strategies and Support Strategies. Within each of these sections, there are sub-sections, and specific strategies within these sub-sections. Table 8 below captures this for easy perusal.

Each of these components is described in greater detail in the following sections.

Table 8: Action Plan Outline

Number	*Context*	*Major Sections*	***Sub-Sections***	***No. of Strategies***
I	***Systemic Change***	Outline strategies related to systemic changes, licensing, mobility and accreditation , standards and regulations and redefining the role of government	a) Process Change	3
			b) Broader Public Consultation	2
			c) Licensing, Mobility and Accreditation	3
			d) Bridging Knowledge Gaps	7
			e) Standards and Regulation	
II	***Labor Market Strategies***	Dissemination of accurate, reliable and up to date labor market information and tackling employer risk adversity	a) Labor Market Information	1
			b) Labor Market Participation	7
III	***Support Strategies***	Outlining the roles of communities and networks, education, training and empowerment, employers and new economic realities	a) Community Network and Support	2
			b) Skills Demonstration	1
			c) Employers, Empowerment and Economic Realities	2

10.5 Systemic Change

10.5.1 Process Change

The creation of a process from pre-immigration selection and information, to settlement into relatively suitable employment for immigrants with engineering backgrounds (IEBs) has been under extensive discussion. This process should include employment support for IEBs and it should not overlook the need to define equivalency criteria for foreign credential recognition and experience evaluation. The following are appropriate strategies:

- Creation of a seamless process from pre-immigration to settlement into skills commensurate employment for IEBs
- Engagement of all stakeholders to have a shared vision and to work to build a unified constructive strategy to achieve coherence and success
- Influencing immigration policy such that it takes into account the challenges faced by IEBs.

10.5.2 Broader Public Consultation

Policy changes must occur to address systemic issues and take into account changing labor market realities and environmental, economic and social sustainability rather than the demographic needs of Canada; these should be the driving force for change. Stakeholders need to carve out new roles in response to the needs of IEBs, employers and others. Changes must begin from within relevant institutions. Coordination and clarification of organizations roles needs to be strengthened through broader public consultation so that both new immigrants and policy makers are clear as to which role each organization fulfills. Strategies defined for this include:

- A shared vision formulated by engaging all stakeholders including all levels of government, should be the driving force for systemic change. Responsibility should be taken for supporting IEBs through the full settlement process until he or she is in a skills commensurate employment position. (Decision-making processes)
- Governments must take the lead on recognizing that policy at all levels must align itself to labor market realities and practices; aim to forge transparent and accountable relationships with other stakeholders to build a better and more inclusive Canada where underutilization of IEB skills is addressed appropriately. (Implementing decisions)

10.5.3 Licensing, Mobility and Accreditation

Issues facing immigrants with engineering backgrounds trying to navigate through the licensing and certification processes include systemic barriers such as ‘reserved titles’ and ‘Canadian Experience’ as well as mobility. Accreditation services, employment

support or bridging programs need to be reviewed to address these. Strategies that could address this include:

- The recognition that the majority of Engineers do not require a P.Eng license to enter the engineering workplace so focus should be on skills commensurate employment.
- The reservation of the title 'Professional Engineer' is essential to protect the public. However reserving the title 'Engineer' strips immigrants with engineering backgrounds of the credentials that formed the basis of their admission to Canada and locks them out of the profession. This is a systemic issue that needs to be addressed.
- Inter-provincial and international mobility through cross-jurisdictional agreements on accreditation to benefit both professional engineers and immigrants with engineering backgrounds need to be developed at the national level in coordination with and with the buy-in of the provinces.

10.5.4 Bridging Knowledge Gaps

Increasing the understanding of licensed engineers and engineering employers in Ontario of international engineering practices, credentials and professional development programs is critical. Global competency based models of practice could be explored in Ontario in order to achieve this.

Bridging and mentoring are viewed as mechanisms to address the knowledge gaps for both IEBs and engineering employers. However currently the bridging and training discourse centers on an assumption of 'deficiency' of IEB credentials and experience compared to engineers trained in Ontario. This assumption is the foundation of the bridging, education and training programs for IEBs, which do not specifically take into account the skills and experience of IEBs and are not tailored to improving or upgrading their skill sets.

