Proceedings of the Civics & Citizenship in Geography Conference

A conference co-convened by Kevin M. Dunn and Ian H. Burnley of the School of Geography, The University of New South Wales, on 21 July 2000.

Edited by
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WHY HOLD A MEETING ABOUT CIVICS & CITIZENSHIP?

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The Civics and Citizenship in Geography Conference was an initiative of the Geographical Society of New South Wales. An aim of the conference was to demonstrate to participants (mostly secondary school geography teachers) the ways in which academic and professional geographers are constantly involved in environmental and urban civics and citizenship. These edited proceedings provide an outline of the material covered at that meeting.

Recent theme issues of international geography journals have been dedicated to the topic of citizenship (see McLeay, 1997). These collections have been authored by a mix of cultural, social, political and urban geographers. The authors have examined how widely citizenship has been bestowed, and the links citizenship has to entitlements and oppression (Smith & Thrift 1990). Others have extended the 'spaces of citizenship' - beyond just the national - to include the regional and the local (Imrie *et al*. 1996; Painter 1995). Examples have included:

Imrie, R., Pinch, S. & Boyle, M. (1996) "Identities, citizenship and power in cities", Urban Studies, 33(8), 1255-61.

McLeay, C. (1997) "Inventing Australia: a critique of recent cultural policy rhetoric", Australian Geographical Studies, 35(1), 40-6.

Painter, J. (1995) "Spaces of citizenship: an introduction", Political Geography, 14(2), 107-20.

Smith, S.J. & Thrift, N.J. (1990) "Oppressions and entitlements", Environment and Planning D: Society and Space, 8(4), 375-8.

Civics and citizenship as geographical subject matter

The papers in these proceedings provide insights into the way in which geographers do civics and citizenship. Sydney-based geographers such as Bruno Parolin, Dawn Williamson and Jesmond Sammut are involved in research projects that fundamentally concern the management of global environments. They do global civics as part of their research activities. Susan Thompson, Ian Burnley and myself (Kevin Dunn) have been involved in projects which examine local civics.

The papers in these proceedings demonstrate how the following Stage 4 and 5 geography subject areas are embraced in the research of academic geographers.

Subject matter	**Values & attitudes**
Investigation of global environments and communities	Social justice
Management of global environments	Intercultural understandings
Investigating Australia's identity	Ecological sustainability
Issues in Australian environments & communities	Democratic processes
Changing Australian environments and communities	
Australia in global context (role of geography)	
Global citizenship	

Selling geography to the public

Geography graduates work in the fields of urban and environmental civics. This includes employment in fields such as catchment management, social impact assessment, transport analysis, water quality assessment, and urban planning. They also capture great jobs. Their remunerations in their first year of work are well above the average. The final section of these proceedings contains some information on the actual work that geography graduates do.

The issues

Issues of concern for educators include the format and utility of the civics test (compulsory in 2002), the availability of support materials, as well as the practical concern of incorporating yet more material into an overcrowded syllabus. Lindsay Swan addressed these issues in his paper. Nick Hutchinson has outlined the long involvement of Geography in civics education. He has also taken the opportunity to outline a series of geographical issues which touch upon questions of civics and citizenship.

Acknowledgements

The conveners were very appreciative of the administrative efforts of Marilyn Herrod during the conference preparation and on the day itself. There was sterling work as usual from Marilyn, but also from other Society members (Colin Sale and Don Biddle). We must also thank staff at The University of New South Wales who leant a hand, including Fay Colman, Yanni Zakaria, Chris Myers, John Owen and Lynne Illidge. Finally, thank you to Sue McPhee for having a first go at assembling and formatting these proceedings.

CIVICS AND CITIZENSHIP IN THE SYLLABUS: SUPPORT & ASSESSMENT

notes from a talk by Lindsay Swan
(Board Inspector, Human Society and Its Environment, Office of the Board of Studies, NSW)

What is civics and citizenship education?

For some educators, civics and citizenship education includes learning related to the institutions and systems involved in government, the rule of law, political heritage, democratic processes, rights and responsibilities of citizens, public administration and judicial systems. Others refer to 'citizenship education' and they emphasise the processes of democracy, active citizen participation and the engagement of people in a civil society. As well, civics and citizenship education includes a set of skills or processes related to this knowledge. These include active citizenship, critical reflection, inquiry and co-operation. A final set of learning associated with civics and citizenship education are a set of values which underpin democratic citizenship and civil society. These include the values of social justice, democratic processes, social cohesion, intercultural understanding and the tolerance of difference.

Civics and citizenship education in the syllabuses is underpinned by the following values:

- A sense of each students' own worth as a participant in Australian society
- Respect for the rights and dignity of all people
- Respect for each students' own culture and the culture of others
- Appreciation of the value of each students' own heritage and the heritage of others
- Commitment to democratic processes including freedom of speech, association and religion
- Commitment to social justice
- Commitment to ecological sustainability
- Commitment to active and responsible participation in community and public affairs
- Commitment to critical evaluation of ideas, norms and values

Civics and citizenship education K-10

Civics and citizenship education is not a separate entity within the HSIE K-6, and Stages 4-5 Geography and History syllabuses but is embedded in the outcomes and content that flow from the study of aspects of Australia's history, geography, cultural heritage and social systems and structures.

This occurs at each stage of the mandatory curriculum. For example:

K-6 Syllabus

- British colonisation of Australia and the impact of this on Aboriginal people and communities
- Places, spaces, patterns and environments and the interactions between them
- Children's own heritage, that of people they know and aspects of Australian and global heritage
- Development of democracy and associated local, state and federal structures

Stages 4-5 Geography Syllabus

- Through a study of the spatial and ecological dimensions of geographical phenomena, students consider how individuals, groups and governments make decisions and the role they can play as active citizens in a democracy
- Students investigate contemporary geographical issues to explore why spatial and ecological differences exist and how they may take an active role in shaping a fairer society in the future
- Students apply geographical knowledge, understanding and skills to demonstrate active and informed citizenship

Stages 4-5 History Syllabus

- Through a study of key features of Australian and world history students consider the forces shaping social, political and cultural systems and institutions and the role of individuals and groups as citizens in a democracy
- Students explore people's experiences of citizenship using the past to reflect on the present and how they may take an active role in shaping a fairer society in the future

Structure of the Geography Stages 4-5 and History Stages 4-5 Syllabuses
Each syllabus provides:

- A rationale, aim, and objectives which set the scene for establishing the importance of the subject within the school curriculum
- The specific intended results of teaching and learning in the syllabus
- Outcomes which provide clear statements of the standards expected to be gained by students
- Content of knowledge and understanding, and skills, which includes civics and citizenship

The framework developed in the syllabus requires teachers to provide strategies in teaching and learning programs whereby students will be able to demonstrate how they have developed their knowledge and understanding, and skills.

Key features of the syllabuses

- Outcomes

  Knowledge and understanding, skills, values and attitudes

- Civics and Citizenship

  Revised Geography Stages 4-5 and History Stages 4-5 syllabuses were released in 1998. These syllabuses embedded civics and citizenship in the outcomes and content. The Stages 4-5 syllabuses were mandatory for the 1999 Year 7 cohort and are progressively mandated up to the Year 10 cohort in 2002. A new K-6 Human Society and Its Environment (HSIE) 1998, syllabus has been produced with a significant infusion of civics and citizenship education.

