

## **FIG Working Week 1999 in Sun City, South Africa**

### **TS11 “Under-represented Groups in Surveying” (Com 1 & 2 and Task Force)**

#### **Presentation of Paper**

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# UNDERREPRESENTED GROUPS IN SURVEYING

JENNIFER WHITTAL

## ABSTRACT

The surveying industry in South Africa is emerging from a period of strict regulation, largely outdoor and physically demanding work, and white male exclusivity. The evolution of surveying to geomatics will lead to reduced regulation and is destined to continue rapidly along this path in the medium term. It is less physically demanding due to the advent of GPS and other technology and the maturity of the surveying environment, both in terms of the extension of control systems into all areas, and the economic development of the country. These factors should make the industry more appealing to previously disadvantaged groups such as women, disabled persons and non-whites. White male exclusivity is no longer acceptable since the election of a democratic government in 1994, and the industry has, to some extent, attempted to move with the trend of embracing previously disadvantaged persons. It is, however, severely hampered by some factors beyond its control, and also fails to recognize and act on matters within its area of influence. The result is that fewer black and female persons have been recruited to the profession than is desirable at this stage.

This paper seeks to identify the problems of recruitment and retention of underrepresented groups in the industry and to identify practical steps that may be implemented to address them.

## INTRODUCTION

Many nations are following the lead of the American civil rights movement in embracing the ideology of equality of all persons regardless of race, gender or religion. South Africa, since the elections of 1994 and the beginning of democratic government has attempted to protect all citizens from discrimination through the adoption of a modern and internationally respected constitution based on the preservation of basic human rights.

The surveying industry has identified one of its major weaknesses as the dominance of white males and the scarcity of members of other racial groups. It is important to remember that, within this African context, black persons are not a minority group, and that the industry was (and still is) dominated by the white minority group to the exclusion of the majority. Disabled persons – a minority group, are also poorly represented in the industry. The surveying industry identifies with the current government's emphasis on redressing the imbalances of the past and has attempted to implement policies of affirmative action. This has been recognized as necessary if South Africa is to become a "world player" and become more productive and competitive internationally. The skills and abilities of all population groups and both sexes need to be harnessed to maximize the ability of the surveying industry to serve the needs of society.

## AFFIRMATIVE ACTION

Affirmative action is a "deliberate, top management plan, driven, monitored and rewarded process that is an integral part of the corporate strategy and that is holistic, aimed at creating an environment free of racial, gender, and cultural bias" (Arendse:1995). It is further designed to "make use of the potential, talents and skills of all the employees in the business and not just those of white males". 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.

This process is able to be implemented given the following:

- enough recruits who represent the demographics of the society at the job entry level. This in turn relies on:
  - high enough standard of secondary education to allow acceptance of all groups to tertiary institutions
  - an appealing industry/ work which attracts students
- financial resources to implement training programmes, both on-the-job and through courses

Affirmative recruitment in the survey industry it 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 in chase after the highest salary.
- the difficulty of recruiting underrepresented groups to tertiary survey education

Affirmative appointment is hampered by the following:

- Application of affirmative action in the management ranks only: affirmative action is often not thought of as an across-the-board policy, but rather one for top level management. As a result, aggressive recruitment of underrepresented groups, particularly in the support services (secretarial, labour etc) is not followed e.g. employers should identify whether a disabled person, woman, or black person could fill a position and recruit such persons actively throughout the employment ranks.
- Affirmative action appointment is often conducted using the following criteria: if two candidates are equally qualified and experienced, the “previously disadvantaged” candidate is appointed. The evaluation of qualification and particularly experience is subjective, and the identification of the “best person” for the job often relies on many factors other than the job-specific merit of the person: cultural, personality, and gender fit as well as the old school tie network, nepotism etc.
- When a person of a previously disadvantaged group is appointed over a white or male, or both, there is often an assumption that the appointment was entirely affirmative and that merit was ignored. This promotes negativity towards affirmative action from both parties:
  - appointed person: feeling of patronisation and lack of appreciation/recognition for skills and experience
  - non-appointed person: resentment that merit alone is not enough – feeling of powerlessness to improve ones situation