Core competencies for engineers should be defined clearly so that an objective comparison of these with international experience based competencies can create better understanding of the unique features that Canadian Experience may provide. Further bridging programs must have a 'buy in' from employers and the regulators to ensure that the requirements for 'Canadian experience' are being met through these programs. Unless employers are actively engaged in identifying the core competencies, bridging and accreditation processes, they will continue to be risk averse with regards to hiring immigrants with engineering backgrounds. Employer specificities and needs must also be investigated, so that skill deficiencies can be confirmed, and knowledge gaps that need to be bridged can be defined adequately. A proper evaluative mentoring program will allow employers to screen for risk as well as provide IEBs with the networks required to increase their productivity.

Appropriate strategies to address these issues are:

- Investigate the gap between employer needs and IEB skills and experience
- Create an objective tool for assessing IEB skills and experience
- Increase awareness amongst engineers and engineering employers of the global credentials and experience of IEBs, and provide employers with the criteria that are used to grade IEBs for licensing related experience requirements.
- Work with strategic partners to develop bridging and mentoring programs geared to bridging identified gaps between employer needs and IEB credentials and experience towards skills commensurate employment.
- Set up proper mentoring and bridging programs for IEBs
- Engage employers actively in defining mechanisms such as the accreditation process
- Government should budget for bridging and mentoring programs on the basis of investment returns evaluated on the basis of employment outcomes for the participants in these programs.

10.5.5 Standards and Regulation

Subsidized work placements were not viewed as a promising practice unless these were specifically recognized by the regulators and employers to be part of the formal accreditation process or by employers for the purposes of bridging specific skills gaps such as understanding local codes of practice and regulation. Since the training of most engineers gears them to pick up knowledge on codes and practices in different locations rapidly, if they have access to the Ontario codes of practice and regulations they should be able to learn these quickly on the job. Funding of work placements should be subject to employment outcome assessments.

PEO stated that it operates under public statute which does not lend itself to the recognition of internships as the legitimate one year experience under a licensed engineer required of IEBs. It was pointed out that favor also must be found for internships amongst employers if these are to be recognized as part of the licensing requirements. PEO also made a presentation on proposals that are emerging regarding this issue.

Lack of knowledge on the workplace health and occupational safety regulations in Ontario among IEBs should be addressed.,

The following strategies were identified:

- Negotiate the viability of internships equating with the PEO licensing requirements
- Provide mandatory health and occupational safety training to IEBs

10.6 Labor Market Strategies

10.6.1 Labor Market Information

A constructive and comprehensive information system is needed that catalogues current information resources and includes information on employment options, realities and skills commensurate employment opportunities for IEBs. We need to redesign the way information resources are shared and coordinated between IEBs, CAPE, key stakeholders including governments, regulatory bodies, professional associations, employers, sector councils, Chambers of Commerce, service providers, educational institutions amongst others. A strategy for would be:

- Set up an agency vested with the responsibility of providing coordinated, accurate and reliable settlement and employment information to the immigrants with engineering backgrounds from pre-immigration to settlement into a skills commensurate job.