- Perspectives

  A variety of perspectives, views or standpoints are considered within the syllabuses. These include perspectives of indigenous people and gender, place (local, national, and international), socioeconomic status, multicultural / intercultural and religion.

- Key competencies

  These are embedded in the syllabuses to enhance student learning for the acquisition of effective, higher order thinking skills necessary for further education, work and everyday life.

- Literacy

  Reading, writing, talking, listening, and viewing

- Skills and tools in Geography

  Fieldwork, acquiring, processing and communicating geographical information

Civics and citizenship education

In 1996, the NSW Board of Studies produced a draft document titled Citizenship Education Framework K-10. The Citizenship Education Framework was designed to assist syllabus development and indicates the depth and breadth of the knowledge and understanding organised into areas of:

- Australian identities,
- Rights and responsibilities, and
- Decision-making and democratic processes

Civics and citizenship education is integrated into the K-10 syllabuses in the Human Society and its Environment key learning area to ensure that all students develop the knowledge, understanding, skills, values and attitudes necessary for personal competence and responsible participation in Australian society.

Civics and citizenship education flows from the study of key features of Australia's physical and human geography. The citizenship education terms and concepts outlined in the Board of Studies Citizenship Education Framework for K-12 are listed below. Those appearing in bold type are embedded in the Geography syllabus content. There are different concepts of citizenship and teachers must recognise and be sensitive to students' experiences about these concepts.

Australian identity	Rights and responsibilities	Decision-making & democratic Processes
Identity – self, family, community Significant Australians, national symbols, celebrations, popular images Conventions: religious, linguistic, cultural **Cultural identities** **Cultural diversity** **National heritage: natural and built environments** **Population composition and changes** **Work** **Citizenship** **Global citizenship**	Rights: human, civil and legal rights Freedom of speech and action **Responsibilities:** human, civic, legal, economic**, environmental** **Ethics** **Equality** Prior occupation	Rules and laws **Changes to rules and laws: lobby groups, popular protests, referenda** Law courts: local, state, federal, international **Justice** Law enforcement Federation, the Constitution of the Commonwealth of Australia Government – types, democratic and non-democratic **Democracy** – elections, mandates **Conflict** The importation of European Law Government functions Politics

Through a focus on the spatial and ecological dimensions of geographical phenomena, students consider how individuals, groups and governments make decisions and the role they can play as active citizens in a democracy. Students investigate contemporary geographical issues to explore why spatial and ecological differences exist and how they may take an active role in shaping a fairer society in the future.

Civics and citizenship testing

In civics and citizenship education, New South Wales has played a leading role. In 2002, all Year 10 students sitting for the School Certificate will sit for the Australian History, Geography, Civics and Citizenship test. It will be the first time in Australia that civics and citizenship education has been compulsorily assessed across an entire age cohort.

The Stages 4-5 Geography and History syllabus documents provide the curriculum outcomes and content from which questions for the new School Certificate Test are drawn. Teachers and schools are now implementing the new syllabuses and many intend to trial the test in 2000. Considerable numbers of students and schools will trial the test in 2001 before it becomes mandatory in 2002 when more than 80,00 students from over 6,000 government and non-government secondary schools will sit the test.

Support for civics and citizenship education in geography

A support document will be developed and available to schools late in 2000. It will have an emphasis for Stage 5 and an emphasis on support for civics and citizenship education.

The document is likely to include:

- Advice on implementing the syllabus
- Background and importance of civics and citizenship education
- Advice on programming and the implementation of outcomes
- Advice on teaching and learning strategies
- Units of work
- Student work samples
- Advice on assessment using outcomes

Expressions of interest for writers for the development of these support materials will appear in a future Board Bulletin.

Future questions for civics and citizenship education

The Board of Studies is interested to identify what has been happening with civics and citizenship education in NSW schools. How are teachers and students responding to the introduction of civics and citizenship education? What are students learning in civics and how is student performance assessed in a meaningful way?

Some questions of great importance that may be worth asking include:

- What are students being taught in civics education?
- What are students learning in civics and how do we know?
- Is the civics and citizenship education component in Year 7-10 History more significant than in Year 7-10 Geography?
- What subject matter has been covered in civics and citizenship education as teachers address that component of the History and Geography syllabuses?

What will be particularly useful for civics education is a method of understanding student performance, especially one that is on-going and one that crosses school years.

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TEACHING FOR A BETTER WORLD IN GEOGRAPHY

Nick Hutchinson
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Geography and the education of citizens

According to Conolly (1997), geography in the curriculum has three aims:
- The well being of society
- The protection of the environment
- The fulfilment of individuals

Geography provides the following opportunities for citizenship education:
- Recognising distinctive features of Australian identities
- Identifying cultural diversity in Australia
- Knowing and valuing the national heritage of natural and built [environments] (Conolly, 1997).

Geography has an obvious and long-standing involvement in citizenship education.

> Citizenship … encompasses a whole range of educational processes, formal or informal, that encourage and inform participation by citizens in community activities and public affairs" (Civics Expert Group, 1996:1).

Don Biddle reminded us of Fairgreive's geography of the 1930s.

> [It is the role of geography] to train future citizens to imagine accurately the conditions of the great world stage, and so help them to think sanely about political and social problems around them" (Biddle, 1963:26).

Hartshorne's observations in 1940, pointed to views of citizenship in classical antiquity:

> the importance of geography in education for citizenship has been recognised since classical times when Strabo stressed 'its vast importance to social life and the art of government' (Hartshorne as quoted in Shortle, 1971:34).

Taking Hartshorne's lead, Shortle's vision of geography in the 1970s was "to produce international citizens and 'politically socialised' citizens". Eleanor Rawling's vision outlined in 1982 was to generate students who:

> will not accept the status quo in society [but] will question accepted values and situations, demand justifications for actions, request genuine participation in decision-making and hope to change society to improve the quality of life and environment (Rawling, 1982).

Teaching geography for a better world in the 1980s involves values education, development education, peace education, and environmental education.

Human rights issues for geography

Burnley identified a series of ways in which human rights were geographical subject matter. These included:

- The right to life. The geography of life expectancy and infant mortality
- The right to health. The geography of diet, nutrition and disease and access to safe water and medical services
- The right to be human by having an appropriate standard of living and life quality. The geography of income distribution, education provision, welfare provision and housing.
- The right to freedom of information and expression. The geography of newspaper, radio, television and mail services, and freedom of speech
- The right to equality without discrimination on the basis of gender or ethnic or racial background
- The right to participate in political processes in one's own country. Political geography, geopolitics and the geography of prisoners of conscience
- The right to depart if one feels unsafe or oppressed. The geography of refugees
- The right to work. The geography of employment and unemployment, working conditions and overseas workers

Geographical calls for active citizens

McElroy's vision of 1986 argued for geography teaching which inculcated political awareness and action among students.

> If the study of geography is going to involve students in knowing their world by a process of praxis then geography teachers have a responsibility to teach them how to participate in the decision-making that transforms their world. This will involve more than a good grasp of geographical knowledge and skills and will include the sound development of political literacy (McElroy, 1986).