### THE NATIONAL QUALIFICATIONS FRAMEWORK (NQF)

The National Qualifications Framework is set up by the South African Qualifications Authority (SAQA) which was in turn established by the SAQA Act of 1995. The functions of SAQA are set out but are not expanded on here. The aim of the NQF is to establish competency levels (1 to 7 or 8) for the entire profession/industry from the unskilled labourer through to the specialist professional. Recognition at any level will be entirely dependent on demonstrable levels of competency and not only on education. Theoretically, any person should be registerable at any level if they can demonstrate that they have the required competencies. Formal education at any level will be equated to certain core competencies, while other competencies required for registration at that level will still be required to be obtained through experience, as they are currently in the format of articles training. General Areas of Competency (GAC) are those which must be achieved by all practitioners registered at a certain level and above, and will be general to the industry. In addition to these, specific competencies for the different categories of registration e.g. Professional Cadastral Surveyor/Land Manager will be specified.

The implementation of the NQF in the surveying industry may have the effect of opening up the professional ranks of employment to more persons from underrepresented groups, particularly non-white persons. Due to the poor schooling for non-white persons, entry into university survey programmes has been a possibility for only a few. Technikon surveying programmes have historically enjoyed far higher representivity for the reason that their entry requirements are less strict. Those with a technikon education have been unable to apply to register as Professional Surveyors even with many years experience. The NQF will remove this academic qualification barrier and may thus allow some underrepresented persons to move up the ranks of the profession. The total number of underrepresented persons in the industry will be unaffected.

THE CURRENT STATUS OF REPRESENTIVITY IN UNIVERSITY GRADUATION AND POSTGRADUATE FIGURES

University of Cape Town

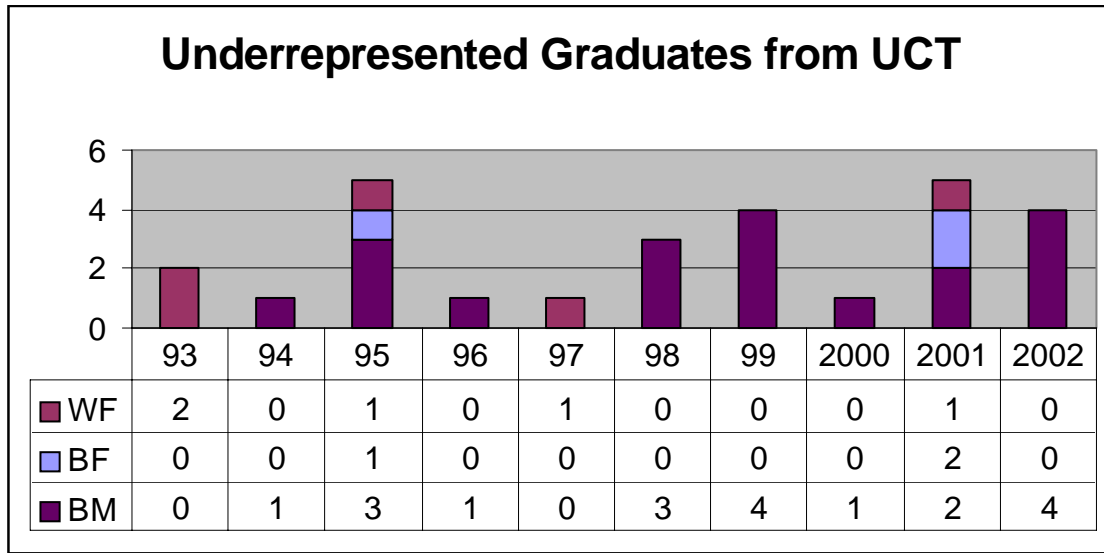


Chart 1. Underrepresented graduates from UCT (forward predicted for 2000 – 2002)  
 BF: non-white females; WF: white females; BM: non-white males

Chart 1 above shows no clear trend in the ability of the Department of Geomatics, UCT, to graduate non-white students and women. The total number of graduates varies between two and ten per year. There does appear to be an average increase in the numbers of non-white male students, particularly from 1998 onwards. Non-white students have a high failure rate in the degree due to poor schooling, and predictions for 2000 to 2002 are optimistic. Some non-white students are from other African countries and will thus not feed into the South African surveying profession.