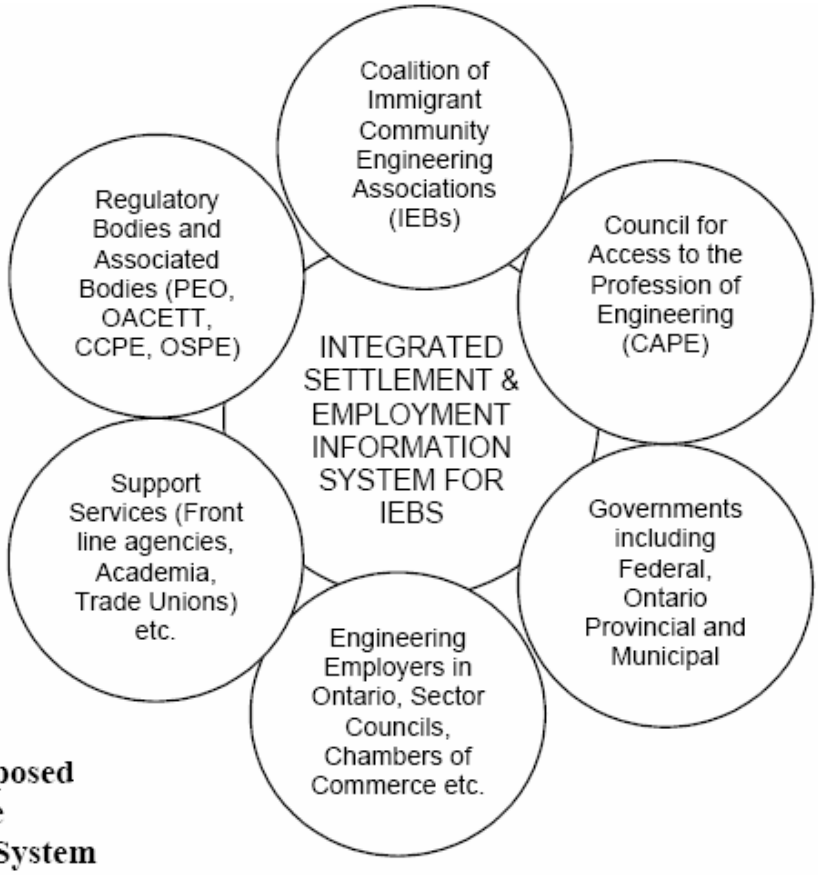


Chart 1: Proposed Players in the Information System

10.6.2 Labor Market Participation

Employer specificities and needs must be investigated, so that skill deficiencies can be confirmed, and gap analysis can take place. This will help to provide better information to immigrants, as well as better tailoring of existing skills to match employer needs. More discussion needs to happen around linking immigration to effective utilization of the skills and experience of immigrants with engineering backgrounds. The possibility of a labor market driven immigrant recruitment mechanism such as the H1B style Visa that occurs in the US should be studied. Immigrants with engineering backgrounds should be utilizing their knowledge and experience in skills commensurate jobs while increasing their employability. Small and Medium Enterprises (SMEs) are key employers in the economy but are particularly risk averse as they do not have much information about engineering skills in other countries. More public awareness and real commitment from different levels of management in companies is needed to understand IEB skills and experience. CEOs and human resource practitioners need to be engaged to lead with a vision of globalization and global competitiveness through merit-based hiring.

Recommended strategies for this include:

- Investigation of the possibility of having a US style H1B system of Visas for professionals based on the needs of employers
- Encouraging creative ways to increase employability of IEBs
- Engaging CEOs to create a system where they are more involved in promoting utilization of IEBs skills.
- Managing and reducing risk adversity of employers
- Addressing lack of knowledge of Ontario codes of practice and regulations among IEBs
- Defining and marketing the IEB education and experience advantage to change mind-sets.
- Training human resources, job developers and small business operators to understand global realities related merit-based hiring practices.

10.7 Support Strategies

10.7.1 Community Networks and Support

The predetermination of what constitutes a community is dangerous and difficult since the definition is very specific to each individual community. While they may be created around cultural practices, in terms of employment, it may be useful to organize around professions.

Communities are legitimate sources of support and networking. However, they shouldn't have to be responsible for the education, training and employment of people from the "same" ethnic background. Amongst the various roles that communities can play are providing networks and advocacy. Accurate information flow to IEBs through families and friends was seen as key to their integration into Ontario. In particular, discipline

specific (engineering specific) information and job portals should bring together employers, communities and IEBs. Networks are important- whether religious, cultural, ethnic, professional or other – but there should not be an assumption of the existence of networks simply by narrow definition of ethnicity or any other definition. All networks are networks of interest. Appropriate strategies for networks would be to:

- Build stronger partnerships and networks between employers, government, IEBs, other communities and other stakeholders
- Provide information on 'Best Practices'

10.7.2 Skills Demonstration and upgrading

Language issues were brought up at this roundtable as being significant for some communities. However, IEBs hailing from countries that are part of the Commonwealth have significantly fewer language and communication issues. Consequently while ESL training can be useful for some IEBs, for those who are more proficient there is a need for communications' training at advanced levels that incorporate sector/profession-specific terminology, codes of practice and regulations. A Strategy identified to address this is

- Profession specific advanced English language training recognized by employers.

10.7.3 Employers, Empowerment and Economic Realities

Employers should be encouraged to adopt corporate social responsibility to ensure merit-based hiring practices that lend themselves to global competitiveness. Rather than the 'business case' and 'diversity champions', employers should focus on global realities of survival in the 21st century.

