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System Infrastructure for Asia and the Pacific**

REPORT OF THE WORKING GROUP 3: CADASTRE

**Submitted by the Permanent Committee on Geographical Information
System Infrastructure for Asia and the Pacific (PCGIAP)
Working Group 3: Land Management^{*}**

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Permanent Committee on GIS Infrastructure for Asia and the Pacific

Working Group 3

Land Administration

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MEETING**

Bangkok, THAILAND

26-30 October 2009

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REPORT FOR WORKING GROUP 3: Land Administration

Working Group 3 (WG3) was originally the 'Cadastre' working group (until 2006 when re-named WG3 on Spatially Enabled Government). WG3 was renamed "**Land Administration**" in 2008 with a mandate to consider land administration issues, spatially enabling government and their joint role in supporting sustainable development. This was the result of a resolution during the 14th PCGIAP meeting in Malaysia (due to the desire by WG3 members for WG3 to focus more broadly on land administration issues in the Asia and the Pacific region). However there is a desire to change the name back to "Spatially enabled government (SEG)" and to include "land administration" one of two themes in the working group with SEG being the other.

WG3 is responsible for exploring technical, institutional and policy issues regarding the contribution of spatial data infrastructures (SDI) in designing, building and managing large scale, spatial, people relevant datasets, and in particular their role in cadastral, land administration and marine administration systems, and spatially enabling government.

WG3 has been very active over the last three years (2006-2009). It had a successful period for its activities as summarised below:

- Successfully completed a major project on multi-sourced data integration (data integration project), initiated and contributed to a new project (spatially enabled government) and also initiated an annual land administration forum,
- Successfully maintained momentum and interest in marine administration through dedicated web site and ongoing research
- Successfully organised three successful international workshop and seminars,
- Established three dedicated website for the projects,
- Instituted a successful and widely disseminated publication strategy.

Key activities undertaken since 17th UNRCC-AP Conference 2006 in Bangkok, Thailand

WG3 has undertaken the following major activities over the last three years as part of its 2006-2009 workplan and particularly in response to Resolution 4 (SDI to support spatially enabled Government) of the 17th UNRCC-AP, Bangkok, Thailand.

1. Sharing of land administration experiences in the Asia and Pacific Region

PCGIAP has made significant achievements since its inception in 1995. It has provided a focus for spatial data infrastructure initiatives across Asia and the Pacific region and for sharing experiences about designing, building and managing regional SDIs.

The national mapping agencies in member states have shown leadership in these initiatives, suited to the evolving nature of SDIs with their traditional focus on small scale national initiatives. However, several members of PCGIAP have expressed a desire to have a better mechanism for sharing experiences about not only mapping and SDIs but also in land administration in the region in a similar manner to the European system under the UNECE Working Party on Land Administration (WPLA). While PCGIAP actively supported sharing of experiences through its previous Working Group 3 (Cadastre), countries such as Mongolia view this as insufficient. These countries seek a more focused and institutionalised arrangement, desirably under a UN mandate.

This situation presents an opportunity for PCGIAP to widen its mandate, to continue to remain fully relevant to member countries and to assist national governments to seize opportunities created by the newest spatial technologies that increasingly integrate all spatial, geocoded information. This initiative would also strengthen PCGIAP and ensure a stronger attendance at meetings. It has been suggested, that unless it broadens its scope to include land administration activities (and all core land information), PCGIAP risks encouraging countries, by necessity to create a parallel organisation responsible for national large scale land information as an integral component of a national SDI. Duplication would inevitably weaken PCGIAP over time as the authoritative manager of spatial information in the region.