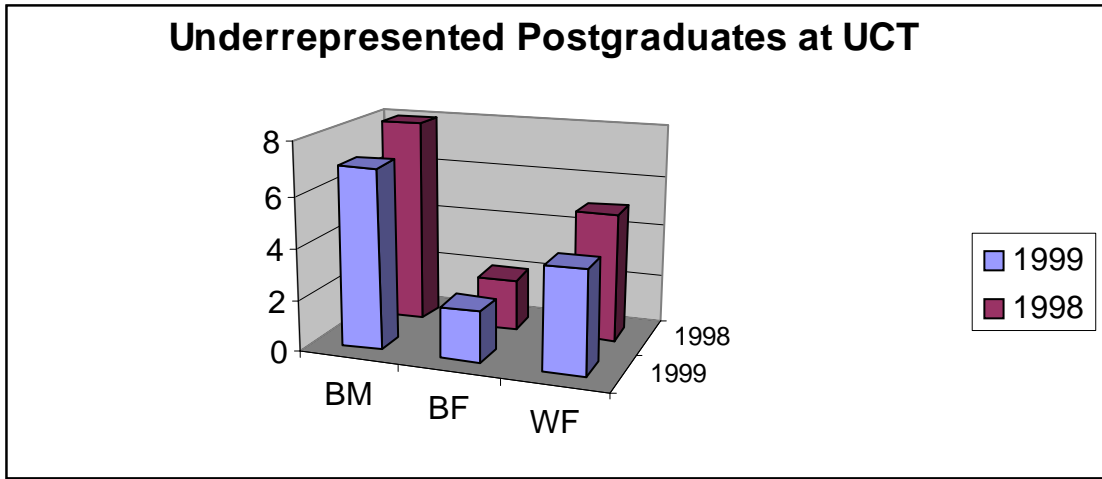


Chart 2. Underrepresented postgraduates at UCT for 1998 and 1999

The postgraduate student profile at the Department of Geomatics, UCT is reasonably strong in its representation of non-white and women students. The former can largely be attributed to the Department's high standing in Africa for postgraduate research. Most non-white postgraduate students are from other African countries and will thus not impact on the South African surveying profession. Number of postgraduate students is around thirty.

University of Natal

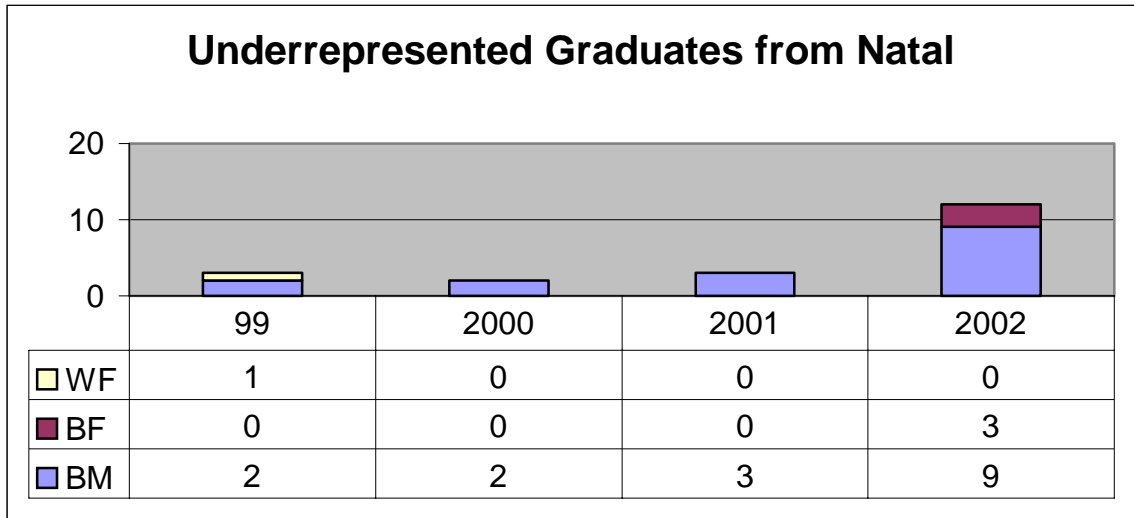


Chart 3. Underrepresented graduates from Natal (forward predicted for 2000 – 2002)