AGTA's 'geography of concern' asserted the importance of critical thinking and policy consideration:

> How to analyse the social and environmental implications of political decisions; evaluate alternative forms of social action; and encourage others to participate with you to conserve the environment and redress social injustice (AGTA, 1988).

In 1989, the Australian Education Council outlined the following statement of national goals:

> To develop knowledge, skills, attitudes and values which will enable students to participate as active informed citizens in our democratic Australian society within an international context (AEC, 1989).

Walford & Haggett's new teachers of the twenty-first century would impart knowledge that created more politically active citizens.

> I want children of the twenty-first century to understand and appreciate the world they will live in, and influence it as an individual citizen. I hope their knowledge will exceed that which was imparted to me in the twentieth century, and I hope their influence will be greater than mine (Walford & Haggett, 1995).

According to Oxfam, a global citizen is a person who:

- Is aware of the wider world and has a sense of their own role as a world citizen
- Respects and values diversity
- Has an understanding of how the world works economically, politically, socially, culturally, technologically and environmentally
- Is outraged by social injustice
- Participates in and contributes to the community at a range of levels from the local to the global
- Is willing to act to make the world a more equitable and sustainable place
- Takes responsibilities for their actions (Oxfam, 1997).

Civics and citizenship type issues in Australian geography

Restructuring the Australian economy and the impacts on employment.

> Many Australian citizens have neither understood nor agreed with these changes. Reductions in tariffs, the floating of the Aussie dollar and the breaking down of restrictions on overseas borrowings and investment has opened up the Australian economy. Many Australians are acutely aware that foreign debt has increased dramatically, that monthly balance of payments figures are in deficit, although many are unaware that the balance in the goods trading sector has improved. Many Australian citizens hearken after a return to high tariffs, more factory jobs less unemployment and job prospects that would last a lifetime. The continuing economic focus on the Asia-Pacific market has not been totally accepted by the Australian population.

Taking a lead in environmental matters.

Before the Earth Summit, held in Rio de Janeiro, in 1992, Australia could be seen to be taking a lead in environmental matters. Australian environmentalists, with the support of the Federal Government, helped to fashion the World Conservation Strategy of 1980. The Federal Government was quick to develop the National Conservation Strategy in 1984 and was a signatory to international agreements on whaling, Antarctica, wetlands and the oceans.

An ugly side to Australian sport.

There is an ugly side to Australian sport. This has included the boorish behaviour of spectators at golf tournaments who shout offensively at visiting players, the sledging of Aboriginal Australian Rules players, and the deliberate jaw fracture occasioned to a visiting Welsh rugby player. At the same time, sporting links cement bonds between people. It also reinforces the ethic of a fair go for all.

Operating in the city of death.

A particularly successful military operation was that carried out by the Australian battalion which deployed to Somalia. In 1992, 900 ‘diggers’ were sent to Baidoa, the so called ''city of death'' in Somalia. The troops, mostly in their early 20s, established law and order in the war torn city, protected the aid workers and disarmed the warring parties with such sensitivity that they are still fondly remembered by Somali citizens.

Whose rights?

“Most Australians are probably unaware that the Universal Declaration of Human Rights exists. It has been described as the world’s ‘best kept secret’. We take our basic rights and freedoms for granted because we live in a society which protects them.” (Maya Catsanis campaign worker for Amnesty International, quoted in The Sydney Morning Herald, April 20, 1998).

Who is the intellectual pygmy?

“Some people may deny the universal nature of human rights, most notably brutal or totalitarian regimes, and some notable intellectual pygmies who parade around Australia, amongst other places, as protective pinnacles of national virtue. However, there is no significant academic or philosophical trend which believes in or advocates inequality or discriminatory treatment based on sex, religion, race, colour, age, or mental or physical disability” (Justice Marcus Einfeld, ‘The Dignity of Risk’, 16 September 1997, The Australian Broadcasting Corporation).

The contribution of ABCs.

From the two Chinese people who reputedly arrived as cooks on the First Fleet to the 14,000 living in Australia in 1891 before the White Australian Policy took hold Australia has been well served by its Chinese citizens. The present accomplishments of Australia-born Chinese (ABCs) range from those of:

- The murdered heart transplant pioneer, Dr Victor Change
- The real estate magnate LJ Hooker
- Henry Tsang, Deputy Lord Mayor and the architect who designed Sydney's Chinatown
- The Rev John Ting, state moderator of the Presbyterian Church
- Irene Moss, NSW Ombudsman
- Richard Chee Quee, the first ethnic Chinese to play Sheffield Shield cricket
- Liberal MP Helen Sham-Ho

Taxes: the price we pay for civility.

Nothing is more contentious to a citizen than taxation. However, "Taxes are the price we pay for civility". Taxation allows us to achieve things we can not achieve as individuals. These include the elimination of unemployment, reductions in inequality, cross subsidies for roads and telephones in remote areas, Aboriginal reconciliation and ecologically sustainable development. Yet Australian citizens pay very little tax. Japanese citizens currently pay more taxes than Australians do.

An incivil society

Civility can be strong and widespread or it can be weak and patchy. Some Australians would assert that our society shows incivility towards the Aboriginal population. History explains that a mere two or three generations ago there were violent wars fought over the possession of this country. Geography teaches us that Aboriginal people have retained control over large areas of land in Australia, notably in Arnhem Land, Central Australia, the Kimberleys, Cape York and the Western Desert.

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LOW TECHNOLOGY SOLUTIONS TO ENVIRONMENTAL PROBLEMS: EXAMPLES FROM ASIAN AQUACULTURE

Jes Sammut
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The environmental problems of Asian aquaculture ponds

Farmers face the challenge of soil and water acidification caused by pyrite-bearing sediments called acid sulfate soils (ASS). Pyrite is an iron sulfide that is formed and accumulated in coastal sediments that have a tidal origin. Pyrite remains stable and harmless in waterlogged, oxygen-free soils of mangroves, marshes, sedgelands and most lowland rice paddies where it commonly occurs. When exposed to oxygen during pond construction, the pyrite in ASS oxidises and produces large amounts of acid.

Acidified ponds produce low shrimp yields due to the toxic effects of acid and metals dissolved from the pond soils. Farmers, unaware of the cause of the problem, often blame other factors, tolerate low yields, or abandon their ponds. A lack of awareness of ASS often means that farmers, convinced that other factors are influencing production, construct new ponds in these soils at other locations, and the problem expands.

Over 80 per cent of Asian aquaculture ponds are either abandoned or unproductive causing major environmental and socio-economic problems. The six main causes include:

1 Poor site selection criteria
2 Poor Water quality
3 Disease
4 Reliance on monoculture
5 Inappropriate farm practices
6 Lack of understanding of concepts such as sustainability and environmental carrying capacity

High technology solutions to these problems are either too expensive, complicated or cannot be implemented by small holder operations. Other constraints to remediation include:

- Lack of policy, regulation or frameworks for environmental decision making
- Limited government support or extension services for uptake of solutions

Large scale operators can take greater risks and adopt "shifting aquaculture" solutions to economic problems – the environment is not considered. Small scale operators often abandon their operations and enter a poverty cycle.

