

**Enhancing the Representation  
of  
Under-Represented Groups in FIG**

**INTERNATIONAL FEDERATION OF SURVEYORS**

**FIG Publication no. 35  
ISBN 87-90907-53-1**

# Table of Contents

## Preface

### 1. Introduction

- 1.1 Why this policy document?
- 1.2 Why deal with Under-represented Groups in FIG

### 2. FIG and Gender

- 2.1 FIG's work on gender
- 2.2 Why gender perspective is important for FIG
- 2.3 Women in the surveying profession
- 2.4 FIG Gender Policies

### 3. Students and minorities in FIG

- 3.1 Why students' and young surveyors' involvement is important in the FIG Students' and Young Surveyors' Involvement Policies
- 3.2 FIG Students' and Young Surveyors' Policies
- 3.3 Why minorities are important in the FIG Minorities Involvement Policies
- 3.4 FIG Minorities' Involvement Policy

### 4. Recommendations

- 4.1 Hosts of Congresses, Working Weeks and Regional Conferences
- 4.2 Member Associations
- 4.3 Academic Members
- 4.4 Commissions
- 4.5 General Assembly
- 4.6 Council

## Appendix

### Good Practice Approaches

#### Case Studies and Good Practices in Associations

- The American Congress on Surveying and Mapping (ACSM)
- The UK Institution of Civil Engineers (ICE)
- The American Society of Civil Engineers (ASCE)
- German Association of Surveying (DVW), Society for Geodesy, Geoinformation and Land Management

#### Case Studies and Good Practises as Universities

- Affirmative Action – South African Case Study
- Addressing Gender Imbalance through Equal Opportunity Policy – Australia
- Encouraging Girls and Young Women to Choose a Technical Career – German Case Study

## **Preface**

The International Federation of Surveyors (FIG) has been worried how to get women, students, young surveyors and other under-represented groups better integrated in the work of the Federation. This includes from FIG point of view participation to events, commission work and other activities. However, the integration is even more important for the surveying profession and the representatives of these groups themselves. Without young professionals and by keeping the profession attractive there will be no future for any profession. This applies also for surveying.

Together with cultural and language issues the problem how to get under-represented groups better involved in the FIG activities has been on the main focus of the Federation for the last ten years.

In 1996 FIG established a Task Force on Under-represented Groups in Surveying to discuss these issues and to create FIG policy on this topic. The Task force has been active during the past ten years first as a task force and for the last four years as a joint Commission working group. The group is publishing a quarterly newsletter addressing many important topics, describing good practices and introducing profiles of surveyors that have been pioneers in our profession. In addition the group has made proposals how to assist young people to attend our conferences and further by organising sessions and special meetings for women and young surveyors at the events and by this bringing new platforms for communication within the Federation.

For the whole time the Task force and working group has been chaired by Ms. Gabriele Dasse from Germany, who has been very devoted to these topics and promoting the role of under-represented groups in surveying.

This report is prepared by the working group and some additional experts and it includes recommendations and findings of the Task force and working group for the policy of FIG in enhancing the representation of under-represented groups in FIG. The FIG Council has decided to bring this report to the General Assembly for endorsement an FIG policy document.

I want to express my special thanks to Ms. Gabriele Dasse, Chair of the Working Group, along with following experts: Clarissa Augustinus, Clara H. Greed, Boo Lilje, Tommy Österberg, Dory Reeves, Siraj Sait, Jennifer Whittal and Wendy J. Woodbury Straight for their contributions to this report.

Univ. Prof. Dr.Ing. Holger Magel  
FIG President

# **1. Introduction**

## **1.1 Why this Policy Document?**

The International Federation of Surveyors (FIG) is an international, non-governmental organisation whose purpose is to support international collaboration for the progress of surveying in all fields and applications. Since its creation in 1878, FIG has expanded its activities and developed its long term strategies in order to meet the challenges faced by the surveying profession as well as the needs of the markets and the communities they are serving. International recognition of FIG's role is evident in its partnerships with international professional organisations, particularly in surveying disciplines and UN agencies.