The intake of non-white males and females at the Department of Civil Engineering (surveying programme) has increased dramatically in 1999. This is forward predicted to graduation in 2002. Again, some failures must be expected and this prediction is optimistic. Research needs to be conducted to establish the reasons for this increase in order to ensure its continuation in subsequent years. Questionnaires are a useful means of conducting such research. The total number of graduates is similar to UCT – two to ten per year.

## Underrepresented Postgraduates at Natal

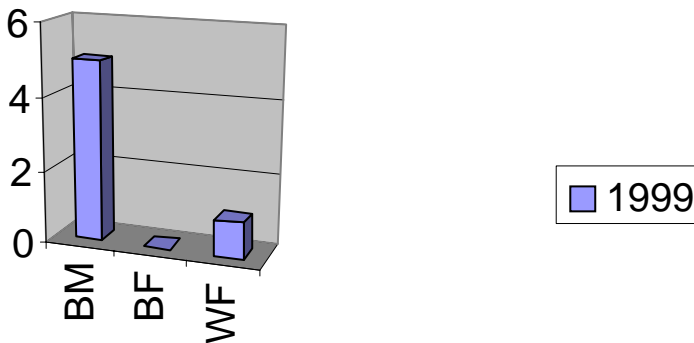


Chart 4. Underrepresented postgraduates at Natal for 1999

The non-white male postgraduate student population is high. This is surprising given the strong industry demand for such graduates and their potential to earn in the government, public utility, and municipal sectors. Female numbers of postgraduates, both non-white and white are disappointingly low in comparison.

### THE CURRENT STATUS OF REPRESENTIVITY IN THE PROFESSIONAL LAND SURVEYOR SECTOR IN SOUTH AFRICA

All figures used to prepare the following tables and graphs were obtained from the 1999 PLATO register for Professional Land Surveyors (PLS's). This registration group is the largest and the most representative of racial and gender biases, as all persons who wish to practice in this field are required by law to be registered. This is not the case in any other registration category, and so figures from those categories can be misleading, particularly when dealing with small numbers.