As a result of this, there was a recommendation as part of a White Paper titled "*A vision for PCGIAP in a spatially enabled world*" presented at the PCGIAP meeting in Korea 13-15 June, 2007 that PCGIAP explore possibilities and structures to ensure that national mapping and geographic information agencies as well as cadastral and land administration agencies are represented for each country in the Asia and Pacific region. This would mean that countries where the national mapping and land administration/cadastral activities are combined (such as Malaysia, Cambodia, Laos, Singapore, Mongolia, Fiji, New Zealand, Fiji, etc) would normally be represented by one person even though they may wish to have two representatives representing each broad area of national mapping and land administration. Where the functions are split between two agencies then two representatives would attend PCGIAP.

PCGIAP technical sessions could typically have two parallel sessions, one for national mapping and NSDI initiatives and one for land administration matters. There would also be plenary sessions to integrate activities in support of the common vision of spatially enabling governments and society. The organisational model would provide an innovative approach to functional and seamless treatment of land information, and assist countries in the region to position themselves for world leadership in take up of new technologies and delivery of government services that depend on a fully integrated approach to managing spatial information.

In response to this, at the PCGIAP meeting in Korea, the PCGIAP discussed the proposal by Mongolian member regarding the need to establish a better mechanism to discuss and share land administration experiences in the Asia and Pacific region. While welcoming discussion on this matter and appreciating the need for better mechanisms to share land administration experiences in the region, the initial response from the PCGIAP members at the meeting was that more time is needed to discuss the matter and that it is important for PCGIAP to maintain a dialogue with member countries on this issue.

Further, in the short term PCGIAP asked Professor Ian Williamson, Chair of PCGIAP WG3 to represent PCGIAP at the Roundtable in Mongolia to discuss this issue on Friday 29 June, 2007. The Roundtable was part of the Mongolia Workshop on “Good Land Administration – Its role in Economic Development”. Professor Williamson advised the Roundtable that PCGIAP was pleased to consider all suggestions and recommendations that arise from this Roundtable at its PCGIAP Board Meeting in Canberra, Australia in April, 2008.

PCGIAP Board Meeting in Canberra considered all suggestions and recommendations The from the Roundtable and welcomed the dialogue on this matter and agreed to facilitate a special seminar which was held in Malaysia on “**Land administration issues in the Asia and Pacific Region**” as part of the 14th PCGIAP meeting in August 2008. Details of the Seminar can be found below.

The Seminar was Chaired by Prof Ian Williamson and co-chaired by Associate Professor Abbas Rajabifard. The seminar was conducted successfully, and over 150 people from 30 countries and 5 international organizations attended the seminar. Options and implications arising from this seminar were considered and supported by PCGIAP and all parties agreed a new arrangement could be presented for consideration to the next United Nations Regional Cartographic Conference for Asia and the Pacific scheduled for Oct. 2009.

Also, as a result of the WG3 land administration seminar in Malaysia, PCGIAP supported - through a resolution, the objective of an annual land administration forum and related activities focusing on land administration issues, challenges and implementation in the Asia and Pacific region and WG3 to facilitate the annual land administration forum and any other related activities and liaise with the respective agencies in the Asia and Pacific region in the pursuit of this objective. In implementation of this objective and under the authority of PCGIAP, the 3rd Land Administration Forum (***Re-Engineering the Cadastre to Support E-Government***) was successfully conducted in Tehran in May 24-26 as the continuation of the forum series. Over 410 people from 15 countries and 4 international organisations attended the forum.



5.1 International Workshop in GOOD LAND ADMINISTRATION, Ulaanbaatar, Mongolia

As a result of the discussion on sharing experiences in land administration in Asia and the Pacific, the Mongolian Government through the Administration of Land Affairs, Geodesy and Cartography of Mongolia (ALAGaC) and the support and close cooperation from PCGIAP, has proposed to organise two activities i) International workshop “Good Land Administration – Its Role in Economic Development and ii) PCGIAP round table on the need for better mechanisms for sharing land administration policies, strategies, related technologies and experiences in the Asian and Pacific region, in Ulaanbaatar, Mongolia. This was excellent meeting point of officials, academics, non-governmental organizations’ and private sector representatives working in the land administration sector in Asia and Europe. The workshop was co-organized and co-sponsored by international organizations such as Swede survey – overseas agency of the National Land Survey of Sweden, Asian Development Bank, UNDP Mongolia, Open Society Forum, GTZ – German Technical Assistance, FIG – International Federation of Surveyors, UNECE WPLA – Working Party on Land Administration, GSDI – Global Spatial Data Infrastructure and Eurogeographics.

