

FIG's Contribution to Institutional and Organisational Development

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SUMMARY

A key component of capacity building is ensuring that a country's organisations are sufficiently robust to develop, enable and ensure the effective operation of surveying and land administration activities. The relevant organisations include the professional surveying associations (the FIG member associations), the private surveying companies, as well as the government agencies such as the mapping organisations and the organisations with land registration and land administration responsibilities.

This paper provides a conceptual understanding covering the area of institutional and organisational development, and outlines some of the key tools and techniques to be used in the institutional reform process. This process will normally include four steps: Where are we now (assessment of the current situation and needs); Where do we want to be (design of vision and mission); How do we get there (strategies and actions); How do we stay there (sustainability).

The paper sets out the draft workplan of an FIG Task Force that is bringing together expertise to support countries in this area of institutional and organisational development. The Task Force will create support mechanisms and material for countries and organisations attempting to develop the necessary capabilities and capacity. This will include: assessing needs, producing guidance material; facilitating direct support mechanisms; running workshops; and advising the FIG Council on necessary actions. As the Task Force is at the early stages of its work, this paper uses much of the paper presented by the authors to the FIG Congress in Munich in October 2006 (Enemark and Greenway, 2006), supplementing it with elements from the draft terms of reference for the Task Force.

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1. INTRODUCTION

Land administration systems are concerned with the social, legal, economic and technical framework within which land managers and administrators must operate (UNECE, 1996). These systems support efficient land markets and are, at the same time, concerned with the administration of land as a natural resource to ensure its sustainable development. However, in many developing and transition countries, there is a lack of institutional and organisational capacity to undertake land administration action activities in an adequate and sustainable way.

Given the pivotal role of secure ownership of and access to land in underpinning economic development, it is vital that appropriate, sustainable structures are in place at national, organisational and individual levels. Capacity building and development are therefore required to ensure this in many countries. This paper focuses on the organisational level, but cannot ignore the national and individual levels. Section 2 of the paper therefore explains the developing understanding of capacity building; section 3 reviews the importance of surveying and land administration functions; section 4 explains in more detail institutional and organisational development, and provides an example of successful work in the organisational development of a national survey and mapping organisation; section 5 outlines the proposed work of an FIG task force in this area; and, finally, section 6 presents some final remarks. As the Task Force is at the early stages of its work, this paper uses much of the paper presented by the authors to the FIG Congress in Munich in October 2006 (Enemark and Greenway, 2006), supplementing it with elements from the draft terms of reference for the Task Force.

2. CAPACITY BUILDING

2.1 What is it?

The term capacity building is relatively new, emerging in the 1980s. It has many different meanings and interpretations depending upon who uses it and in what context. It is generally accepted that capacity building as a concept is closely related to education, training and human resource development (HRD). However, this conventional understanding has changed over recent years towards a broader and more holistic view, covering social, organisational and educational aspects.

UNDP (1998) offers this basic definition: “*Capacity can be defined as the ability of individuals and organizations or organizational units to perform functions effectively, efficiently and sustainably.*” Capacity is seen as two dimensional: capacity assessment and capacity development.

Capacity Assessment or diagnosis is an essential basis for the formulation of coherent strategies for capacity development. This is a structured and analytical process whereby the various dimensions of capacity are assessed within a broader systems context, as well as being evaluated for specific entities and individuals within the system. Capacity assessment may be carried out in relation to donor projects e.g. in land administration, or it may be carried out as an in-country activity of self-assessment.

Capacity Development is a concept that is broader than HRD since it includes an emphasis on the overall system, environment and context within which individuals, organisations and societies operate and interact. Even if the focus of concern is on a specific capacity of an organization to perform a particular function, there must nevertheless always be a consideration of the overall policy environment and the coherence of specific actions with macro-level conditions. Capacity development does not, of course, imply that there is no capacity in existence; it also includes retaining and strengthening existing capacities of people and organisations to perform their tasks. The more complete definition offered by the UNDP and also the OECD for capacity development is:

“... the process by which individuals, groups, organisations, institutions and societies increase their abilities to: perform core functions, solve problems, and define and achieve objectives; and to understand and deal with their development needs in a broader context and in a sustainable manner.”