## Total Professional Land Surveyors per Employment Sector - number of persons

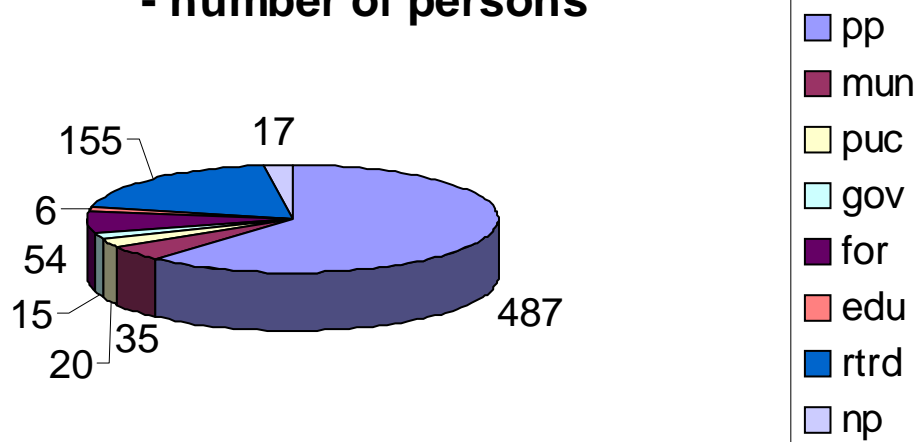
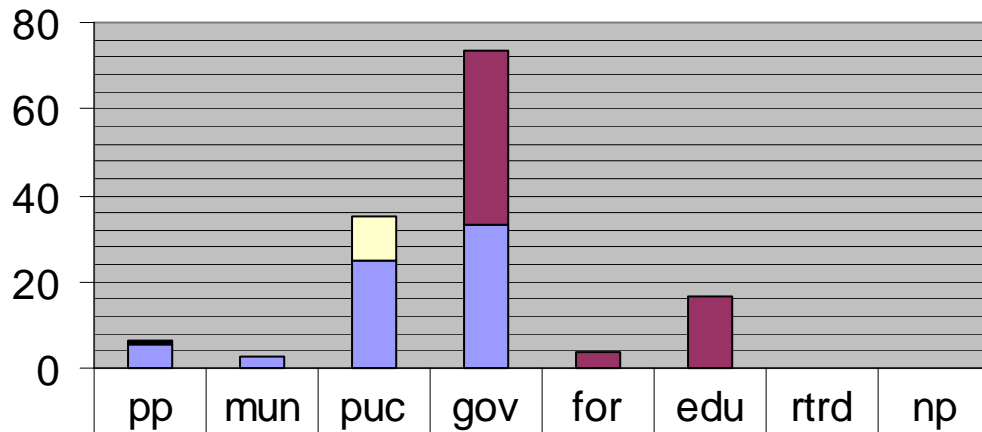


Chart 5: Total Professional Land Surveyors in Various Employment Sectors

pp: private practice; mun: municipal; puc: public utility company;  
gov: government; for: foreign; edu: education; rtrd: retired; np: non-practicing

## Underrepresented Groups as % of Total Registered PLS's



	pp	mun	puc	gov	for	edu	rtrd	np
BF % Tot	0.2	0	10	0	0	0	0	0
WF % Tot	0.6	0	0	40	3.7	16.7	0	0
BM % tot	5.5	2.9	25	33.3	0	0	0	0

Chart 6. Underrepresented Groups as Percentages of Total Registered PLS's

BF: non-white females; WF: white females; BM: non-white males



Chart 6 shows the percentage of underrepresented persons in each registration category. The results of affirmative action can be clearly seen in the government, private utility and education sectors. It is also interesting to note the lack of such persons in the retired and non-practicing categories, which reflects the discriminatory education practices of the past. The low numbers of foreign and non-practicing professional land surveyors indicates that retention of underrepresented groups is not a problem at this stage.

It is important to note here that high employment figures do not necessarily imply that a successful affirmative action policy has been implemented, but may be just a result of successful recruitment. In other words, the total numbers of underrepresented surveyors in the profession may be unaltered, as such persons may have simply been recruited by the strongest affirmative “bidder”. If this is the case, it is not due to lack of, or ineffective, affirmative action but rather to the time taken for true affirmative action programmes beginning at senior school level or entry level tertiary education to affect the professional marketplace (at least 5 years). Affirmative Action was only implemented shortly before the change of government in 1994.