FIG recognises that markets for surveyors' services are constantly changing and so too are the demands on its practices. Initiatives such as equal opportunities, recognition of diversity, gender mainstreaming and encouraging youth have been evident in the reform of other professional bodies and international organisations across the world. FIG too has been conscious of the need to continually embrace pluralism and inclusivity. Through its member associations, affiliates, corporate and academic members, FIG envisages itself as a truly representative global organisation which welcomes into its fold all eligible members and creates a conducive environment for dialogue, professional development and implementation.

This policy document is aimed at enhancing the opportunities for under-represented groups in FIG with particular focus on gender, youth and minorities. They do not specifically deal with substantive issues relating to access to land or rights for these groups which are discussed in other FIG publications but are more concerned about strengthening the role and participation of these groups within FIG and in its activities. The policy document has emerged from the work of the FIG Task Force on Under-represented Groups (1996-2002) and continuing work of the Joint Commission Working Group 1.5 on Under-represented Groups in Surveying. They are a result of consultations and the efforts of a number of experts and contributors, led by Gabriele Dasse of Germany, as credited at the end of this document. This policy document is comprised of four sections and good practice approaches. Thus, the first section provides the introduction and a statement as to why FIG is committed to enhance the participation of under represented groups in its activities. The second section identifies FIG's interest in gender participation and its policy responses. The third section deals with the under-representation of youth/students and minorities in FIG. In the fourth section, recommendations of the Task Force are outlined. Good practice approaches from around the world are provided as an appendix.

## **1.2 Why deal with Under-represented Groups in FIG**

The work of FIG depends on a relatively small number of surveyors considering the fact that FIG represents about 230,000 persons in the surveying profession world wide. Internationally, active surveyors in FIG are overwhelmingly male and in the higher age bracket. The limited number of young men and women engaged in the work of FIG is of concern, as is the lack of participation from associations in countries which are financially less developed.

FIG has been working on policies on becoming more inclusive and broad based. The Task Force on Under-represented Groups was established in Buenos Aires in 1996 in response to concerns from the Commissions, the Council and the General Assembly. It focused on under-represented groups like women, students, young surveyors and various cultural groups which were not actively involved in FIG activities and strategies. The task was to enable better opportunities for these groups to participate in the international consultations in the field of surveying.

The Task Force, thus, was established to encourage women and young surveyors to participate in national associations and FIG and specifically to consider recommendations for enhancing professional development opportunities for women and young surveyors, encouraging equal opportunities for individual members within FIG, irrespective of gender, native language or other cultural characteristics, facilitating professional contacts for women and young surveyors, as well as for linguistic minorities, within the FIG community.

The time span of this Task Force was limited and ended in 2002 with the FIG Congress in Washington. However, the efforts of FIG towards achieving these objectives continue. The Joint Commission Working Group 1.5 on Under-represented Groups in Surveying has been continuing the work of the Task Force.

The terms of reference of the Working Group are as follows:

- **Survey the role of minorities in the world of surveying and the benefits of diversity.**
- **Analyse the present status of under-represented groups and highlight good practices concerning the support of under-represented groups in FIG member associations, in professions and at universities.**
- **Enhance fair competition for minority groups.**

## **2. FIG and Gender**

### **2.1 FIG's work on gender**

In the past decade, FIG has been increasingly turning its attention to making its activities more gender sensitive and better targeted towards improving women's access to land. In many parts of the world, women have limited access to property and especially land. This is partly due to customary rules, customs and tradition. In traditional tenure systems, women's access to land is usually dependent on a man, husband, father or some other relative. If the husband dies or if the marriage is dissolved in some other way, women can lose the right to the land and property they have acquired in a marriage and the land they have cultivated. Some jurisdictions do not recognise equal access to property between men and women.

Many countries have modern constitutions that recognise equal rights to land and property for men and women. However, traditional rules are still strong and the modern legislation is seldom implemented in reality. The limited rights that women have to property are in contrast to women's contribution to production. In many countries women have the main responsibility for the cultivation of the soil. Women are also very active in business. In

most countries, women are underrepresented in decision/making bodies in both private and public organisations. The existing situation in these respects is not acceptable; neither from the point of view of human rights, nor from the perspective of economic and social development.

Land surveyors and land administrators can contribute to change the situation and strengthen women's rights. In order to do so, land surveyors and land administrators need to be aware of the importance of the problem. When aware, land surveyors and land administrators can contribute by always applying a gender perspective to their professional work. When participating in development projects, they can work with improvements of legislation or methodology or in their daily practice to serve women and men.