Low technology solutions

Advantages of low technology solutions include:

- Low cost – costs are overridden by profits from increased yields
- Uncomplicated – does not require capital investment or technical background
- Empowers small scale operators
- Uptake is simpler and does not rely on intensive capacity building activities

Examples of low technology solutions

- Improved site selection criteria – use of biological and field indicators; simple field tests rather than expensive lab analyses
- Water monitoring – simplified water testing to predict and respond to problems
- Disease management – simple methods of disease diagnosis using clinical and gross signs of poor health; changing farm practices to minimise introduction of disease, reduce disease triggers, and to prevent disease transmission
- Replacement of high-risk monoculture with polyculture or integrated farming – hedging your bets!
- Modifying farm practices – lower stocking densities; reduced reliance on chemicals and artificial feed; improving water quality and management.
- Blending new technology with traditional practices
- Education – expanding awareness and changing values, expectations and perspectives.
  - changing perceptions and expectations
  - redefining values
  - developing a sense of ownership of a problem
  - fostering co-operative approaches to problem solving

As part of an Australian Centre for International Agricultural Research (ACIAR) project we have been trialing the remediation and management of ASS impacted ponds in Indonesia. Whilst the focus of the study is to restore production of degraded or abandoned ponds, it is also developing site selection criteria and methods of land capability assessment so that farmers avoid these problem soils. Additionally, the study is trialing alternative production systems in ponds that cannot be returned to shrimp monoculture.

BUILDING NATION STATES:
GIS FOR SCHOOLS IN PALESTINE

Dr Bruno Parolin
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Background events

- The nation-state of Palestine – an independent state?
- Formation of the Palestinian Ministry of Education in 1994 following Oslo peace accords
- Present state of schools in West Bank and Gaza. Student growth rates.
- The national development plan

Key priorities for education were developed with a focus on rehabilitation, expansion, and construction of schools. At the same time, the central (Ministry of Education) MOE embarked on a capacity building program in the area of educational planning and management – a key component being methods and criteria for new school location. A geographer (Parolin) was employed to set up a School Mapping Project.

Objectives

The Palestine School Mapping Project was undertaken within the context of a rapidly expanding school system and the need for educational planning in all its facets. Two specific objectives were identified:

- To develop school mapping databases that will allow districts and the Ministry of Education to develop multi-year plans for new school construction and major maintenance, and

- To train relevant personnel in the use of these databases

In essence the school mapping project was to provide information to planning and management for relating demand for new school classrooms (and schools) to the capacity and location of existing schools across the educational administrative system of Palestine. This would necessitate the development of appropriate criteria and indicators of demand and capacity.

- The ability of Geographic Information System (GIS) technologies to integrate digital map data and spatially referenced school enrolment and demographic data, and the ability to consider spatial relationships of data, became an important mechanism within the MOE for the management of existing and future education assets.

Part 1 Using a GIS in "School Mapping" and local educational planning

One of the more precise objectives of the work undertaken was to demonstrate to decision-makers and school planners in the Ministry the range of applications possible with a GIS.

- Using a GIS to display regional disparities

Construction of the GIS and associated school mapping databases during 1998 were coordinated with an extensive training program – one aim of which was to empower the trainees to generate computer maps of relevant school data on a regional and district basis.
The following maps were produced to highlight inter- and intra-regional disparities in location of educational resources:

- Types of schools: organised into lower basic, upper basic and secondary schools, normally along gender lines: identify catchment areas.
- Localities with no schools: It is Ministry policy, as articulated in the first three-year national education plan, to ensure access to school for all Palestinian children. In effect, this means that no community will be without a school.

- Using a GIS for micro-planning

An array of maps were generated as part of the consultants' involvement with the strategic plan for the Qalqilia school district. These maps deal with the distribution of existing and future educational resources.

- Distribution of schools by type: Mapping school types provided school planners with immediate information on the mix of schools at various locations and where there may be a need for new schools, or schools with an expanded curriculum.

- Exact location of schools: These large scale maps provided exact coordinates of school locations and the physical infrastructure of respective schools. In turn, these maps can be superimposed on digital maps of village or town street networks in order to provide additional information on the immediate areas surrounding a school, location of a school relative to the entire locality, constraints to school expansion, and possible amalgamation and rationalisation of school facilities.

- School Site and Survey Plans: Data for the survey plans of schools and corresponding architectural drawings (in digital form) gave precise information on the following:

    - buildings and classrooms (and their uses)
    - facilities at the school site (sanitary units, drinking fountains, main gate(s), labs, canteen, etc.)
    - dimensions of all infrastructures, including the site itself.

These data, which had been collected for all schools in the Qalqilia test district, have so far been used by school planners and architects in the Ministry for the following:

- to enable digital modifications and/or extensions of buildings and classrooms at central MOE and district office
- assessment of presence or absence of facilities at respective schools (eg. sanitary units, drinking fountains, main gate, boundary walls, canteen, etc)
- to determine if facilities are adequate for the size of the school
- to calculate the amount of space in square metres devoted to teaching and non-teaching functions in the school
- to provide an inventory of all facilities, buildings and classrooms at respective schools that can be used for maintenance assessment purposes.

Part II Setting up a GIS on education: a technical exercise

- Planning a GIS: The scope of the work undertaken involved the implementation of a system which used geographic information system technologies, computer aided drafting (AutoCAD), and relational database management systems (MS Access, Excel).
- Acquiring the software and hardware: Use was made of geographic information systems (GIS) software and hardware such as digitisers and printers to reference schools data collected annually by MOE (demographic and physical characteristics of each school stored in Access and Excel formats) to verified map bases at various scales:
- Data collection and input: The following databases were developed –

    - Small scale map data for the West Bank and Gaza indicating the location, relative position and attribute data describing various socio-economic features (eg. locations of Palestinian communities, built-up areas of Palestinian communities, etc), physical features, access routes, geographic features and contours, political features (eg. governorate boundaries) and the locations of important public structures.
    - Mid-scale digital map data containing street networks of cities, villages and towns which indicate all street, road and building outlines in respective locations (plus other physical features). This data is similar to a cadastral database and is provided as AutoCAD DXF files.
    - Digitised drawings of school site plans, survey plans, and architectural drawings were used to develop a verified CAD (AutoCAD) database on the existing physical infrastructure of schools..
    - Photographs of every school were also obtained and subsequently scanned and saved as bitmap images by the consultant. These image files were then referenced to geographic information on the location of schools for display using the GIS software.

- Hardware: The hardware component of the system described above utilises 10 work-stations, an A0 digitiser, A0 plotter, colour printers, and CD writeable storage devices. The selection of software and hardware was based on support availability, functionality, reliability, and technical features.

- The collection process: role of Palestinian Geographic Centre (PALGRIC), Ministry of Planning and International Cooperation (MOPIC) and Palestinian Central Bureau of Statistics (PCBS).

- Entering data: undertaken by trainees and the consultant

- Data checking, integration, storage and planning: The consultant devoted a considerable amount of time to defining, obtaining and checking the accuracy of all data described above (the validity of the schools database has been verified by the Statistics Department of the MOE) which forms the basis of the school mapping databases. All digital geographic data has been carefully checked for accuracy by using AutoCAD and the GIS to examine the location attributes of the data. Any incorrect data layers were returned to the source provider and a clean data layer provided.