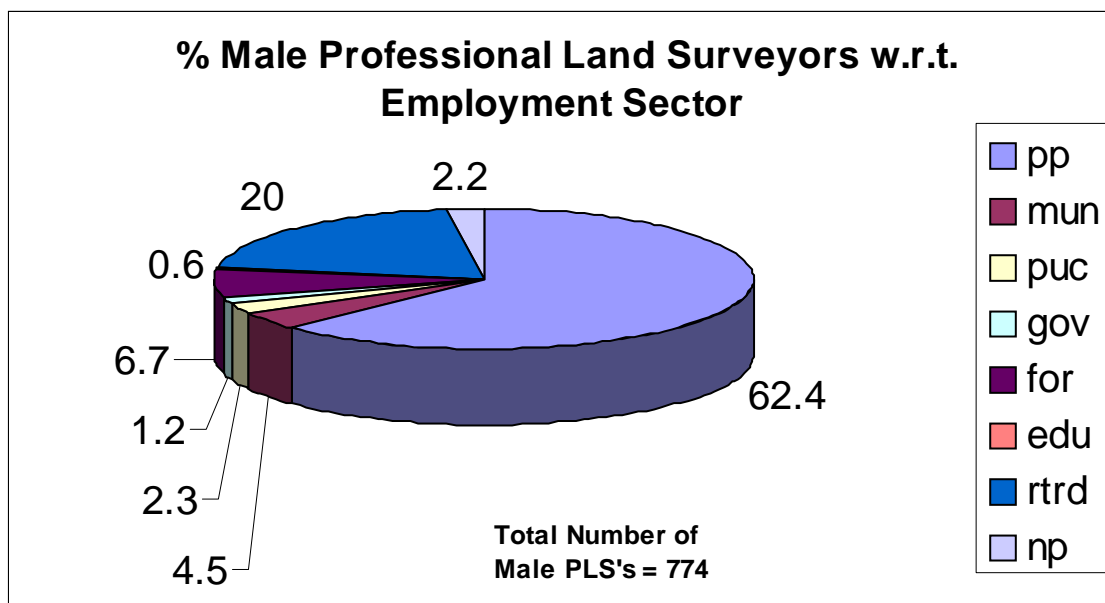


Chart 7: Male registration in the various sectors of employment

Chart 7 illustrates graphically the statistic of 20% of the practicing male surveyors in the retired category. This statistic is largely unchanged when considering the total of all surveyors regardless of gender and race, as non-whites and women are very much in the minority. It implies that the number of registered Professional Land Surveyors is likely to undergo a significant drop in numbers over the next 10 to 20 years. Private practice is obviously the dominant employment sector for male surveyors.

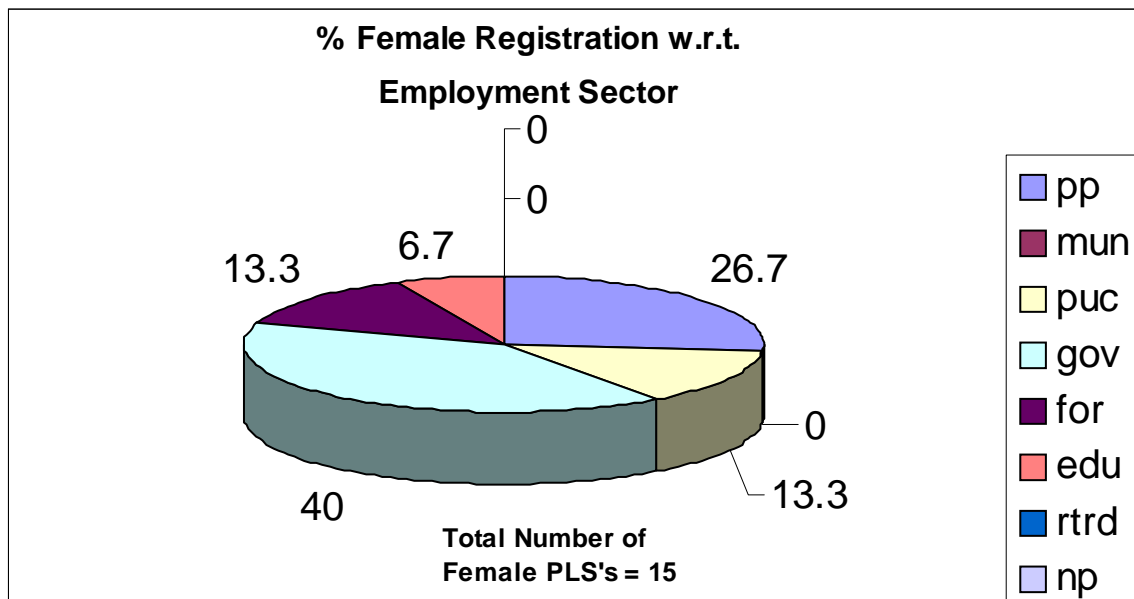


Chart 8: Female registration in the various sectors of employment

Chart 8 shows great variation from Chart 7. The government sector employs the most female surveyors, with the private practices assuming a far less important sector of employment. It should be remembered that the numbers of total woman surveyors are few, and an increase of one person in any category is statistically significant. The municipal, retired and non-practicing sectors have no female representatives. The lack of retired women directly reflects the discriminatory education (and employment?) practices of the past, and perhaps also the change of the nature of survey work in the last 50 years and the increasing appeal to female students.