The International Federation of Surveyors (FIG) issued in May 2001 (No 24) a document entitled "Women's Access to Land - FIG Guidelines. The document intended to make land surveyors and other land administrators aware of the situation in the world in regards to women's access to land and other property and to provide guidelines on how professional surveyors and land administrators can contribute to strengthen equal access among women and men to land and property in different jurisdictions. Surveyors and land administrators have an impact on land tenure systems worldwide. This implies that the profession also has a special responsibility to society. As the land tenure issues grow increasingly more complex and become more diverse, the profession has a responsibility to know more about the issues and to do more to ensure that the systems for administering property rights serve all societies well.

## **2.2 Why gender perspective is important for FIG**

Measures and activities of FIG have in the past been mostly taken from groups which have historically been well-represented in FIG – western, white males. This could be a consequence of the needs of under-represented groups not being adequately considered. Equality and equal opportunities for all should include approaches which remove obstacles to the effective participation of all groups. Lack of access for under-represented groups leads to valuable knowledge and resources of these groups being overlooked. Diversity is an advantage, and is increasingly important as surveyors are increasingly expanding their practices into global markets.

The promotion of equality and equal access must not be confused with the simple objective of balancing the statistics: It is a question of promoting long-lasting institutional changes in organisations like FIG. An example is in gender mainstreaming, which engenders deep and lasting change and provides a win-win situation for all sides. Gender mainstreaming recognises diversity between genders; it also cuts across other kinds of differences, for example ethnicity, class, disability and age. Gender mainstreaming is not merely about adding a "woman's component" or even a "gender equality component" into an existing activity. It goes far beyond increasing women's participation and requires bringing in the experience, knowledge, and interests of women and men to bear on the development agenda.

### **2.3 Women in the surveying profession**

There is undoubtedly growth in the numbers of women entering surveying quantitatively, but qualitatively a range of problems remain particularly relative to other professions. Overall, there seems to be a vast gap between a few exceptional women and the rank and file of women in surveying. The number of women surveyors in the United Kingdom rose from 5% in 1990 to 10% in 2004; women architects increased from 4% in 1984 to 10% at present. This is not as impressive as in other professions, for example law, where women lawyers who comprised 6% of the profession in 1974 now account for 40%. One of the fundamental problems is getting women into the professions in the first place. For example, a Europe-wide project is being undertaken, which in the UK is entitled 'JIVE' (Joint Intervention Project) which is aimed at increasing the numbers of women in the construction industry

The Royal Institution of Chartered Surveyors, UK recently commissioned research entitled Raising the Ratio (RICS Business Journal, April 2004) that investigated equality issues that needed to be addressed. These included low recruitment and retention rates, less chances of promotion and unequal conditions of employment relative to men. According to an article in Property Week (28.5.04) only 55% of those completing RICS surveying degrees go on to become fully qualified surveyors with women disproportionately dropping out. Those women who do persevere find that their salaries are, on average, 27% lower than those of men, according to the RICS survey findings.

Whilst women are concerned about unequal pay, according to Raising the Ratio, many are more concerned about gaining better conditions of employment, than simply money. Even when women seem to be receiving the same salary they may still find they are discriminated against in respect of the payment of bonuses, expenses and other benefits. For example many women wanted more flexibility in terms of hours in order to establish a better 'home/work' balance. Women may also report a hostile, sexist, male, macho office environment. A long hours culture predominated, in which working late into the evening, or even overnight was seen as good practice and a sign of commitment. Instead women would rather 'work smart' rather than 'work long'.

### **2.4 FIG Gender Policies**

FIG recognises that gender equality and equity are matters of fundamental human rights and social justice and a pre-condition for sustainable development within the profession.

FIG acknowledges that working with a gender perspective means analysing and understanding the different roles and responsibilities, relationships, needs and visions of women and men (as well as other relevant differences such as those between ethnic groups, classes, disability and age).

FIG's goal of mainstreaming gender equality and women's rights into all activities implies that the policy document has to be proactive regarding equality between women and men and also with respect to ethnicity, class, disability and age in all areas of its activities.