Part III Setting up a GIS on education: a capacity building exercise

 GIS Training Program

The training program commenced in February 1998 and lasted over period of nine months.

(a) Training format and exercises

The philosophy throughout was "training on the job". What assisted in making the training more meaningful and relevant was the use of local data for all tasks – data obtained as part of the school mapping datasets during Phase Three to Five. Topics covered in the training program included; database design, data capture, raster versus vector data, spatial analysis, relational tables, and links to other data.

(b) Validation of training

Validation of all training provided has been assessed in the following manner:

- trainees have successfully completed critical tasks associated with the design and use of GIS databases,
- trainees have successfully demonstrated their ability to use facets of the GIS for the analysis of school mapping data (both geographic and non-geographic) for planning purposes.

(c) Training facilities and equipment

The GIS training program was administered in the design room of the Building and Projects Directorate and utilised seven workstations.

 Institutional capacity building within the Palestinian Ministry of Education

(a) Local ownership of the database and GIS

One of the tasks of the consultant was to ensure the sustainability and local ownership of the GIS program. It must also be stressed that project donors were also concerned to ensure continuation of the program. To this end, the local World Bank representative and its Middle East region representative held several discussions with the relevant Director Generals and with the Deputy Minister of MOE to ensure continued support after official completion of the project.

(b) The formation of a GIS unit

The consultant was able to impress upon many in the Ministry that building and enhancing a GIS is a long term prospect which incurs significant initial start-up costs, but has recurring costs that need be funded on an annual basis. The longer-term pay-off for the Ministry is an up-to-date GIS for enhanced school planning and management.

The strongest recommendation by the consultant was that the MOE establish a GIS unit within the Planning Division which would initially utilise the full functionality of the GIS and school mapping databases for planning and management purposes; for example, as part of current efforts to implement the five year plan and for micro-planning.

Conclusions

The Palestine Schools Mapping and Maintenance Scheduling Project had as its main objectives the development of school mapping databases, the use of GIS, and the training of relevant personnel in the use and updating of these databases. The goal of the project was to provide the Ministry with the capacity and capability to develop multi-year plans for new school construction and maintenance thereby enhancing the school planning function within the Ministry.

Some major benefits and advantages derived from establishment of a GIS for school planning in the Ministry are summarised below:

- enhanced spatial literacy for those personnel involved in the training program – these personnel will be able to transfer their new skills to others in the Ministry thereby improving overall levels of computing proficiency,
- better informed decision making for school planning at a micro level and at the level of strategic planning using GIS,
- an appreciation of the value of and applications of GIS, and "spatial analysis" more generally, for school planning problems,
- understanding of the integrated nature of GIS work, and of the need for coordination and collaboration between various departments in the Ministry,
- recognition that GIS can be used for many applications in the Ministry besides school planning and, that in the longer-term, GIS could be the core of a schools asset management system,
- recognition that the maximum exploitation of the operation of GIS is a long-term outcome and one associated with a steep learning curve for responsible personnel, and
- the fact that the Ministry now has a GIS means that it joins a very exclusive "club" of GIS operators in Palestine, and will be able to market its GIS skills base to assist other PNA organisations.

REMOTE SENSING CIVICS: FORECASTING FOOD PRODUCTION IN THE BALKANS

Dr Dawn Williamson
(School Of Geography, The University of New South Wales)

Remote sensing

Remote sensing is the use of electromagnetic energy – reflected or emitted from the Earth's surface – to obtain information about the Earth. Data can be collected from sensors on aircraft and satellites. The data are processed using specialised software to produce images, maps and statistical information.

Remote sensing and civics

Globally, damage inflicted by natural disasters kills an estimated one million people each decade and leaves millions more homeless. Human made disasters, caused by wars and conflict, directly and indirectly affect an even greater number. There is a role for remotely sensed data to provide rapid and up to date information about areas where field access is limited.

Background

In May 1999, hundreds of thousands of Kosovars left their homes and were living in refugee camps in Macedonia and Albania. At the time there was no indication of when these people would be able to return. There was an immediate research requirement to know whether any harvest in 1999 would yield sufficient crops to meet the food need if they returned.

Meeting the research requirement

- A comparison of the area of crops planted in 1999 with those planted in 1997 (a year of relatively normalcy) and 1998 (a year of some disturbance).
- The area cropped could only be estimated using remotely sensed methods as there was no access to ground data due to the military situation.

Remotely sensed data which were used

- All optical data recorded during 1997, 1998 and 1999 were located. These included:
  - Landsat TM September 1997
  - Landsat TM June 1998
  - SPOY HRV June 1999.
- Kosovo is hilly and often cloud covered so few data were available.
- Kosovo had not usually been of research interest in the west, therefore there had been no need to collect data in previous years.

Classification

- Initially an unsupervised classification was undertaken to identify the main classes of ground cover.
- Uncultivable land was excluded (roads, towns, quarries, water).
- An iterative process was used along with information from a crop calender to map the following agricultural uses: winter wheat, corn, grass/hay, mountain grazing land, and secondary cereals.

Results

Two distinct agricultural regions were observed:

- The Pristina valley and the other large valleys in the east of Kosovo have large fields of a regular shape (approx. 30x100m) and fairly homogenous cropping patterns. There was little confusion between classes within those fields.
- The valleys to the west around Dakvica have smaller fields of an irregular size and a very mixed land cover pattern.

Cereals

- Spring cereals: The exact label had not been verified, but this may be the secondary cereals on crop calender and probably includes barley and oats.
- Winter wheat: easily identified, harvested at same time as spring cereals but appeared as a distinct class on images.

Corn / maize

- The corn is grown as a fodder crop for cattle.
- It is planted and harvested much later than the cereal crops.
- This class was easily identifiable on the images.

Grass / hay

- This category includes hay grown for cattle fodder and grass fields along the floodplains of the rivers.
- Hay is usually harvested in July and September.
- This class includes fields that have been left fallow and have reseeded to grass and other vegetation.

Other agricultural land

- Mountain grazing land occurs on the lower and mid altitude slopes.
- Vegetables are grown on small parcels of land, often within villages. It was not possible to map these.

Regional variations

- The Pristina Valley showed a significant reduction in both spring crops (corn and spring cereals) between 1998 and 1999 with much of the area reverting to grass.
- In the southwest the main change from crop to grass occurred between 1997 and 1998
- In the southeast there was an increase between 1998 and 1999.

Implications for food production

- The change from crop to grass is probably the best indicator of the agricultural situation.
- There was a 250 per cent increase in the area of lowland grass between 1997 and 1999.
- The area under corn halved between 1997 and 1998 and dropped to less than two per cent of the area in 1999.
- Over the three years the area of crops halved and the grassland area doubled.

Conclusions

- The satellite data provided a rapid assessment of agricultural land over a large area that would not have been possible in any other way.
- The percentage of land under the main crops and land used for livestock production was calculated for each of the three years in the subset areas.
- The work was produced within the short timescale demanded of the users, 6-8 weeks.
- The major limitation in this type of work is data availability.
- The area under winter wheat changed little, but the areas under corn and spring cereal, which is planted in March and April when the conflict was severe, dropped significantly.
- No accuracy figures were calculated, as no ground data were available.
- Accuracies were probably lowest in the western areas which have small fields and mixed farming.
- This work was used by government agencies to obtain a broad picture of future food production. The identification of broad trends was more importance than statistical accuracies.