## PROBLEMS EXPERIENCED BY UNDERREPRESENTED GROUPS IN SURVEYING

### Recruitment for Tertiary Education

- Non-white persons are most often educated in formerly black and coloured schools which were severely disadvantaged under the apartheid government. These schools still often suffer with poor teaching conditions and poorly trained teachers. Living conditions of such students are often impoverished and not conducive to study, and adult family members are often poorly educated. These factors combine to stunt the academic achievement of many non-white persons. This is recognized by tertiary institutions which often apply different acceptance and re-acceptance criteria to such students. Students are, however, required to obtain mathematics at standard grade level for technikon entry, and mathematics and physical science at higher grade level for university acceptance. These subjects are not taught adequately (or at all) in many senior schools, thus reducing the potential for recruitment of non-white students.
- the hard-hat image of the surveyor prevails and is generally not appealing to black students and women
- black people, and often women, prefer an office job; site work is perceived to be the domain of labourers and not professionals

The following two factors are often reinforced by teachers, parents and even tertiary educators:

- women, particularly black women, perceive technology as being a male domain of competence, probably due to socialization
- women perceive that surveying is too physically demanding for them,

### Tertiary Education – South Africa

- In the past, language of educators was very biased towards the male gender. This is changing and recent graduates have experienced less of this.
- Female students often battle to secure vacation employment due to a perception amongst perspective employers that the work is exclusively the male domain, and that they will be asking for problems employing women. Particular areas of concern are:
  - dealing with labour
  - physically demanding work
  - field environment is not suitable for a “lady”
  - provision of toilet facilities on site

Dealing with labour is no different for a man or a woman in this time of new labour legislation and defined procedures. Labourers largely perform the physical aspect of the field work, but, when necessary, women can perform demanding physical work as well. Having spoken to most women who have or are currently practicing as surveyors and who perform fieldwork, and from personal experience, the last two perceived problems are not insurmountable. Women surveyors find ways of coping with such issues themselves without the need to burden their employers.

- Students from underrepresented groups often experience victimization by fellow students, which normally takes the form of teasing. Most recipients of such teasing learn to cope with it, but would prefer to feel “one of the boys”. As the ratio of such students increases this occurs less frequently. It is necessary for such students to have role models in the staff of the institution, as well as among practicing surveyors, to whom they can relate. Cultural differences and other perceived differences (whether true or false) can cause friction between students. It is necessary to actively force integration amongst students who will otherwise naturally seek out like students with whom to work. In the working world partners on a project team are often not chosen, and group skills learnt at this stage, particularly those crossing cultural divides, assist the student greatly in future employment situations.

### Tertiary Education – Machava Training School in Mozambique (Technikon)

Under contract by Swedesurvey, I visited the Machava Training School in Mozambique in October 1998 for the purpose of evaluation of the programme and facilities for DINAGECA.

The problems of recruitment of female students experienced in South Africa seem entirely absent at the school, with more than 40% of the students being women (all students are black). Interviewing a group of ten female students revealed that technology is not perceived as a male preserve and that they were all attracted by a career in a technological field with the promise of a career in a recognized profession. They do not experience any victimization or prejudice by teachers or fellow scholars, and do not perceive any future difficulties in being employed as female surveyors. All expressed a wish for more female lecturers.

### Professional Organisations

- The “old boys club” image of professional organizations. This is to some extent being addressed through the appointment of women and non-white surveyors, as well as young surveyors to positions in the governing councils of such organizations. Active and

aggressive recruitment is necessary, as well as proactive integration of such persons into the structure and social activities of these bodies.

