ARABIAN CADASTRES STANDARDS AND PRACTICES

Abstract: It is very difficult to determine ‘best practice’ in cadastral systems in the Arab world. There appears to be very little literature on Arabian cadastres, standards and practices, published in English and available online.

This paper describes an attempt to collect cadastral information using the International Federation of Surveyors Cadastral Template from the countries that make up the United Nations Economic and Social Commission for Western Asia (UN-ESCWA) region. Bahrain was the only country to complete the template. These results are briefly presented.

The paper considers the role of professional organisations with respect to capacity development with particular reference to the Royal Institution of Chartered Surveyors and suggests that the annual Forum on Land Administration established by the Permanent Committee on GIS Infrastructure for Asia and the Pacific is the model that should be followed for the UN-ESCWA region. Countries of the region are urged to form national professional organisations and complete the Cadastral Template as the first steps towards a regional forum.

INTRODUCTION
Returning to Abu Dhabi in 2008 to contribute to the implementation of cadastral and spatial information systems, the author cast around to determine ‘best practice’ to emulate. It was very difficult to find out what practice was working well in neighbouring countries and if they were facing similar difficulties. There appears to be very little literature on Arabian cadastres, standards and practices, published in English and available online.

To rectify this situation and in preparation for the Middle East Spatial Technology 2009 Conference, Bahrain (MEST09), the author sought to collect generic information about cadastral and land administration systems in the region. This paper describes the attempt to collect the information and briefly presents the results. The paper then considers the role of professional organisations with particular reference to the Royal Institution of Chartered
Surveyors (RICS) and ponders suitable land administration forums for the region, current and future.

Time and resource constraints made it necessary to better define the target region. After rejecting The Cooperation Council For The Arab States of The Gulf (GCC) as too restrictive and the ‘Arabian Peninsula’ as too ambiguous, the United Nations Economic and Social Commission for Western Asia (UN-ESCWA) region, was chosen. This includes the following fourteen countries (UN-ESCWA, 2009):

- Bahrain
- Jordan
- Oman
- Saudi Arabia
- United Arab Emirates
- Egypt
- Kuwait
- Palestine
- Sudan
- Yemen
- Iraq
- Lebanon
- Qatar
- Syria

Reflecting the absence of a federal approach to the cadastre, the United Arab Emirates (UAE) was further broken down into the seven Emirates:

- Abu Dhabi
- Fujairah
- Umm al-Quwain
- Ajman
- Ras Al Khaimah
- Sharjah
- Dubai

Various activities have already been conducted to collect data and information about land administration and cadastral systems such as those undertaken by FIG and the United Nations Economic Commission for Europe (UN-ECE), for example the Working Party on Land Administration (UNECE, 2009). A list of more of these activities may be found in Steudler, et al., (2004). Of these activities, none of them have specifically focussed on the Arab world or the UN-ESCWA region and only the cadastral template (FIG, et al., 2009) has focussed on the cultural and technical nature of cadastres.

Partly because of time and resource constraints, but also because of the wider relevance, the ready-made cadastral template was chosen to try and collect the information. The cadastral template was jointly developed by the International Federation of Surveyors (FIG), the Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP), and the Centre for SDIs and Land Administration at the University of Melbourne. The Arab world is very under represented in the cadastral template project. Since initiation of the cadastral template in 2003, Jordan is the only country of the UN-ESCWA region that has featured.

THE CADAstral TEMPLATE PROJECT
The cadastral template is a worldwide comparison of cadastral systems, endorsed by the UN. Cadastral country reports are compiled based upon a
template jointly developed by FIG, PCGIAP, and the Centre for SDIs and Land Administration. All of the completed country templates as well as some comparison and analysis may be found on the dedicated website http://www.cadastraltemplate.org.

In a paper presented during the FIG Working Week 2004 in Athens, Steudler, et al., (2004) described the cadastral template as:

basically a standard form to be filled out by cadastral organizations presenting their national cadastral system. The aims are to understand the role that a cadastre plays in a state or national SDI and to compare best practice as a basis for improving cadastres as a key component of SDIs

This fits well within the current role of FIG summarised by Enemark (2009) as an UN recognized NGO representing the surveying profession in about 100 countries of the world. Enemark drew attention to three ways that FIG facilitates support of capacity development in the areas of surveying and land administration:

- **Professional development**: FIG provides a global forum for discussion and exchange of experiences and new developments between member countries and between individual professionals
- **Institutional development**: FIG supports building the capacity of national mapping and cadastral agencies, national surveying associations and survey companies. FIG also provides support to individual member countries or regions with regard to developing basic capacity in terms of educational programs and professional organizations
- **Global development**: FIG provides a global forum through cooperation with other international NGO’s such as United Nations Agencies, the World Bank, and sister organizations such as the Global Spatial Data Infrastructure (GSDI) and the International Association of Geodesy (IAG)