All levels and bodies of FIG will routinely incorporate a gender perspective into the development of policies, programmes and activities. All levels and bodies of FIG will develop mechanisms for ensuring this takes place and will identify entry points and opportunities to enhance the situation of women within the work of FIG.

FIG will carry out gender based evaluations concerning the participation of women and men in FIG.

### **Women Entering the Profession - Canadian Case Study**

As a professional body and as individual surveyors we want to be seen as “modern” and that means behaving in such a way. Young women considering our profession will want to know that they will be included and respected. At both the individual level and the organizational level we can ask ourselves if our speech and actions reflect our desire to say truly “the profession is wide open to women.” We should all ask ourselves if geomatics is a profession to which we would be proud to include our sons and daughters.

*J. Anne Cole, Northern Regional Surveyor, Ministry of Consumer and Business Services, Government of Ontario, Canada: Recruiting the Best and the Brightest - Reflections from a Personal Perspective, FIG Under-represented Groups Newsletter 3/05.*

## **3. Students and Minorities in FIG**

### **3.1 Why students’ and young surveyors’ involvement is important in the FIG Students’ and Young Surveyors’ Involvement Policies**

FIG represents an important international dialogue and synergy in developing the surveying profession. Thus, students who are future professionals would benefit from being connected to the organisation and to be exposed to global perspectives at an early stage of their studies. FIG offers students a possibility for the students to develop a professional commitment, a chance to meet people of the same age in the same situation and a chance to meet experienced colleagues. A gathering of students connected to FIG would begin the process of establishing a professional and social network with personal contacts amongst the next generation of surveyors. It will also enable networking of new friends and future fellow workers.

Another aspect of the meetings between students from different countries is the potential of exchange studies. It is easier to establish a contact with a university abroad if personal contacts are already made. The experience of exchange studies brings personal development and understanding for different cultures, which will be important in their future work as a surveyor.

Moreover, to encourage survey students’ and young surveyors’ participation in an FIG Congress or Working Week is a stimulant to FIG and brings important rejuvenation to the organization. Active participation of the next generation in FIG activities is very important for the future for all professions connected to the organization. Students and young surveyors involved in FIG who do not meet all the needs of today, will be tasked with

meeting the challenges of tomorrow. Exposure to an international organisation such as FIG can only promote their development and thus the strength of the profession.

### **3.2 FIG Students' and Young Surveyors' Policies**

FIG recognises that students and young professionals develop solutions to tomorrow's professional challenges, and with their special creativity and idealism can make a significant contribution to FIG.

FIG encourages students and young professionals to participate within FIG.

FIG will identify the problems facing youth within and particular to our profession, and will prepare proposals for solving those problems with the participation of young people through their formal and informal structures.

FIG will evaluate and implement such proposals.

FIG will promote international co-operation for students.

### **3.3 Why minorities are important in the FIG Minorities' Involvement Policies**

More than 100 countries are represented in FIG and it has emerged as a global network of surveyors from around the world. In the past years, FIG has organised international conferences, symposiums and working weeks in different parts of the world including China, Thailand, South Korea, Columbia, Egypt, Morocco, Turkey, Ghana, South Africa and Kenya. However, the core membership and activities of FIG are still often perceived to be generated by a small minority of white males who dominate the FIG higher management. There is a lack of full representation of linguistic and cultural minorities as well as those from countries with limited financial resources in the FIG. This lack of diversity and representation could affect not only the credibility of FIG as a truly inclusive international organisation but also its ability to develop cross cultural dialogue and its capacity to work effectively in all parts of the world.

In carrying out several of its objectives, FIG needs to further intensify its efforts to bring into the fold minorities from other linguistic, cultural and other backgrounds. Only then, can the FIG mission be achieved through acceptance and implementation of its standards at national levels. The interest in FIG activities from various cultural, linguistic and regional backgrounds represents a significant opportunity for FIG to expand, but this cannot be taken for granted. FIG will have to be proactive and take affirmative action to ensure that different sections of the international society are effectively represented. While upholding its emphasis on quality and merit, it will have to further develop a corporate environment and culture within which the participation of all groups is encouraged.