Capacity development in society can, in this regard, be addressed at three levels as outlined by UNDP and summarised in (Enemark and Williamson, 2004):

- *The societal level:* The dimensions of capacity at a societal level may include areas such as policies, legal/regulatory framework, management and accountability perspectives, and the resources available.
- *The organisational level:* At this level, successful approaches to capacity building include the role of the entity within the system, and the interaction with other entities, stakeholders, and clients. The dimensions of capacity may include areas such as mission and strategy, culture and competencies, processes, institutional infrastructures, ITC, and professional institutions.
- *The individual level:* This level addresses the need for individuals and groups of people to function efficiently and effectively within the entity and within the broader system. The dimensions of capacity should include the design of educational and training programmes and courses to meet the identified gaps within the skills base and to provide the appropriate number of qualified staff to operate the systems.

Strategies for capacity assessment and development can be focused on any level, but it is crucial that strategies are formulated on a basis of a sound analysis of all relevant dimensions. Often capacity issues are first addressed at the organisational level. Organisational capacity – such as the capacity of the national cadastral agency, a private surveying company, or the cadastral infrastructure and processes – is influenced by not only the internal structures and

procedures, but also by the collective capabilities of the staff on the one hand and a number of external factors on the other. Such external factors may be political, economic or cultural issues that may constrain or support performance, efficiency, and legitimacy as well as the whole level of awareness of the values of land administration systems. By taking this approach, capacity measures can be addressed in a more comprehensive societal context.

Capacity development takes place not just in individuals, but also between them, in the institutions and the network they create – through what has been termed the “social capital” that holds societies together and sets the terms of these relationships. Most technical cooperation projects, however, stop at the individual skills and institution building – they do not consider the societal level (UNDP, 2002).

It should also be noted that capacity building is not a linear process. Whatever the entry point is and whatever the issue currently in focus is, there may be a need to zoom in or out in order to look at the conditions and consequences at the upper or lower level(s). Capacity building should be seen as a comprehensive methodology aimed at providing a sustainable outcome through assessing and addressing a whole range of relevant issues and their interrelationships.

2.2 Lessons Learned

Arguably, many donor projects in land administration over the last decade have a rather narrow focus on access to land and security of land tenure. The focus has been on doing the project, including mapping, adjudication, and registration, and on developing the necessary capacity for managing the processes within system. The focus has not usually been on the wider land administration infrastructure or land policy issues. Institutional issues have been addressed mainly as a response to this more narrow perspective.

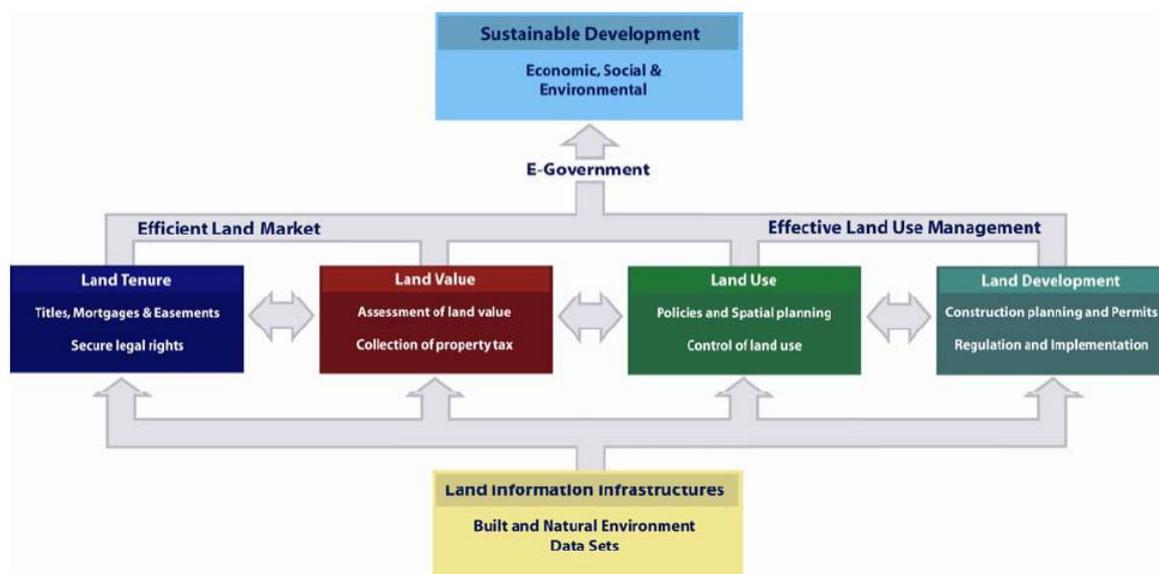
Many projects have therefore failed to meet the more overall objective of building a sustainable national land administration infrastructure. To a large extent this is because of the complexity in addressing national land administration issues. This is not a criticism of these projects since the economic driver has a high priority in developing countries and that it is only in recent years that the capacity building aspects have developed into a more overall methodology. To address these problems, there is a need to establish an equal partnership between doing the project and building the capacity to sustain the project. The key lesson learned is:

Where a donor project is established to create land administration infrastructures in developing or transition countries, it is critical that capacity building is a mainstream component that is addressed up front, not as an add-on.

Capacity development is arguably one of the central development challenges of today, as much of the rest of social and economic progress will depend on it.

3. THE FIELD OF SURVEYING AND LAND ADMINISTRATION

Land administration is part of the infrastructure that supports good land management. The term Land Administration refers to the processes of recording and disseminating information about the ownership, value and use of land and its associated resources. Such processes include the determination of property rights and other attributes of the land that relate to its value and use, the survey and general description of these, their detailed documentation and the provision of relevant information in support of land markets. Land administration is concerned with four principal and interdependent commodities – the tenure, value, use, and development of the land – within the overall context of land resource management.



A Global Land Administration Perspective (Enemark, 2004)

The day to day operation and management of the four land administration elements includes national agencies, regional and local authorities, as well as the private sector in terms of e.g. surveying and mapping companies. The functions include:

- the allocation and security of rights in lands; the geodetic surveys and topographic mapping; the legal surveys to determine parcel boundaries; the transfer of property or use from one party to another through sale or lease;
- the assessment of the value of land and properties; the gathering of revenues through taxation;
- the control of land use through adoption of planning policies and land use regulations at national, regional and local levels;
- the building of new physical infrastructure; the implementation of construction planning and change of land use through planning permission and granting of permits.

The importance of capacity development in surveying and land administration at the organisational level was usefully quantified in Great Britain (OXERA, 1999) by research that found that approximately £100 billion of Great Britain's GDP (12.5% of total national GDP, and one thousand times the turnover of OSGB) relied on the activity of the Ordnance Survey of Great Britain. Less exhaustive studies in other European countries have pointed to similar figures. The importance of geographic information continues to grow, with a range of SDI initiatives at local, national, regional and global level, so there is reason to believe that the figures would be increased rather than reduced if the GB study were to be repeated today. With these very significant numbers, as well as the central importance of sound land management, the importance of solid, sustainable organisations in the field of surveying and land administration is clear.

4. INSTITUTIONAL AND ORGANISATIONAL DEVELOPMENT

4.1 What is it?

Institutional and organisational development is about capacity development at the organisational level. Such development measures cannot, however, ignore the societal and individual levels.

More specifically, for the purposes of this paper, institutional development relates to the enhancement of the capacity of national surveying and mapping agencies and private organisations to perform their key functions effectively, efficiently and sustainably. This requires clear, stable remits for the organisations being provided by government and other stakeholders; these remits being enshrined in appropriate legislation or regulation; and appropriate mechanisms for dealing with shortcomings in fulfilling the remits (due to individual or organisational failure). Putting these elements in place requires agreement between a wide range of stakeholders, in both the public and private sectors, and is a non-trivial task.

Organisational development relates to the enhancement of organisational structures and responsibilities, and the interaction with other entities, stakeholders, and clients, to meet the agreed remits. This requires adequate, suitable resourcing (in staffing and cash terms); a clear and appropriate organisational focus (to meet the agreed remit of the organisation); and suitable mechanisms to turn the focus into delivery in practice (these mechanisms including organisational structures, definition of individual roles, and instructions for completing the various activities).