PCGIAP was established following Resolution 16 of the 13th United Nations Regional Cartographic Conference for Asia and the Pacific (UNRCC-AP) in Beijing 1994. The aims of the PCGIAP (Rajabifard, et al., 2006) are to:

Maximize the economic, social and environmental benefits of geographic information in accordance with Agenda 21 by providing a forum for nations from Asia and the Pacific

**GATHERING THE COMPLETED TEMPLATES**

After seeking and receiving permission from FIG to use the cadastral template, the author attempted to collect completed standard templates. Due to time and other resource constraints, total reliance was placed on email
contact. The objective was to seek correspondents from appropriate authorities in each country through whatever channels became available.

The first source of contacts chosen was from information on the FIG website http://www.fig.net/comm/natdel7.htm. Member associations, national delegates and correspondents to Commission 7 (Cadastre & Land Management) of FIG, and academic institutions listed, were sent email messages. When this was unsuccessful, attempts were made to contact delegates to other FIG Commissions and the FIG 7 Commission Open Forum was contacted directly to seek any updates to contact information.

Apart from the Open Forum, most of the messages received no reply or were returned as undeliverable so instead the author then tried contacting authors of related papers from recent proceedings such as Middle East Spatial Technology 2006. This also yielded few useful replies.

In parallel with these efforts, several consultants working in land administration in the region were contacted, as well as using broadcast email to the RICS database of surveyors in the relevant countries. This drew several good leads but no substantial results to date.

Inevitably, many of the persons contacted through a bona fide email address were either too busy to reply or did not see the relevance of the exercise. Most professionals that were contacted and did reply, surprisingly were not aware of the cadastral template.

With more time, it may have been possible to yield more results through telephone and/or personal contact. In this part of the world, personal contact is especially important and the only completed template received, from Bahrain, was through a former colleague of the author. The response described here is not unusual. Steudler (2008) noted that after the initial workshop in 2003, it became very hard to get country information.

From this attempt to gather completed templates, emerged the notion that FIG or Commission 7 of FIG, may not be effectively facilitating support for capacity development as aspired to and described earlier in this paper and that it may be an ineffective forum for land administration in the UN-ESCWA region.

FIG has been involved in sharing land registration experiences in the region through, for example, the conference Land Registration in the Arab World, held in Jordan 2005. Jointly organised by Fig Commission 7 and the Jordanian Department of Lands and Survey, the conference called for (Anon, 2005):

intensification of co-operation among concerned Arab bodies

FIG also co-sponsored the First International Symposium of the Arab Union of Surveyors in Beirut June 2009 although proceedings are not available online. Given this recent activity, it is difficult to understand why most of the
representatives to FIG from this region appear to be inactive, judged by out of
date contact information on the FIG website and/or returned email messages.

The UN has also taken some steps towards developing a local forum. At the
Cairo Conference organised by UN-ESCWA, UN-HABITAT, the League of
Arab States and hosted by the Egyptian Government (UN-HABITAT, 2005), it
was declared that UN-HABITAT would be the

focal point at this stage to coordinate and organise a forum on
land ownership in Islamic law which is eventually to be run by
Arab partners

These efforts at developing a forum have probably met with limited success
partly because institutional development is lacking in the individual countries.
As well as FIG, RICS, and the Arab Union of Surveyors, various other
organisations were encountered while trying to gather completed templates
including:

- Bahrain Society of Engineers
- Egyptian Committee of Surveying and Mapping
- Institution of Surveyors of United Arab Emirates
- Jordan Licensed Surveyors Association
- Lebanese Order of Surveyors
- Licensed Surveyors Association in Palestine
- Order of Syrian Engineers and Architects
- Chartered Institution of Civil Engineering Surveyors

This list is not exhaustive and some of the organisations may be extinct.
Those that remain may prove key to nurturing contacts necessary to progress
further.

RESULTS
Analysis of the results of the cadastral template information is conducted
through the development of performance indicators that help assess how well
the cadastral systems are working in key areas as follows (Rajabifard, et al.,
2006):

Indicator 1: Registration Systems
Indicator 2: Parcels vs. Populations
Indicator 3: Strata Units
Indicator 4: Percentage of Parcels Registered
Indicator 5: Professionals – Surveyors and Lawyers
Indicator 6: Professionals – Surveyors vs. Lawyers
Indicator 7: Cadastral Reform Issues and Current Initiatives

Bahrain was the only country to return a completed template and hence it is
not possible to carry out any kind of regional analysis but it may be useful to
make a preliminary comparison with the other existing completed templates, and in particular, Jordan’s existing completed template. Bahrain’s completed template is not yet available on the cadastral template website pending Ministerial approval.