The 'diversity' agenda includes a wide range of considerations and personal characteristics, including age, race, sexuality, religion and social class, as factors that need to be taken into account in equal opportunities programmes. The danger is that 'women' and for that matter 'gender' have to compete with these other issues. But this is a false division: because gender issues, and women's rights in particular, should cut across and over-arch all these

other issues. This is particularly true of ethnicity, as it seems that the surveying profession has difficulty coping with people who are both female and black, whereas they are more accustomed to dealing with black males who, traditionally, have held low status and manual work jobs on building sites.

As for disability, that is usually viewed as a reason for leaving the profession not joining it! But new requirements under the Disability Discrimination Acts have resulted in more disabled surveyors, architects and designers being employed if only to 'audit' the access aspects of a building. But other minority groups do not solely consist of men, in many cases they are the majority of their group, for example in the case of Afro-Caribbean people in Britain. So it would seem that the next challenge for the surveying profession and wider construction industry is to recruit from a wider demographic base, and 'to juggle all the diversity balls in the air at once without dropping women'.

#### **Ethnic under-representation UK Case study**

Ethnic minority individuals (in the UK) compose far less than 1% of membership of the professional bodies in construction. Whilst some construction organisations have welcomed and supported ethnic minority professionals, from the research it is clear there are problems to be addressed, not least the images and attitudes held by some within the industry as to the perceived place and role of minority individuals within the industry.

*Clara H. Greed, Ethnic Minorities in Construction in Britain: Exclusion or Inclusion, FIG Under-represented Groups Newsletter 4/00.*

### **3.4 FIG Minorities Policy**

FIG recognises that in order to be a fully representative, international and effective organisation, it must undertake proactive steps to ensure greater participation of cultural and linguistic minorities, particularly from countries with financial constraints and incorporate their perspectives.

FIG acknowledges that being an inclusive organisation requires that the principles of equal opportunity, respect for diversity and a corporate culture that is cross-cultural, fair, transparent, open and encouraging is embedded in its work.

All levels and bodies of FIG will routinely consider ways to enhance the participation of linguistic, cultural minorities and those from countries facing financial constraints. All levels and bodies of FIG will develop mechanisms for ensuring this takes place and will identify entry points and opportunities to enhance the participation of minorities within the work of FIG.

### **From Rural Informal Education to Professional Qualifications - Kenyan Case Study**

Bernadette M. Gitari is a professional Valuation and Estate Management Surveyor licensed to practice in Kenya, East Africa and has 23 years experience in this field. Her initial education was in rural education but she went on to professional qualifications. She learnt about FIG in the year 2001 and was able to attend the Conference in Washington DC in April 2002 and participated in the joint commissions on Gender and Underrepresented Groups. One of her main agendas as a member of the Institution of Surveyors of Kenya Council is to set up a body within the Institution that would cater to women's needs in terms of career development, for women in surveying, sensitizing those who would wish to join the surveying profession in Kenya, the need to network with other women in the surveying profession from other countries in the world as well as attending international meetings and forums on surveying.

*'Personalities', FIG Under-represented Groups Newsletter 3/03*

## **4. Recommendations**

The recognition of the importance of actively seeking greater participation and perspectives of women, students and cultural, linguistic minorities and those from under represented countries requires a review of existing FIG policies and action plans. Among the areas of focus should be gathering further information on representation at all levels (including working weeks and congresses) and their causes, encouraging fair competition for minority groups, gender mainstreaming, resources for supporting pluralism, moving towards a multicultural and gender balanced and democratically elected council, and dissemination of information in a manner that reaches a wider range of potential FIG participants.

During the past several years the Task Force and the Working Group have prepared a number of recommendations. Several of these recommendations were/are already implemented. The following is an overview of those recommendations.

### **4.1 Hosts of Congresses, Working Weeks and Regional Conferences**

FIG encourages the local organizers of the Congresses, the Working Weeks and the Regional Conferences to facilitate the attendance of young surveyors and students. The practice of Regional Conferences should be continued.

An evaluation of the participants concerning gender, age and Commissions is necessary to get more information about the participants of Congresses, Working Weeks and Regional Conferences and to implement targeted activities.

There is greater potential for local survey students to participate when an event takes place in their home country. A low fee for students should be fixed to facilitate the attendance of students.

The organisers should enable the attendance of 20 students to assist.

Organisers should provide meeting points with tea and coffee or lunch to facilitate the contact of participants.