- Gender sensitive language and racially discriminative language is still very prevalent in the casual conversations of even persons at senior levels of these organizations. Examples are:
  - Referring to non-white (particularly black) labourers as “boys” when they are grown men
  - Referring to adult women as “girls”

These two above causes feelings of lack of respect for the person so referred.

Most white males in survey organisations use the male gender exclusively and have not modified their language to be non-gender specific. An example of this is the following:

“When a surveyor quotes a client he should follow up the quotation in writing”

“When a surveyor quotes a client, this should be followed up in writing”

- The mindset of individuals within the profession often needs to be challenged to prevent embarrassing blunders. At an AGM in 1998 a new black recruit to a professional organisation happened to be outside the door when the meeting broke for tea. One member made an unconscious link between his race and the service of the tea by the AGM hosts. Had the member been white there would have been no such assumption, which was doubtless extremely embarrassing and un-welcoming for this new member.
- Corporate and association activities are often not chosen such that persons from all race groups, religions and both sexes enjoy them equally. At meetings, Halaal and vegetarian food should be optional, soft drinks are also often not organized for those who do not drink alcohol. In addition, activities which are more appealing to white male members (such as golf days), need to be balanced with other social events attractive to women and non-white persons.
- Marketing initiatives are often not carefully scrutinized for gender and racial insensitivity.
- Many practicing persons still doubt the ability of women to perform all tasks of professional and technical surveying. There is thus a tendency among women to work twice as hard to prove that they are capable, particularly with field work. A woman may often feel patronized and not respected when this attitude is expressed.

## SUGGESTED ACTION PLAN

### Professional Organisations

It is important to note that many surveyors of underrepresented groups would rather “walk away” from issues of a sensitive nature such as racial/gender/disabled discrimination. A fear of rejection, labelling as a “radical” or “feminist”, and even further discrimination/victimisation, persists. Members of these groups are thus very appreciative of support in recognition of these problems, and this support is fundamental to the success of transformation.

A further important note is that members of underrepresented groups are generally forgiving and understand that slights of tongue, pen, and practice are often a product of our past social environment. They are further aware that in the majority of cases offence is unintentional and can be attributed to a lack of awareness.

1. Individuals within the profession should be encouraged to commit themselves to becoming more sensitive to racial and gender discrimination, and to modify their

language and practises where necessary. Surveying professional organisations should implement programmes amongst their members to sensitise them to issues of gender and racial discrimination (whether intentional or not). An effective method of performing this would be to include an information sheet in a circular and also to provide this information to new members. A presentation on transformation and discrimination may be useful.

2. Educators should assess teaching aids (overheads, notes etc) and language usage for gender bias and remove this where possible. Students should be equipped with the necessary skills and encouraged to cross gender, racial and cultural divides. They should be led by example by their lecturers, tutors and the profession to be sensitive to equality of race and gender.
3. Students and new members to the profession from underrepresented groups should be actively welcomed and integrated into the student and professional bodies. It may be useful to assign a specific person as mentor to such (and why not even all?) newcomers in order to appreciate fully their needs, expectations, and to identify areas of gender/cultural conflict.

### Recruitment

1. Non-white and female school leavers should be actively recruited to tertiary survey education programmes in order to provide graduates to the various employment sectors as yet underrepresented by these groups. An act of parliament is due to be passed in the first half of 1999 to legislate employment equity. The provisions of this act will be impossible to implement if the graduates from tertiary survey institutions are not adequate to meet the needs.
2. An active and aggressive marketing campaign needs to be undertaken to transform the image of the profession to geomatics in order to recruit school leavers from underrepresented groups and expose the public in general to geomatics.

Both these recruitment actions require a well co-ordinated and sustained marketing drive in order to ensure success. Past initiatives in this regard have been fragmented and have lacked the required funding resulting in limited and short-term success. All marketing/recruitment funds available (PLATO, FILSA, ITESSA, government etc) should be pooled and international donor funds should be sourced in order to embark on a successful and sustained marketing and recruitment drive. This should be co-ordinated and implemented with the utmost urgency.

### ACKNOWLEDGEMENTS

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