A key aim of the workshop was to establish a land administration sector network and a mechanism to share experiences in cadastre, land administration and related SDI initiatives between Asia and the Pacific and European countries. The Workshop discussed the establishment of a working party on land administration or similar within the Asia and the Pacific countries desirably under a UN umbrella to ensure that the land administration and SDI areas are well linked and coordinated.

130 participants from around 20 countries have discussed and presented on the following three themes: i) Good Governance – Good Land Administration, ii) Putting land into economic process and iii) Land Information System in place, what next?

As a result of the workshop a Mongolian Declaration on Land Administration to support Sustainable Development was adopted. In particular to integrate spatial and SDI aspects with land related activities. This declaration recommended that the land

5.2 PCGIAP Round Table Meeting

A roundtable discussion on the need for better mechanisms for sharing land administration policies, strategies, related technologies and experiences in the Asian and Pacific region was coordinated by PCGIAP on 29 June 2007 as part of the workshop in Ulaanbaatar, Mongolia.

The Roundtable discussion included representatives from PCGIAP member countries (Australia, Mongolia, Indonesia, Thailand, Laos and Korea) as well as the Chair of the UN ECE Working Party on Land Administration (representing cadastre, land registry, valuation and related land agencies from the 52 UNECE countries), the Executive Director of Eurogeographics (an association representing geographic information, mapping and cadastre organizations in Europe), the President of the Global Spatial Data Infrastructure Association and Professor Peter Dale, Honorary President of FIG.

Professor Ian Williamson, Chair of PCGIAP WG3, represented the President of PCGIAP and chaired the Roundtable on behalf of PCGIAP.

Professor Williamson presented the PCGIAP White Paper on the need for improved sharing on land administration experiences in the region as well as the PCGIAP response endorsed by PCGIAP at its meeting in Korea. He presented a summary of the activities of PCGIAP in the cadastral and land administration areas undertaken by WG3 since 2000. He also made a presentation on the relationship between land administration and national spatial data infrastructures, and their role in supporting sustainable development. These opening presentations were followed by presentations from the Chair of UNECE WPLA and the Executive Director of Eurogeographics on lessons and successful European mechanisms to share land administration experiences that have evolved since the mid 1990s. The common message from these presentations was the importance of representing national geographic information activities, mapping, cadastre and land registry organizations in the one regional administrative structure that reports to the UN.

As a result of the round table meeting the participants have agreed that it is very important to have one regional administrative structure representing national geographic information activities, mapping, cadastre and land registry organizations and that reports to the UN. It is proposed that PCGIAP shall take the initiative and start discussions with the member countries of PCGIAP and relevant international organizations. The outcome of the round table is summarized in the Report to PCGIAP on the outcomes from the Roundtable discussion on the exchange of land administration experiences in the Asia and Pacific region.

As a result of the Round Table discussions, the meeting agreed to the outcomes and recommendations to PCGIAP including:

- Establish an annual Meeting on Land Administration in the Asia and Pacific (MOLAAP) region.
- The recommended objectives of MOLAAP are to:
 - a. Build the land administration network for Asia and the Pacific region
 - b. Share experiences and best practice in Land Administration in support of sustainable development
 - c. Raise the profile of land administration systems in government and wider society, i.e. promote the important role of land administration to national governments, the general public and international development organizations
 - d. Promote a holistic view of managing land and land related information that draws on geographic information, mapping, spatial data infrastructure, cadastre, land registration and other land related activities.