The organisation of a student's session should offer the opportunity to talk about experiences, differences between their educations and the possibilities to exchange studies. Organisers should enable Commission meetings or workshops during a Congress or Working Week for presentation of papers for under represented groups. This should be followed up by discussions in the main Commission meetings, including sessions dedicated to the issues.

Participation in the Task Forces or Joint Commission Working Groups meetings should be encouraged from a wider range of Commission participants, particularly those involved in core commission and management activities.

Hosts of Congresses, Working Weeks or Regional Conferences could possibly implement a symposium (Cadastre Day, Hydrographic Day, ...) with simultaneous translation to facilitate the attendance of national participants when it is not possible to have a simultaneous translation for the whole event.

Speakers might have the possibility to present their papers in their own language, but in this case slides have to be translated into English, and a colleague provides the translation into English, along with the oral presentation.

#### **4.2 Member Associations**

Member associations play an important role to enhance the situation of under-represented groups in FIG. They may influence who will participate at Congresses, Working Weeks and Regional or National Conferences. Delegations should be balanced based on gender and culture.

The attendance of young professionals and students should be supported and sponsored. Member associations should be interested so that a surveyor of the future has a breadth of approach to his/her future profession.

Member associations should encourage the participation of under represented groups in the profession by directing funding to such persons to enable them to study surveying.

#### **4.3 Academic Members**

Another way for students to take part in FIG is through universities. The Universities could arrange suitable contests to find interested students, and sponsor their participation at the Working Week. To sponsor a student is a great chance for both the University and for the specific student. The student becomes an ambassador for the university, which leads to advertisement.

#### **4.4 Commissions**

FIG's technical work is led by the Commissions. For national delegates as well as for corresponding members, Commissions should be a platform for an exchange of experiences and knowledge. Commissions should give information with topical homepages and newsletters and facilitate the attendance of Commission meetings.

There is a need for improved co-operation between universities and FIG. It is important to create a platform to maintain regularity in the co-operation because students are involved in the work only for a limited time. This platform could be the link between FIG and international students' organisations.

Another way of helping students to be part of FIG is if experienced members stand by students and become some kind of mentor. This mentorship would lead to pleasure for both the mentor and the student since they both can inspire each other. The student will come with new ideas from an educational perspective while the Surveyor inspires the student with knowledge and experience. The mentor and the student could have their contact during the year via e-mail for example and then meet during Congresses or the Working Weeks.

#### **4.5 General Assembly**

The General Assembly should implement gender mainstreaming to mobilise all general policies and measures specifically for the purpose of achieving equality by actively and openly taking into account at the planning stage their possible effects on the respective situation of men and women (gender perspective).

The General Assembly elects the Council members and Chairpersons. Besides a regional and cultural balance gender should also be taken into account.

For each official position within FIG a check should be performed before any candidacy is accepted, to verify that the candidate is able to speak English with the following feature: slowly, with a systematic accentuation of all syllables, carefully avoiding uncommon words.

Students seldom have the possibility to finance their participation in Congresses and Working Weeks. Some kind of sponsoring is necessary for the students to be able to join the meetings. Opportunities for scholarships should be encouraged e.g. through the FIG Foundation.

#### **4.6 Council**

One of the Vice-President's main topics should be gender and youth policies. He or she will supervise the implementation of this policy document in FIG.

## Appendix

### Good Practice Approaches

FIG has undertaken several initiatives, such as the quarterly newsletter promoting the participation and perspectives of women, youth and minorities, demonstrating its increasing commitment to diversity in representation and plurality in perspective. However, it can learn from case studies from surveying organisations around the world which provide good practices in this respect. In this section, examples of good practice from professional associations, public institutions and universities from a number of countries across the globe are showcased. It is not intended to be a representative sample, but rather a collection of experiences from countries in which FIG representation has been easy to obtain.

### Case Studies and Good Practices in Associations

#### **The American Congress on Surveying and Mapping (ACSM)**

ACSM Student Chapters have been encouraged by the association at colleges and universities to support young people and new entrants to the surveying and mapping professions. Students also receive discounted membership fees, and discounted registration fees for conferences.

ACSM offers several college and university scholarships in a variety of areas. In the recent past, some scholarships have been designed by ACSM's Forum for Women in Surveying and specifically targeted to women students. To assist employers in finding well qualified candidates at the entry level, ACSM offers a career fair, which notifies students about job openings.