As part of the information portal, information relating to entrepreneurship, available funding, ways of doing business in Canada and other related knowledge should be included so that all immigrants regardless of designation can access this. As the financial services industry is particularly conservative, it needs to be involved in multi-stakeholder discussions. Strategies identified to address this include:

- Focus on corporate social responsibility and utilization of immigrant skills and knowledge
- Facilitation of IEB access to capital for entrepreneurial ventures

10.8 Public Release of Multi-Stakeholder Employment Strategy for IEBs

The multi-stakeholder employment strategy for IEBs entitled 'Canadian First' to 'Canada First' was publicly released on May 18, 2006 at a well attended event at which Honorable Chris Bentley the Minister for Training Colleges and Universities was the keynote speaker. The event was also addressed by an Employer, PEO and CAPE amongst other stakeholders. This event also included a segment on volunteer appreciation and marked the formal completion of the 'Engineering Access' Project

11 NEXT STEPS

The first interim Executive Board of CAPE has been selected and the organization is being incorporated. This Board will continue to strengthen CAPE's capacity to provide leadership as the legitimate voice of immigrants with engineering backgrounds. While continuing to build on the process of supporting Institutions (employers within the engineering field) in Ontario to begin to eliminate systemic barriers to respond to ethnic, racial, religious and cultural diversity that have been in initiated through 'Engineering Access' CAPE will also begin to place emphasis on creating a cohesive, inclusive and vibrant community of IEBs in Ontario..

Over the next few months CAPE will be undertaking planning to develop a detailed strategic plan based on the multi-stakeholder employment strategy to define its activities and priorities over the next three years. This will be supported by communications that have already opened up through the interactive and transparent CAPE website that has come to be recognized as its hallmark.

The multi-stakeholder roundtable will be strengthened to maintain the broader public consultation process that has been established under 'Engineering Access'. This will be achieved through the expansion of the stakeholders at the roundtable and the utilization of technology to facilitate the roundtable consultations in a more structured and efficient manner.

Preliminary proposals are already being developed to initiate community action research in the area of skills commensurate employment for IEBs. Another area of focus is to continue CAPE contribution to the institutional changes already underway. These include changes to the regulatory systems and employer engagement. CAPE involvement to policy research will also continue be strengthened as will our partnerships with other stakeholders including APT, employers, regulators, PROMPT, service providers, academia and community associations among others.

Finally the cross-cultural tools that have been developed under 'Engineering Access' will be refined and promoted widely to the engineering and support communities..

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APPENDIX 1: LIST OF PARTICIPANTS IN 'ENGINEERING ACCESS'

Participants: Multi-Stakeholder Roundtable

1.	Randy Sinukoff	*Jacques Whitford Limited*
2.	John Farrow	*Lea Consulting Engineers*
3.	Carolyn McAnulty	*Ontario Power Generation*
4.	Kim Taylor	*Ontario Power Generation*
5.	Milan Prishtupa	*Toronto Transit Commission*
6.	Dr. Bobby Siu	*Infoworth Consulting Inc.*
7.	David Katz	*Save Energy Corporation*
8.	Steve Hope	*Bruno-Multec Canada*
9.	Bhuvan Prasad	*Gamma Engineering*
10.	Howard Mcfadden	*International Brotherhood of Electrical Workers*
11.	Satabdo Deb Nath	
12.	Kim Allen	*Registrar, Professional Engineers Ontario (PEO)*
13.	Michael Price	*Professional Engineers Ontario (PEO)*
14.	Doris Yee	*Canadian Council of Professional Engineers (CCPE)*
15.	Pat Haugh	*Ontario association of Certified Engineering Technicians and Technologists (OACETT)*
16.	Laurie Mcvittie	*Ontario association of Certified Engineering Technicians and Technologists (OACETT*
17.	Pasha Mohammed	*Ontario association of Certified Engineering Technicians and Technologists (OACETT*
18.	Paul Martin	*Ontario Society of Professional Engineers (OSPE)*
19.	Yonas Haile-Michael	*Canadian Heritage*
20.	Michel Doiron	*Human Resources and Social Development*
21.	Susan Brown	*City of Toronto*
22.	Sara Farrell	*City of Toronto*
23.	Elaine Ebach	*City of Toronto*
24.	Patti Redmond	*Ministry of Citizenship and Immigration (MCI)*
25.	Greg MacNeil	*Ministry of Citizenship and Immigration (MCI)*
26.	Dan Leinwanel	*Ministry of Citizenship and Immigration (MCI)*
27.	Carol Collings	*Council of Ontario Universities*
28.	Uzma Shakir	*South Asian Legal Clinic of Ontario (SALCO)*
29.	Soni Dasmohapatra	*Council of Agencies Serving South Asians (CASSA)*
30.	Sangeeta Subramaniam	*Toronto Region Immigrant Employment Council (TRIEC)*
31.	Darryl Gershater	*Flemington Health Centre*
32.	Roland Rhooms	*Skills for Change (SfC)*
33.	Allison Pond	*ACCES*
34.	Manjeet Dhiman	*ACCES*
35.	Carolyn Cohen	*Centre for Language Training and Assessment*
36.	David Lovelock	*Centre for Language Training and Assessment*
37.	Catherine Messop	*SAGE Mentors*
38.	Jason Yi	*Chinese Professional Association of Canada (CPAC)*