INVOLVING THE CITIZEN: INCLUSIVE PUBLIC PARTICIPATION IN LOCAL GOVERNMENT

Dr Susan Thompson
(School of the Built Environment, The University of New South Wales)

What is community consultation?

> A community consultation is a process of exchanging views on a topic with people of a community. It generally involves distributing information and discussing reactions and responses (Menzies, 1993:38).

Why involve the community?

There are compelling reasons why communities must be given the opportunity to be involved in the planning process (South Australian Urban Land Trust, 1994:27).

- People have the right to be informed about, and to influence planning and decision making that directly affects their day-to-day lives.
- People are increasingly demanding a say in planning their local neighbourhoods. Local government must respond positively.
- Planners and local communities will benefit. With mutual understanding, the chance of a fair, honest and open process is enhanced.
- Residents have a right to access important information about their local area. This is a fundamental principle in contemporary democratic government.
- The community learns about the planning process. This needs to be acknowledged as part of local government's responsibility.
- The potential for conflict and misunderstanding between planners and community members is reduced. Conflict will emerge in the short term. If it is dealt with appropriately, long term conflict is reduced.
- Genuine public participation is an empowering process.

Guidelines for involving the community

The purpose of any consultation exercise is very important. This needs to be stated openly and honestly at the outset so that it is understood by everyone. There are different aims of consultation:

- To inform - presenting a plan in final form
- To seek comments - presenting a plan, proposal or policy in draft form
- To actively involve the community in decision making right at the start of the process.

If the aims of a consultative process are not clear the community could feel alienated, frustrated and may well feel betrayed. This sets the process up to fail.

It is also necessary to be clear about who is initiating the consultative process. For example, the following should be addressed:

- Level of commitment to the process - is it just political? Is the planner merely paying lip service to consultation?
- Relationship between the community and decision maker must be clear
- What will happen to outcomes of the consultative process?
- Will recommendations be taken up by decision makers?

In relation to consultation about a development proposal, the context within which the development is occurring needs to be defined. Some of the issues to consider here include:

- History and impact of development
- Local politics
- Level of public concern for proposal
- Community's previous experience with planning processes
- Willingness of community to be involved.

An understanding of these issues will assist planners to select the most appropriate consultation techniques.

In any consultation process, a concerted effort must be made to reach all interested and affected groups. The process must be as representative as possible. Neglecting this may well mean the failure of the process and a cost blow-out in the longer term. Nevertheless, accessing and listening to all the voices can be difficult. Some barriers to participation include:

- Economic difficulties
- Language
- Social customs and understandings
- Locational isolation.

Adequate resources need to be available as consultation is not cheap. Resources include:

- Time - for the process itself and for outcomes to be taken on board
- Money
- Professional skills - technical expertise and communication skills.

Additional resources often overlooked include:

- Childcare
- Transport to venues
- Location of venues - ensuring that they are accessible.

Information is a vital resource. It must be:

- Appropriate and understandable
- Informative
- Unbiased

Timing of community participation is very important and depends on the purpose of the consultation. People must be allowed sufficient time to understand complex issues and to respond to the process.

The process must be publicly accountable. Information on issues, options, discussions and conclusions should be made available to participants.

Techniques must be appropriate to both the community and to the purpose of the participation exercise. Those running the process need to have an indepth understanding of the community, be able to work through established community structures and to access a broad range of key people.

Choosing the right consultative technique

Factors to consider when choosing an appropriate consultation technique:

- Purpose of involving the community
- Stage of the planning process
- Nature of the community
  - Age and gender
  - Ethnicity
  - Socio-economic status
- Willingness and ability of community to be involved
- Likely impact of the development
- Skills and resources available to involve the community

Participation: short exercises and questions

- Describe a participation exercise with which you were involved (either as a participant or facilitator, organiser or speaker).
- List some of the positive issues - procedural and/or outcomes.
- List some of the negative issues - procedural and/or outcomes.
- How could this participation exercise have been done better?
- If you have not participated in your local community, what is stopping you from participating?

Participation: resources for teaching

There are many excellent texts, manuals and guidebooks to help teachers understand what participation is all about. At the end of this paper is a list of some particularly useful and relevant resources (Arnstein, 1969; Department of Commerce and Trade, 1993; Grogan et al., 1995; Office on Social Policy, 1993; Sarkissian, 1994).

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Department of Commerce and Trade (1993) Working With Communities: A Guide for Proponents, 3rd ed, Department of Commerce and Trade, Perth.

Grogan, D. Mercer, C. with Engwicht, D. (1995) The Cultural Planning Handbook: An Essential Australian Guide, Allen & Unwin, St Leonards.

Office on Social Policy (1993) Better Service Through Consultation: Approaches to Consultation for Government Agencies, Office on Social Policy, Sydney.

Sarkissian, Wendy (1994), The Community Participation Handbook, Second Revised Edition, ISTP, Western Australia. This also includes a useful video on innovative participation techniques. (Available through the Professional and Continuing Education Office, Murdoch University, Western Australia, 6150. ph: 09 360 2741; fax: 09 310 8480).

USING COMMUNITY PROFILES TO PROMOTE INTER-COMMUNAL UNDERSTANDING

I.H. Burnley
(School of Geography, The University of New South Wales)

A. Census data

- Published sources

The Australian Bureau of Statistics publishes hard copy and well presented social atlases of the capital cities (metropolitan areas) of Australia. The latest series are from the 1996 Census. These are in colour, and follow the choropleth mapping principle. They provide information for census collection districts (average population size of 750 people or about 250-300 households). These are the smallest spatial units for which census data are available. Regrettably these atlases are unavailable for rural areas.

- Unpublished sources

(a) The web. The Australian Bureau of Statistics "publishes" sets of information for large regions, states and Australia on its web-site. Occasionally profiles will be produced on this site for local government areas.

(b) Compact disks (C-Data) provide tables of community characteristics for small areas, including census collection districts, statistical local areas, and local government areas. This information is available for urban and rural areas.

(c) Computer packages. It is possible to acquire, at relatively low cost, user-friendly computer packages which allow mapping of frequencies or percentages to be undertaken (see: Consulting Division, Australian Bureau of Statistics, St Andrews House, Sydney 2000). This mapping is automated.

B. Using Census data to illustrate diversity

- The single variable choropleth (shading) mapping approach can mislead. For example, proportional shading of the percentage of the population in a small area (locality) born in a specific country can easily imply that the bulk of that group are located in an area of residential concentration. This is the problem with some of the social atlases produced in the academic literature or by the Australian Bureau of Statistics (the atlases are not faulty – the problem is conceptual and methodological).

- The use of small area census data – by examination of individual birthplace groups, or religious groups, or language groups – is more likely to show diversity and population mix. This is particularly the case in areas identified locally as "Little Italy", "Little Greece", or "Little Vietnam".

- The use of the small area census data can also indicate areas of homogeneity. Users might be surprised at the results. e.g. high status, Anglo-origin neighbourhoods in favoured localities are more likely to be homogeneous than are areas commonly labelled as localities of "high migrant density".