ACSM's Forum for Women in Surveying produced advertising guidelines for professional and technical publications to help eliminate discriminatory advertising in trade journals and exhibits. The Forum has also produced guidelines for professional and technical writing to help eliminate gender bias in technical and professional publications.

#### **The UK Institution of Civil Engineers (ICE)**

ICE has created an Equal Opportunities Committee (ICEFLOE) to promote differing backgrounds, skills, and abilities in the association. ICEFLOE has produced fact sheets and articles about flexible working, age discrimination, ethnic minorities, disabilities, and bullying.

To increase awareness of equal opportunities, ICEFLOE has (1) conducted a photo exhibition about real people in real careers, (2) arranged publicity about engineering and construction careers in women's magazines, (3) participated in an employers' forum on age discrimination, (4) sponsored radio coverage about engineering careers, (5) reviewed

disability access in key locations, (6) held on-line debates, (7) provided speakers for schools, and (8) held workshops and receptions.

ICEFLOE prepared a Diversity Monitoring Form for active members of the association to help reduce obstacles to equal opportunities. ICEFLOE also monitors ICE practices and policies. In order to research the need for equal opportunities and to reduce obstacles to equal opportunities, ICEFLOE has prepared a Skills Shortage Questionnaire. To support and encourage members of the association, ICEFLOE has provided personal responses to members' inquiries, and sponsored awards for diversity awareness and enhancement.

ICEFLOE has also collaborated with several other engineering and physics organizations, and with societies of non-English speaking engineers, and with engineers of various cultures.

### **The American Society of Civil Engineers (ASCE)**

ASCE seeks to promote the understanding and appreciation of diversity, particularly through its Committee on Diversity. The Committee was created to promote the proactive inclusion of various backgrounds, skills, and experiences to enhance opportunities within the profession. The ASCE committee has prepared links to diversify resources, programs, and tips. Included are tips for women and people of colour to engage others in diversity awareness.

The committee has prepared lists of leadership skills, and links to e-mentoring programs. As part of its outreach initiative, the ASCE committee has promoted the spread of diversity awareness to accreditation organizations for university and college programs in engineering and technology.

### **German Association of Surveying (DVW), Society for Geodesy, Geoinformation and Land Management**

To support women in the surveying profession and within the association, DVW established a Working Group "Women in DVW" in 1989. After seventeen years of work the Working Group now has a broad acceptance and is supported financially by DVW. The Working Group is linked to German Commission 1 "Profession".

"Women in DVW" built up a women's network in the field of the surveying profession and organises several activities during the annual INTERGEO, the German national congress and international trade fair, to promote and support women: "Women in DVW" is represented at the DVW booth in the exhibition area during the INTERGEO, which offers a good opportunity to get in contact with female and male colleagues. During several congresses "Women in DVW" arranged panel discussions and presentations with female aspects, for example "How to establish an Enterprise" or "Reform of the Curriculum at Universities." The network built up a database for mentoring. An annual weekend-workshop of "Women in DVW" was created to increase the network and to prepare all activities.

DVW determined guidelines in 2005 to support students and young professionals in preparation for governmental services. Within the frame of financial resources, DVW finances entire or partially for example the participation at seminars and congresses or for semesters or diploma thesis in foreign countries. Students fees for congresses and seminars as well as membership fees are subsidised.

## **Case Studies and Good Practises at Universities**

### **Affirmative Action – South African case study**

At the University of Cape Town in South Africa (UCT), a number of measures have been adopted to counter the imbalances perpetuated by apartheid and previous colonial systems which have led to various groups being underrepresented in the profession, including Black people who are in the majority in South Africa. One of the approaches is affirmative action as seen in the South African experience. Persons from underrepresented groups are actively “recruited, trained and developed to compete equally and contribute to the development of the company”. The process of implementation of affirmative action should be completed within a specified time period and should not be continued indefinitely.

Proactive approaches and resources are needed to address problems faced in affirmative recruitment. Affirmative recruitment in the survey industry is hampered by poor skills/academic base of school-leavers – racially skewed in favour of the white population group due to historic apartheid education discrimination. There is a great shortage of persons from underrepresented groups who are suitably qualified for professional positions. Recruitment and retention of such persons is thus a great problem and lack of commitment to an employer results, often with the non-white/female surveyor job-swapping frequently chasing after the highest salary.