List of Roundtable Participants Continued

39.	Bill Chang	*Chinese Professional Association of Canada (CPAC)*
40.	Saeed Ziaee	*MOHANDES – Canadian Society of Architects and Engineers*
41.	Jyoti Sengupta	*Bengal Engineering College Alumni Association Of Canada (BECAAC)*
42.	Ila Roy	*Jadavpur University Alumni Organization*
43.	Professor Raghu Nayak	*IIT Association Canada*
44.	Jack Zlahoda	*Association of Polish Engineers, Toronto*
45.	Tahira Qamar	*Association for Access to the Professions of Planning and Architecture (AAPPA)*
46.	Jessica Walters	*Joint Centre of Excellence for Research on Immigration and Settlement (CERIS)*
47.	David Alcok	*Humber College*
48.	Dale Sproule	*Canadian Newcomer Magazine*
49.	Nikhat Rasheed	*Policy Roundtable Mobilizing Professions and Trades(PROMPT)*
50.	Harkrishan Jashnani	*Immigrant with Engineering Background*
51.	Pervez Bergis	*Immigrant with Engineering Background*
52.	Probir Chakraverti	*Immigrant with Engineering Background*
53.	Ramadoss Srinivasa	*Immigrant with Engineering Background*
54.	Phillip Ju	*Immigrant with Engineering Background*
55.	Gurmeet Bambrah	*Coordinator, Engineering Access Project and CAPE*
56.	Darshak Vaishnav	*CAPE/ Skills for Change*
57.	Muralidhar Maheshwara	*CAPE*
58.	Kushmeet Gill	*CAPE*

List of Participants: Community Coalition and leadership Development Meetings

59.	T. Wesolowski	*Association of Polish Engineers in Canada*
60.	Ben Joshan	*East Indian professionals & Residents of Canada*
61.	Martha Silva	*Coalicion de Profesionales de las Americas*
62.	Martin Van Duyn	*Netherlands Luncheon Club*
63.	John Xiao	*Chinese Professional Association of Canada*
64.	Jason Yi	*Chinese Professional Association of Canada*
65.	Hari Sarker	*Bangladeshi Engineers Association*
66.	Saeed Ziaee	*MOHANDES*
67.	Pauline Lawerence	*Association of Bulgarian Engineers of Canada*
68.	Zdravka Georgeia	*Association of Bulgarian Engineers of Canada*
69.	Sampath Kumar Voora	*IIT Alumni Association, Canada*
70.	Prof. Raghu Nayak	*IIT Alumni Association, Canada*
71.	Shaikat Ghosh	*Jadavpur University Alumni Organization*
72.	Satabdo Deb Nath	*Jadavpur University Alumni Organization*
73.	Homer Vannaisingham	*SRI Lankan Engineers*
74.	Abdul Salam	*Malayalee Engineering graduates Association (MEGA)*
75.	Bipin Chauhan	*Gujarati Engineers in Motion, GEM (in formation)*
76.	Jyoti Sengupta	*Association of Bengali Engineers of Canada*

List of Participants: Community Coalition and leadership Development Meetings Cont.

77.	Ludmilla Sements	*Canadian Ukranian Immigrant Aid Society*
78.	Svitlana Demchenko	*Canadian Ukranian Immigrant Aid Society*
79.	Alvin Raghurai	*Guyanese Engineering Graduates (in formation)*
80.	Unda Fabian	*Latin American group (in formation)*
81.	Dave Hasbury	*Cocreation*
82.	Tahira Qamar	*APPA*
83.	Priscilla Solis	*CAPE: The Latin American And Caribbean Regions*
84.	Iskander Abikaram	*Middle East.*