One useful and succinct model for putting in place suitable measures to enable and underpin organisational success is that developed by the UK Public Services Productivity Panel (HMT, 2000). This recognises five key elements which need to be in place:



A Performance Management Model (HMT, 2000)

- *Aspirations* – to stretch and motivate the organisation
- *A coherent set of performance measures and targets* – to translate the aspiration into a set of specific metrics against which performance and progress can be measured
- *Ownership and accountability* – to ensure that individuals who are best placed to ensure delivery of targets have real ownership for doing so
- *Rigorous performance review* – to ensure that continuously improving performance is being delivered in line with expectations
- *Reinforcement* – to motivate individuals to deliver the targeted performance.

Of course, defining and implementing the detail in any one of the above items is a significant task, and all must be in place if the organisation is to succeed. By putting the appropriate mechanisms and measures in place, and continuously challenging and improving them, organisations can ensure that they effectively turn inputs into outputs and, more importantly, the required outcomes (certainty of land tenure etc).

All organisations need continuously to develop and improve if they are to meet, and continue to meet, the needs of their customers and stakeholders. In the land administration field, there are many examples of under-resourced organisations unable to respond effectively to stakeholder requirements, thereby leading to a lack of access to official surveys and land titling (leading to unofficial mechanisms being used, or a total breakdown in efficient land titling). There is a need to provide appropriate assistance to enable the necessary capacity to be built and sustained by such organisations (once the need for such capacity has been accepted by the funding bodies), given the key role of their operations in underpinning

national development. A range of methods exist, including releasing internal resources for this work (if suitable resources exist), or external support.

4.2 Lessons Learned – Case Study Swaziland

An example of the successful development of sustainable capacity is work in recent years in Swaziland (Mhlanga and Greenway, 1999). Prior to 1995, the UK Government had provided long-term support for Swaziland's Surveyor General's Department (SGD). The retirement of the expatriate then holding the position of Deputy Surveyor General created the opportunity for exploring other mechanisms for developing sustainable organisational capacity. The UK Government agreed to fund a series of short-term consultancy inputs, to supplement the ongoing work of two expatriate technical cooperation officers. The series of visits (approximately 12 in all, involving more than 10 different consultants but with continuity provided through an overall lead consultant) made good progress, and allowed the Department to feel confident, in 1999, that it could continue its work without the need for expatriate input. The consultancy visits worked in a large number of areas (the ability to provide input from a range of consultants in this regard being a strength over longer-term inputs). The work and outputs included:

- *A thorough review of the strengths, weaknesses and external impacts on the SGD, including interviews with a wide range of staff and other stakeholders (including senior officials, private sector surveyors and customers). From this review, a number of work packages were agreed, and progressed (with periodic review and revision of priorities) over the following four years.*
- *The creation of a clear vision, mission and aims for the SGD, to provide a clear focus for its work. This was shared with all staff in the SGD through a series of workshops and briefings. A key element in the work was the marking, by senior managers, of the Department's performance in 1995 against each of the aims, providing a powerful means of focusing required effort on improvement, alongside consolidating areas of good performance.*
- *Creation of a business plan for the Department, to ensure progress towards the vision and aims.*
- *Fundamental restructuring of the Department, with a change of managerial hierarchy, the deletion of old positions and the creation of a range of new positions. The new structure supported career progression as well as effective delivery of the outputs required. Alongside this, policies for staff development and retention were developed and implemented. The development of these, and all of the other changes, were through interactive workshops, so that the senior Swazi staff of the Department felt strong ownership of the results, and could effectively argue for them in discussions with the central civil service and with SGD staff.*
- *The creation of revised policies to guide SGD work – these included policies on survey control, map revision, map specification, and marketing (including pricing).*
- *The implementation of clear performance measures.*
- *Support for the completion of the cadastral database, and the implementation of digital map revision systems.*

The work in Swaziland reflected the breadth of organisational development set out in the model described in the previous section. Key lessons learned from the work were that long-term consultancy input can easily become counter-productive, with the individuals drawn into line management roles, leading to limited transfer of skills and therefore not providing sustainable capacity development. In contrast, short-term visits require local managers to focus on completion of agreed actions between visits. Another key lesson was that management confidence, as well as competence, is crucial to success – and that building such confidence is therefore a necessary element in successful projects. In addition, a clear progression from vision to aims to objectives is essential for success.