A highly successful support programme has been running for many years for students from educationally disadvantaged backgrounds. This programme adds another year to the degree programme (which is usually 4 years) and is based on high contact levels with students, assistance and mentoring with all aspects of the transition to University, and additional academic tutoring. Some students from rural areas have never ridden a bicycle, seen or used an elevator, and may never have ridden in a passenger car. There are many challenges in teaching highly technical subjects to those who have potential, but have had very little exposure to technology. Some of the students from this programme have gone on to be among the top performers in the Faculty.

The programme at the University of Cape Town, as well as the local branch of the Institute, has endeavoured over the past years to be as inclusive as possible in social functions. Such issues as finding sponsorship for alcoholic as well as non-alcoholic drinks at functions, catering for different food preparation requirements such as Halaal, and making sure that activities include women on an equal footing to men, are areas which have improved. Increasingly, organisations involved with Geomatics are becoming conscientized to such issues.

### **Addressing Gender Imbalance through Equal Opportunity Policy – Australia**

In 1997, the School of Spatial Sciences, Curtin University, Perth, Australia was awarded the Equal Opportunity prize for its initiatives to address gender imbalance amongst its staff and students by two ground-breaking appointments of female staff. The present female male ratio of the School's staff is higher than that typically found within the surveying and mapping industry. In addition, equal employment opportunity initiatives aimed at increasing diversity have meant that of the 13 full-time academic staff members employed by the School in 1996, the countries represented included Argentina, Australia, China, Greece, the United Kingdom and the United States of America. The School of Spatial Sciences has taken the initiative of advertising vacant positions as widely as possible. (Graham D Lodwick, Australia, FIG Under-represented Groups Newsletter 1/98)

To address the inadequate gender ratio in its courses, the School produced a promotional video "Make your Mark". The translation of the School video by means of dubbing into languages other than English is another possibility. The video represents a significant milestone in attempts to improve the number of females in non-traditional areas of study. In the surveying industry, this is the first video specifically targeted towards this objective and was funded by a Curtin University Equity and Access grant and serves to internationally recruit the best persons available while adhering to Equal Employment Opportunities (EEO) guidelines. The School also rewards the efforts of EEO target groups and conducts an annual prize giving ceremony awarding prizes for special achievement.

### **Encouraging Girls and Young Women to Choose a Technical Career – German Case Study**

This is a project, founded by the equal opportunity officers of four universities of applied sciences (FH) in the Northwest of Lower Saxony, Germany, in 1993: FH Oldenburg, FH Osnabrück, FH Ostfriesland and FH Wilhelmshaven. It is funded by the Ministry of Science and Culture in Lower Saxony. The project organises one week Summer Schools for girls ages 16 and up to encounter natural sciences and engineering. The concept is to offer hands on experiences as well as lectures, guided tours and panel discussions with positive role models: female students and practitioners. In some Summer Schools Job Shadowing or Worksite Tours are also made possible for the "practice students". In addition special 2-3 day courses on selected subjects are organised during spring and fall vacations, e.g. geoinformatics, physics, mathematics and environmental engineering (especially active in developing this module).

FH Oldenburg (together with Carl von Ossietzky University Oldenburg) offers Open Houses at the university of applied sciences especially for young women (especially active in developing this module: FH Wilhelmshaven) offers career guidance classes for groups of schoolgirls, that are being held at the schools(11th through 13th grade), providing insights into professional life in science and engineering (especially active in developing this module: FH Osnabrück) founded women's networks of professionals in multiple fields of engineering and business (especially active in developing this module: FH Oldenburg) offers further education for female engineers, who readmit the workplace after a family

break (especially active in developing this module: FH Ostfriesland) started a collection in the field of literature regarding women and technology. In cooperation with the library of University of Applied Science in Oldenburg “Women – University – Technologies” was founded. In addition to providing books, every semester two lectures are held dealing with women studies in engineering (e.g. a study on the development of the typewriter from a users point of view), or on the status of women in science and technology (e.g. questioning the unwritten rule, that part-time work in the field of engineering is impossible to organise). (Dr. Renate Kosuch, FIG Under-represented Groups Newsletter 1/99)