The population of Bahrain is given as just over 1 million with the entire population described as urban. Jordan has a population of about 5 million with more than 25% described as rural. The only other country described as 100% urban is Macau although Brunei, Hong Kong and Israel all have populations described with less than 10% rural. Hong Kong and Israel both have much larger populations than Bahrain at 6.7 million and 7 million respectively. Brunei has a population of 0.4 million with perhaps the only comparable population sizes being Cyprus at 0.8 million and Fiji at 0.8 million.

Rajabifard, et al., (2006) shows that a title registration system is used in over two thirds of the countries that had completed the template at that time and Bahrain adds to this majority. Jordan also uses title registration. All of the properties are already registered in Bahrain while in Jordan 95% of urban areas and 90% of rural areas, are registered. In Jordan registration is compulsory and the register is being both systematically and sporadically compiled.

When the total number of parcels are adjusted as the number of parcels per one million population, this gives a figure of 172,131 for Bahrain which is very similar to Jordan’s 172,000 and might be compared with Brunei at 172,700, Fiji at 118,600 and Israel at 114,300.

Similarly the total number of strata units adjusted as the number of strata units per one million population is 2,681 for Bahrain which is far smaller than Jordan’s 64,000 but might be compared with the Philippines at 2,700 and Tanzania at 1,400.

The total number of professional land surveyors adjusted as full-time professionals per one million population for Bahrain is 36.1 and for Jordan is a similar 35.8.

Cadastral issues noted by Bahrain were delays in standard transactions (survey and land registration), shortage of qualified and experienced practitioners, and conversion to a fully numeric cadastre.

Among the current initiatives listed by Bahrain were to introduce a regulatory regime for private sector surveyors and the transition of the Cadastral Survey Directorate from survey service provider to regulatory and audit authority for surveys by the private sector.

Although a completed template has not yet been submitted from Abu Dhabi, it is expected that issues might include appropriate strata, community and volumetric title legislation; a new national grid based on WGS84 Spheroid; an
effective addressing system; and regulation of private sector surveyors. Jordan also included as cadastral issues, the raising of the level and number of qualified staff as well as raising the level of licensed surveyors.

From this very small sample, capacity development appears to be a common theme and perhaps FIG could be more effective in supporting the immediate needs of professional and institutional development but real change must come from the professionals themselves. It is incumbent on professionals to get together and form or rejuvenate national professional organisations such as those listed earlier in this paper. Professionals could also join an organisation with a more global reach that complements the work of FIG, such as the RICS. Given sustainable critical mass of members, RICS national associations could be formed in many of the countries that make up the UN-ESCWA region along the lines of RICS UAE.

ROYAL INSTITUTION OF CHARTERED SURVEYORS
The Royal Institution of Chartered Surveyors (RICS) covers all aspects of property, construction and associated environmental issues. RICS has around 100,000 qualified members and over 50,000 students and trainees in more than 140 countries. RICS is an independent, not-for-profit organization acting in the public interest: setting and regulating standards of competence and integrity among its members; and providing impartial, authoritative advice on key issues for business, society and governments worldwide.

RICS was founded in London in 1868, and granted a Royal Charter by Queen Victoria in 1881. The Charter requires the Institution to:

- to maintain and promote the usefulness of the profession for the public advantage

This commitment to act in the interests of society in everything that it does continues to be its guiding principle (RICS, 2009a).

RICS is continuing to develop a global operating structure with headquarters in London, United Kingdom. World business units now cover the following RICS regions:

- Europe (excluding United Kingdom)
- United Kingdom
- Asia
- Middle East, Near East and Africa (MENEA)
- Americas
- Oceania

Bahrain and the UN-ESCWA region fall in the RICS MENEA region with administrative offices in Dubai, UAE.
RICS is a very broad institution divided into 17 professional groups. The Geomatics professional group includes the activities of land surveying, hydrographic surveying, land administration, and geographical information systems etc. with a worldwide membership of over 3300 members.

Membership of RICS may be achieved through a variety of routes and pathways, often through graduate or technical entry and a period of assessed training (RICS, 2009b). Increasingly membership is achieved through the senior professional route that recognises that individuals working at a senior level within the industry, with substantial work experience, may already have the expertise and seniority to join RICS without the need to undertake a period of further training (RICS, 2009c).