This case study provides confidence that appropriate efforts can build, in a sustainable way, the required capacity, in this case with limited local and external resources being available.

5. THE ROLE OF FIG

5.1 General Roles

FIG can facilitate and support capacity development in three main ways (Enemark, 2005):

- **Professional development**

FIG provides a global forum for discussion and exchange of experiences and new developments between member countries and between individual professionals in the broad areas of surveying and mapping, spatial information management, and land management. This relates to the FIG Working Weeks, FIG Regional Conferences, and the work of the ten technical commissions within their working groups and commission seminars. This global forum offers opportunities to take part in the development of many aspects of surveying practice and the various disciplines including ethics, standards, education and training, and a whole range of professional areas.

- **Institutional development**

FIG provides institutional support to individual member countries or regions with regard to developing the basic capacity in terms of educational programmes and professional organisations. The educational basis must include programmes at minimum Bachelor level that include the combination of Surveying and Mapping, Spatial Information Management, and Land Management. Such programs combine the land administration/cadastral/land registration function with the topographic mapping function within a holistic land management perspective. The professional organisations must include the basic mechanisms for professional development including standards, ethics and professional code of conduct for serving the clients.

- **Global development**

FIG also provides a global forum for institutional development through cooperation with international NGOs such as the United Nations Agencies (UNDP, UNEP, FAO, HABITAT), the World Bank, and sister organisations (GSDI, IAG, ICA, IHO and ISPRS). The cooperation includes a whole range of activities such as joint projects (e.g. The Bathurst Declaration, The Aguascalientes Statement), and joint policy making e.g. through round tables. This should lead to joint efforts of addressing topical issues on the international political agenda, such as reduction of poverty and enforcement of sustainable development.

The three means of development are, of course, interrelated and interdependent. Professional development at national level requires that both a professional organisation and an adequate educational basis are in place. Institutional development in terms of mature public agencies and policies requires a solid professional and educational base in order to establish a holistic and sustainable approach to land management based on principles of good governance and an adequate balance between the activities of the public and private sector. And global development requires the action of mature NGOs with a strong political and professional base.

5.2 The work of the FIG Task Force on Institutional and Organisational Development

FIG has already, as alluded to in this paper, completed a range of work impacting organisational and institutional development. This includes publications on constituting professional associations (FIG, 1998), as well as work on land administration, including the Bathurst Declaration (FIG, 1995).

More, however, is needed if stable and progressive institutions and organisations are going to deliver robust, sustainable surveying and land administrations throughout the world. FIG is well-placed to play a key role in this work, given that it brings together leading professionals from every continent. The challenge for FIG is to focus its efforts to best effect, building support mechanisms at individual and organisational levels. Enemark and Greenway (2006) considered the challenge and proposed an FIG Task Force in this area, a proposal which has subsequently been adopted by the FIG Council. The remainder of this section outlines the draft workplan for the Task Force.

The key questions that the Task Force will need to address, for each type of organisation (professional survey associations, private sector firms, public sector bodies) include:

- Where are the key barriers to effectively functioning institutions and organisations? (These blockages could be financial, skills-based, structural,...)
- Who are the key influencers who can help to remove the barriers?
- What key materials are needed to remove the barriers?
- Which types of organisation are most affected and therefore most in need of the Task Force's early attention?

From analysis of the answers to these questions, the Task Force will be able to develop and refine its work programme, including the most appropriate types of outputs. These outputs will be developed to meet the needs identified by the Task Force, and to dovetail with other related work. Without prejudging the development of the work programme, possible activities and outputs include:

- Running workshops to assist managers to determine the key challenges in the development of their organisations to meet national needs, and to give them the tools and confidence to respond to those challenges;
- Creating best practice guides on, for instance: implementing organisational development; managing technical change; sourcing funding for investment; and effectively creating networks across and between relevant organisations;
- Making links between those who are willing and able to travel to developing countries to support their organisations in their development activity, the developing country's organisations, and possible sources of funding.