- The use of the census at the local level and in the ways suggested may assist students in answering such questions as:
  - the relationship between social and physical space
  - the relationship between diversity, or homogeneity, and social cohesion
  - the relationship between immigrant settlement and disadvantage (e.g. persons on low incomes).

EXAMINING LOCAL INTER-COMMUNAL RELATIONS, PLACE MAKING AND CITIZENSHIP

Kevin M. Dunn
(School of Geography, The University of New South Wales)

Socially constructed citizenship

Citizenship is unevenly distributed. This uneveness is culturally influenced. In other words, members of some cultural groups have been afforded greater levels of citizenship, and some have suffered lesser forms of citizenship. The awarding of citizenship, at both local and national levels, is an outcome of dominant ideas about who is and is not a citizen. There is a social construction of citizenship, and this construction is strongly influenced by notions of what constitutes national identity, and also local identity.

According to traditional urban and social theory communities could only be composed of people who were culturally uniform. Newer theories assert the importance of cultural participation and diversity. A key question in contemporary social sciences is how to construct communities of difference: how to recognize a diverse citizenry.

The recognition that communities are composed of cultural difference, and a constructive engagement with that diversity, requires whole new institutional structures. Oppression and citizenship are inversely linked. So a project of social justice must effect institutional transformation to combat the five forms of oppression (see Waitt et al., 2000:11-14). This includes unfettered access to government services to prevent marginalisation, meaningful participation to address powerlessness, positive constructions of identity to fight cultural imperialism, legal sanctions against exploitation, and state protection from violence. Failure to develop culturally-specific and flexible-mainstream policies within local government would prevent particular sections of the public from being accorded their rights and responsibilities – they would not be full citizens.

Over the past ten years I have been working on issues to do with local government and cultural diversity. That has involved research on the difficulties experienced by non-Christians in having places of worship approved. I have also been involved in a collaborative project, along with Susan Thompson and Ian Burnley, examining multicultural policies and programs within local government throughout Australia. That work utilised a nation-wide questionnaire survey on multicultural policy within local government. The survey gathered data on the following: equitable access to services and decision making processes, the facilitation of cultural expression, inter-communal relations policies and, symbolic representation, local identity and citizenship. Our findings regarding the latter two policy areas are also drawn upon in this paper.

Symbolic representation, local identity & citizenship

Official enunciations of local identity by local government were examined. Our premise was that to not figure in the identity of one's locality or country is to lack an important symbolic representation. Not being represented in the encapsulation of your place detracts from your local citizenship.

Data sources included:

- Annual reports (images & text)
- Mission statements, corporate identity, logos
- Political representatives (background of councillors, staff)
- Structures (membership of liaison committees, advisory panels)
- LEAPS (Local Ethnic Affairs Policy Statements) & social plans

Some findings on the cultural uneveness of local citizenship

Characterisations of ‘Us versus Them’ among Council responses:

> We see no disadvantage in being a member of a multicultural minority group. They are particularly well provided with funding and services by State and Federal departments, so well in fact that it is causing dissatisfaction in the working community (General Manager, rural council Western Australia).
>
> The Aboriginal population (second highest in NSW) and their behavioural problems have created a negative image for [the town]. Council is endeavouring to promote the cultural heritage of the Aboriginal people as an "attraction", and by doing so raise the self esteem of the Aboriginal people and provide them with more meaningful lives (General Manager, rural council NSW).

Attempting not to acknowledge diversity:

> We are a small, highly dispersed rural community with few, if any, people displaying or prepared to display any cultural diversity (Community Services manager, rural council Tasmania).
>
> No translation services have been required but when so it is usually done by a friend of [the] applicant (Town Planning manager, rural council NSW).
>
> Non English speaking groups ... are rarely known to settle in regional/ rural areas in any numbers. Where they have, they have quickly assimilated and learnt English. Aboriginal people all speak, write and understand English (Community Services manager, rural council NSW).
>
> Irrelevant for this Council. We have no ethnic community and a very small ethnic community (General Manager, rural council NSW).

Some findings on inter-communal conflict and citizenship

Attempts to construct Muslims as non-locals / non-Muslims.

> There are few people in the Green Valley / Hinchinbrook region that are of the Islam religious convictions. Therefore there is no justification for a Community Centre in Green Valley / Hinchinbrook (Letter to Liverpool City Council, 10.8.89:2).
>
> As there are no residents in South Creek Road to my knowledge who are Muslims & I don't know of any living in this area [Dee Why], I strongly object to a Mosque being built in this area (Letter to Warringah Council, 17.5.94).

Those opposed to mosques in Sydney asserted their status as citizens, and inferred the lesser citizenship of Muslims. We the citizens!

> As a resident and ratepayer, I request that Council not allow any more Islamic Society Meetings to be held at 118 Wright Street, Hurstville (Letter to Hurstville City Council, 16.1.85).
>
> Signed: "concerned citizen", "concerned Christian", "legitimate resident", "locals" and "rate payer".
>
> It should be noted that myself and my neighbours have occupied our homes for over thirty years (Letter to Warringah Council, 14.3.94).

In the debates over mosque development in Sydney there was an overt dichotomising across an axis of who was and was not a local citizen.

Relevance to geography syllabus

The issues addressed in this paper have relevance to the following subject areas of the geography syllabus.

Investigating Australia's identity	Changing Australian environments & communities
Australia's human environments (built, social / cultural) - places of importance to various cultural groups Australian communities - diversity of communities in Australia (shared space; shared social organisation) - factors contributing to a sense of identity - intercultural relationships within the Australian community - Indigenous geographies	Factors causing change - intercultural exchanges - conflict within and between communities - governance Decision-making in Australian communities (processes & consequences) - role of NGOs, cultural associations in local govt - methods of activism, involvement, participation Conflict resolution
Issues in Australian environments & communities	**Australia in its regional & global context**
Contemporary geographical issues - community events - inequalities in the access to decision-making processes - non-Indigenous and Indigenous reconciliation Perceptions of different groups about such issues	Australia's future - changing national identity, multiculturalism - strategies for a better future (reconciliation, urban planning, active citizenry)

Concluding points

The degree of recognition of difference, the inclusiveness of citizenship, is in many ways measurable, by us, and by students. The local community, is a very rich site at which to engage issues of intercultural understandings, social justice and democratic processes. These are geographical matters of citizenship.

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GEOGRAPHY, THE WORLD AT YOUR FEET!
GRADUATES & CIVICS

Clear vocational paths are apparent through the study of geography at school and at university. Yet many parents, as well as other significant sources of vocational advice to students, remain unaware of the vocational potential of geography. Graduates from geography, urban planning and environmental sciences capture great jobs.

The high employability of geography graduates is fundamentally linked to their well developed research and report writing skills, as well as the applied and field-focus of the discipline. The training given to geography students in the spheres of urban and environmental civics is another reason why employers favour geography graduates. Geography graduates (as well as graduates from environmental sciences and urban planning) possess an advanced comprehension of urban and environmental processes and issues.

In the following section, we hear from six recent graduates of a geography degree. Each graduate has outlined, in order: their degree; fourth year thesis topic; current employer; job title; job description; their assessment of the strengths of a Geography qualification, and; their future prospects.