Output from the Geomatics professional group includes client guides such as *Scale – once its digital isn’t everything full size* and *Map projection scale factor – a useful guide from RICS on how to understand and avoid the potential dangers of scale factor*. Guidance notes include the recently updated *Boundaries – procedures for boundary identification, demarcation and dispute resolution in England and Wales*.

Through an active official UK delegation to FIG, RICS Geomatics holds a number of commission chairmanships and a vice presidency. RICS can provide the link between professional and institutional development of a traditional professional organisation, and truly global development through other forums.

**LAND ADMINISTRATION REGIONAL FORUM**

The trend around the world is for geospatial professionals in different countries, to work more closely with each other. In Europe, for example, the Infrastructure for Spatial Information in Europe (INSPIRE) strives to ensure that the spatial data infrastructures of the twenty seven member states of the European Union, are compatible (INSPIRE, 2009). Similarly, EuroGeographics is the representative body for European national mapping, land registry and cadastral agencies (EuroGeographics, 2009a). Perhaps more relevant to this paper is the development of a Code of Conduct for European Surveyors (Plimmer, 2009) and the collaboration between EuroGeographics, the European Council of Geodetic Surveyors (CLGE) and Geometer Europas (GE). The common report they produced about the requirements of national mapping and cadastral agencies concludes (EuroGeographics, 2009b):

> more needs to be done at both national and European level to improve the consistency of qualification and licensing and to lay down the minimum requirements for professional indemnity insurance and continuing professional development and lifelong learning
The activities of PCGIAP may have more resonance in the ESCWA region. Some member countries expressed a desire for a dedicated mechanism for sharing experiences about land administration in the Asia and Pacific region in a similar way to that in Europe under the UNECE Working Party on Land Administration (WPLA) i.e. through an annual land administration forum (Williamson, 2009). The idea gained momentum until the third land administration forum under the auspices of PCGIAP was held in Tehran, Iran May 2009.

At the 18th United Nations Regional Cartographic Conference for Asia and the Pacific in Bangkok in October 2009, the resolutions included the recommendation that PCGIAP formalise and maintain its annual Forum on Land Administration in Asia and the Pacific (UN, 2009), to:

- address common needs, problems, experiences and best practices in the field including education and training aspects, scientific and technological requirements, implementation issues and benefits

There are many more examples of increased cooperation between professionals and between nations as increasingly markets cross international boundaries. Many of the countries in the UN-ESCWA region are at the point of re-engineering their cadastres. As mentioned above, at least in Jordan and Cairo 2005 and most recently in Beirut 2009, there have been initiatives aimed at improving cooperation but progress appears to be slow and barely sustained. Countries should not expect to go through every stage of development that many countries around the world have. They should learn from the experiences of others and leapfrog them.

Establishing a group similar to PCGIAP and organising an annual land administration forum might be a good medium-term goal.

**FINAL REMARKS**

There are now 42 completed templates on the cadastral template website, the last one being posted in September 2009 after a gap of almost 2 years with no activity. Steudler (2008) concluded, partially based on web access statistics, that there was still interest to view the information (an average of 90 hits per day in 2008) although maintenance is a problem. He reported that in 2006 a request for updates resulted in only one update out of 39 countries. This is particularly relevant when comparing Bahrain's contribution in 2009 with Jordan's dated 2003.
As Rajabifard, et al., (2006) point out:

Effective land administration systems within the context of a spatial data infrastructure (SDI) are becoming ever more important as issues relating to land use and land ownership become a larger part of everyday decision-making

This importance means that professionals should continue to gather information that can be used for (Rajabifard, et al., 2006):

- comparing and assessing land administration and cadastral systems worldwide, in order to help countries re-engineer and implement their systems to address future needs

It makes little sense to develop cadastres in the UN-ESCWA region in isolation at a time when cadastres in much of the rest of the world are converging. If UN-ESCWA states develop their cadastres and registers cooperatively they could create a sophisticated market where purchasers could buy efficiently and with confidence anywhere in the region as well as help realise the wider benefits of SDIs.

The UN-ESCWA region should aspire to an annual Forum on Land Administration along the lines of PCGIAP but first it is necessary for professionals to form local institutions, organise meetings, adopt life long learning, and cultivate contacts made at conferences such as MEST09. Professionals should demand more of their delegates to FIG.

FIG should raise the prominence of the cadastral template project and perhaps one of the UN-ESCWA countries would volunteer to translate the template into Arabic. Professionals should urge their national mapping, land registry and cadastral agencies to take the time to complete or update the cadastral template for their country.

REFERENCES


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