The Task Force will bring together a number of key individuals, supported by links within and beyond FIG, to give a focus to the key task of institutional and organisational development to allow the effective management and administration of land. The Task Force will therefore deliver, by 2010, key components in the 2007-2010 FIG theme of 'Building the Capacity'.

FIG has a wide range of links on which the Task Force could usefully draw. Additional linkages will be provided through members of the Task Force. Links are likely to include:

- World Bank – coordinating with FIG's efforts to build closer links with the World Bank, and recognising that a key requirement of many of the Bank's projects is for there to be stable and sustainable institutions;
- UN Agencies – FIG has strong links with many UN Agencies, and their work will also be supported by the presence of strong institutions in developing countries. They may therefore be able and willing to provide a range of support to the Task Force;
- GSDI Association – the Association has discussed the issue of organisational and institutional development in recent meetings, and has agreed (at its Chile meeting in November 2006) to develop a portal which will include a knowledge database, a commitment database and an equipment database. The best links between the GSDI and FIG work will need to be discussed and agreed;
- EuroGeographics – this is the association of European National Mapping and Cadastral Agencies. They may be willing to offer support, in expertise or possibly financially, to support the building of strong peer organisations, particularly in Eastern Europe and some parts of Asia;
- Cambridge Conference – this quadrennial event began in 1928 as the Empire Survey Officers' Conference. It has over the decades evolved into a conference of heads of national mapping agencies, brought together at St John's College, Cambridge. It therefore provides a very appropriate gathering at which to highlight the work of the Task Force, and to test its developing work;

- International Hydrographic Organisation (IHO) – the Organisation has a worldwide remit and therefore contributes significantly in the development of national hydrographic organisations. FIG and IHO have a joint International Advisory Board, along with ICA;

Internally, the Task Force can gain by working with FIG's Commissions, particularly:

- Commission 1 (management and ethics are part of its portfolio)
- Commission 2 (provision of the necessary professional training and support)
- Commission 3 (national mapping agencies form one of the cores of the commission)
- Commission 4 (hydrographic agencies are relevant to the work of the Task Force)
- Commission 7 (cadastral agencies are a vital underpinning to much of the commission's work) – including the proposed Working Group 7.2 to consider the creation of an FIG humanitarian arm, Surveyors without Frontiers
- Commission 8 (spatial planning organisations are relevant to the work of the Commission).

6. FINAL REMARKS

The objective of this paper has been to encourage an overall understanding of the Capacity Building Concept and its relevance for institutional and organisational development in the areas of surveying and land administration. The paper initially sets out a conceptual framework recognising that capacity building comprises capacity assessment and capacity development. It is accepted that the capacity building concept is complex and has different interpretations. But even if the concept may be unclear to many, it is recognised that capacity building for organisational and institutional development is crucial in the area of surveying and land administration, and especially in the context of developing countries. Such measures and principles are, however, also relevant for enhancing the performance of national agencies and private companies in the more developed regions of the world.

It is argued that institutional and organisational development in surveying and land management can be modelled through a focused approach that constitutes good strategic management in terms of capacity assessment, capacity development, and sustainability. Finally, the paper argues that FIG has a key role to play in this regard in general, and outlines the draft workplan of an FIG Task Force in this vital area.

REFERENCES

- Enemark, S. and Williamson, I., 2004, Capacity Building in Land Administration – A Conceptual Approach. *Survey Review*, Vol. 37, No 294, pp 639-650.
- Enemark, S., 2004, Building Land Information Policies. Proceedings of UN/FIG Special Forum on Building Land Information Policies in the Americas. Aguascalientes, Mexico, 26-27 Oct. 2004, 20pp.
http://www.fig.net/pub/mexico/papers_eng/ts2_enemark_eng.pdf.
- Enemark, S., 2005, Supporting Capacity Development for Sustainable Land Administration Infrastructures. Proceedings of the eighth United Nations Regional Cartographic Conference for the Americas (UNRCCA), UN Headquarters, New York, 27 June – 1