I hope that these outlines will be of utility to secondary school teachers when outlining to students the vocational benefits of studying Geography.

Kevin M. Dunn

KATE DÜTTMER

(State Forests of NSW)

1999, Bachelor of Science - Applied Physical Geography.

Thesis topic:

- Variability in soil chemical properties across a revegetated saline site, Central Western New South Wales

Employer:

- State Forests of NSW, Forest Research and Development Division.

Job title:

- Technical Officer (Scientific).

Job description:

- field sampling (often remote locations) and laboratory work, the collection, processing and analysis of plant and soil samples, manage data files relating to experimental work, assist with literature searches, organise workshops and collaborative meetings.
- technical support to experimental research projects in forest carbon dynamics (part of the Greenhouse Accounting project).

Strengths of a Geography degree:

- broad, holistic nature of geography develops expertise over a range of disciplines (soil science, ecology, technically-based disciplines such as GIS and remote sensing).
- the practical approach (field trips, lab classes), applying theory to real, in-the-field problems (as well as being fun!).
- studies and field work in a range of environments (from agricultural land in central western NSW, to coastal areas, to the arid zone of NSW).
- emphasis on being able to develop a project and write a professional report.
- emphasis on working both individually and in a team environment.

Future prospects:

- postgraduate studies through State Forests, or possibly one of the groups involved in Greenhouse Accounting (eg., ANU, CSIRO & BRS). My aim is to get as much experience as possible in a number of different aspects of the environmental field.

BRONWYN LIN

(Environmental Resources Management Australia P/L)

2000, Bachelor of Science - Applied Geography, Human & Physical Resources.

Thesis topic:

- An Intergenerational Study of Australians of South Chinese Origin

Employer:

- Environmental Resources Management Australia (ERM).

Job title:

- Social Researcher.

Job description:

- site investigations and report writing for Social Impact Assessments for EIS and SEE, research for town planning and tourism studies, and community consultation.
- assist in preparing reports associated with various pieces of environmental legislation and local government policies, often in relation to Land and Environment Court cases.
- monitoring for potential jobs through newspaper tenders.

Strengths of a Geography degree:

- flexible and adaptable program at the University of New South Wales.
- diverse range of subjects.
- combination of practical fieldwork and theoretical components.
- individual guidance provided and teamwork encouraged.
- excellent preparation for future career choices.

Future prospects:

- having developed my skills, in an environmental consultancy and in the private sector, I see myself as being in a good position to be able to specialise. I would also like to gain experience and knowledge through travelling which I plan to do over the next 5-10 years.

CLARE HENNESSY

(BIS Shrapnel P/L)

1998, Bachelor of Science - Applied Economic Geography

Thesis topic:

- The relationship between crime and police visibility in the Sydney metropolitan area

Employer:

- BIS Shrapnel Pty Ltd, Building and Construction Services.

Job title:

- Research Assistant.
- Four of the 15 people who work in BIS Shrapnel, Building & Construction Services, are graduates from the Applied Geography program at The University of New South Wales (UNSW).

Job description:

- forecasting the value and volume of building activity, produce reports on the building & construction industry for the Asia-Pacific region.
- specific tasks include: maintaining databases, research on new projects, client inquiries, preparing tables, charts and slides for reports and presentations, writing-up analyses, Cdata and mapping.

Strengths of a Geography degree:

- Geography graduates have excellent analytical skills. Geography develops critical thinking, examination and reasoning. The Applied Geography program (UNSW) teaches how to research and derive conclusions from a range of sources.
- Geography graduates can write! Writing skills in conjunction with analytical skills are attractive assets to employers.
- a good mix of vocational preparation and theory. The emphasis on practical applications and particularly computing skills.

Future prospects:

- advance within BIS Shrapnel. Be more involved in forecasting (model building). Forecasting is a transferable skill across industries. The main area that I would like to get more involved in is the Asia-Pacific division of Building & Construction within BIS Shrapnel, a growing area of our business.

DUNCAN RINTOUL

(Wesley Mission)

2000, Bachelor of Science - Applied Economic Geography

Thesis topic:

- The Geography of Stroke Mortality in NSW, 1975 to 1994

Employer:

- The Wesley Mission.

Job title:

- Rouse Hill Strategic Community Development Planner.

Job description:

- my job is all about SOCIALLY Sustainable Urban Fringe Development.
- identify gaps in human services provision in the region (both current gaps and shortfalls that are likely to occur in the future). Armed with this knowledge, my task is to approach the bodies responsible for providing the relevant service and advocate that the gap be filled in an appropriate matter.

- Strengths of a Geography degree:
  - field trips - practical experience.
  - information technology - training in use of common software eg SPSS, MapInfo.
  - content and structure - the Applied Geography program (UNSW) is flexible enough to allow students to chase their passions, but is structured enough to not leave students floundering.

Future prospects:

- I am currently studying a Master of Policy Studies at UNSW (2 yrs part time) to support my work and broaden my knowledge. There is a reasonable chance that the research and analysis from my job will be written up as a PhD, possibly through the "Urban Frontiers" Program at University of Western Sydney Macarthur.

SUZANNAH ROBERTS

(Ove Arup Partners)

1998, Bachelor of Science - Applied Economic Geography

Thesis topic:

- The Social Construction of Cabramatta

Employer:

- Ove Arup & Partners.

Job title:

- Transportation Planner.

Job description:

- Study Manager in the development of Pedestrian Access and Mobility Plans (PAMPS) for Local Government. PAMPs are a relatively new RTA planning initiative to encourage more walking. PAMPs planning involves establishing key networks of pedestrian travel using community consultation, accident and land use mapping and analysis.
- pedestrian networks are audited to provide a safer and more accessible pedestrian environment.
- secondment to ORTA (the Olympic Roads and Transport Authority): establishing likely changes in movement of public transport users during the Olympic period.

Strengths of a Geography degree:

- the subjects studied provide a good mix of the theoretical and the practical. The field trips in particular provide a great opportunity to put your knowledge into practice.
- allows you to develop sound research and analytical skills.
- the ability to easily write reports.
- The Applied Geography course (UNSW) is well structured offering a good balance of subjects across the spectrum of geography. This provides you with a variety of job opportunities, in fields directly related to geography, but also in other areas.

Future prospects:

- I am pursuing a position in the environmental division of our Melbourne office. My employer, Ove Arup & Partners, are very keen for all staff to gain substantive experience in an overseas office. I will most likely be in the UK for five years, however they do have offices throughout the world.

ROLAND IRWIN

(Pearson Education)

2000, Bachelor of Science - Applied Economic Geography

Thesis topic:

- The Geographic Structure of Day Trips to the Hunter Region

Employer:

- Pearson Education Australia.

Job title:

- Academic Editorial Co-ordinator.

Job description:

- qualitative and quantitative market research for new product / market development, produce reports.
- design and development of written and oral market surveys to gain increased product/market knowledge.
- analyse, collate and interpret reviewer's responses.
- special research projects as required.

Strengths of a Geography degree:

- broad based and growing field of study.
- relevant and applicable concepts and practices.
- field trips provide practical knowledge.

Future prospects:

- building on the concepts and practices that were learnt at UNSW I see myself sharpening my skills in the understanding of market segmentation and applying that to a corporation in the web design industry.