July 2005.

http://www.fig.net/news/news_2005/unrcca_2005/enemark_new_york_2005.pdf

- Enemark, S. and Greenway, I., Promoting Institutional and Organisational Development in Surveying and Land Administration. Proceedings of the XXIII FIG Congress, Munich, October 2006. Available from www.fig.net
- FIG, 1995, Land Tenure, Land Management and Land Information Systems: report of FIG, FAO and UNCHS round table meetings ('The Bathurst Declaration'). FIG Publication Number 13, available from www.fig.net
- FIG, 1998, Constituting Professional Associations. FIG Publication Number 16, available from www.fig.net
- HMT, 2000, Public Services Productivity: Meeting the Challenge. Available from http://www.hm-treasury.gov.uk/Documents/Public_Spending_and_Services/Public_Services_Productivity_Panel/psp_psp_studies.cfm?
- Mhlanga, A. and Greenway, I., 1999, Recent experiences in developing Swaziland's Surveyor General's Department. Survey Review, Volume 35, No 274, pp 231-242.
- OXERA (Oxford Economic Research Associates Ltd), 1999, The economic contribution of Ordnance Survey GB. Report available at <http://www.ordnancesurvey.co.uk/>
- UNDP, 1998, Capacity Assessment and Development. Technical Advisory Paper No. 3. <http://magnet.undp.org/Docs/cap/CAPTECH3.htm>
- UNDP, 2002, Capacity for Development – New Solutions to Old Problems. New York.
- UNECE, 1996, Land Administration Guidelines. UNECE, Geneva.

BIOGRAPHICAL NOTES

Stig Enemark is the current President of FIG (2007-10). He was Vice President 2005-2006, Chairman of the Task Force on Mutual Recognition of Professional Qualifications 1998-2002, and Chairman of FIG Commission 2 (Professional Education) 1994-98. He is an Honorary Member of FIG (since 1999). He was President of the Danish Association of Chartered Surveyors (DdL) 2003-2006 and Vice-President 1994-2003.

Stig is Professor in Land Management and Problem Based Learning at Aalborg University, Denmark, where he was Head of School of Surveying and Planning 1991-2005. He holds a masters of science in surveying, planning and land management and he obtained his license for cadastral surveying in 1970, working for ten years as a consultant surveyor in private practice. His teaching and research are concerned with land administration systems, land management and spatial planning, and related educational and capacity building activities. Another research area is within Problem Based Learning and the interaction between education, research and professional practice.

He has undertaken consultancies for the World Bank and the European Union especially in Eastern Europe and Sub Saharan Africa. He has about 250 publications to his credit, and he has presented invited papers to more than 60 international conferences.

Iain Greenway is Chief Executive of the Ordnance Survey of Northern Ireland. He holds an M.A. in Engineering from Cambridge University, an M.Sc. in Land Survey from University College London and an MBA from Cranfield University (including study at Macquarie University, Australia). Between 2000 and 2006, Iain was General Manager (Operations & Mapping) of Ordnance Survey Ireland, responsible for management of the operations and mapping technology of the organisation as it underwent profound changes in status, structure, processes and culture. In 1999-2000 he worked in Her Majesty's Treasury in the Secretariat to the Public Services Productivity Panel (PSPP).

Between 1986 and 1999 he worked for the Ordnance Survey of Great Britain. His positions during those years included geodetic and topographic survey, strategic planning and pricing, sales and marketing, as well as a number of management consultancy inputs in Swaziland and Lesotho and technical consultancies supporting land reform in Eastern Europe. Iain is a Chartered Surveyor (MRICS), a Fellow of the Irish Institution of Surveyors (FIS) and a member of the Chartered Institute of Marketing (MCIM). Between 1998 and 2006 he was the head of the RICS delegation to the International Federation of Surveyors (FIG), and Chair of the FIG Standards Network. He is also a member of the Management and Editorial Boards of the journal Survey Review. He has published a range of articles and papers on geodetic surveys, business and management practices, sales and marketing, and standardisation.

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