2. International Seminar on Land Administration Trends and Issues in Asia-Pacific, 19-20 August 2008, Malaysia

Following the 13th PCGIAP meeting in Korea, and endorsed by the Roundtable in Mongolia, PCGIAP through its WG3 had agreed to facilitate a two-day international seminar on “Land administration trends and issues in the Asia and Pacific Region” at the 14th PCGIAP meeting

in 19-20 of August 2008 in Malaysia to discuss land administration issues and possibility of establishing an annual forum under the UN in the Asia and Pacific region.

The organization of this Seminar had the support from the Food and Agriculture Organization of the United Nations (hereinafter referred to as "FAO"), the International Federation of Surveyors (FIG), the Global Spatial Data Infrastructure Association (GSDI), the Malaysian Government, Coordinates professional magazine (as media partner) and the Centre for Spatial Data Infrastructures and Land Administration, University of Melbourne.

The Seminar was designed as part of the 14th PCGIAP meeting and was coordinated by WG3 with close collaboration of FAO and was actively supported by the Centre for SDIs and Land Administration, the University of Melbourne. FAO has contributed financially to facilitate the Seminar by assisting selected presenters from different jurisdictions and PCGIAP countries. The Seminar was Chaired by Prof Ian Williamson and co-chaired by Associate Professor Abbas Rajabifard.

Over 150 people from 30 countries and 5 international organisations attended the seminar. The objectives of the seminar were:

- To share land administration experiences in the Asia and Pacific region with a focus on access to land and security of tenure, the role of land administration in supporting sustainable development, the promotion of effective land markets, poverty reduction, protection of vulnerable groups, e-land administration, land registration, cadastral surveying and mapping.
- To discuss the objectives and focus proposed by the Mongolian Round Table with a view to preparing a firm proposal to go to the appropriate UN agencies as well as the PCGIAP. It is planned to have a firm proposal and resolution to be put before the UN Cartographic Conference for Asia and the Pacific in Bangkok in 2009.

The seminar was the result of a desire by many countries in the Asia and the Pacific region to have a forum to discuss and share land administration issues, best practice and experiences in a similar manner to the Working Party on Land Administration (WPLA) for European countries organized by the UN Economic Commission for Europe (UNECE).

The focus of the seminar was developed both by the PCGIAP and a successful international workshop organized by the Mongolian Government titled "Good land administration – its role in economic development", that was also supported by UNDP, UNECE (WPLA), GSDI Association, the International Federation of Surveyors, the Asian Development Bank, German Technical Assistance (GTZ), Eurogeographics and the National Land Survey of Sweden. The Round Table meeting held in Mongolia with the above agencies and a number of countries in the region developed a draft proposal for a regular meeting on Land Administration in the Asia and Pacific region.

As part of the seminar program, there were more than 20 presentations including invited presentations from FAO - Land Tenure Service and UNECE – WPLA and also selected countries from Asia-Pacific that presented. The seminar was conducted in six sessions including an opening session, three invited speaker sessions and a special session on data integration. Each session and presentation followed with a panel discussion. The countries presented were Australia, Cambodia, Fiji, Iran, Laos, Malaysia, Mongolia, New Zealand, Philippines, South Korea, Thailand and Vietnam.

The speakers were selected based on their understanding of the issues and trends relating to Land Administration in their jurisdiction. They were asked to address the key challenges or issues facing the development of their cadastre or land administration system.

Seminar Outcomes

The final session of the seminar and a follow-up meeting were used to discuss and finalise seminar outcomes, resolutions and the report to the PCGIAP. In summary, the following items are feedback from the Seminar:

- Mongolia, Iran, Cambodia, Fiji (on behalf of Pacific Island nations), Australia, Philippines and India expressed strong support from senior land administration officials for the concept of an annual land administration forum
- Iran offered to host the next land administration forum in 2009 in May (prior to 18th UNRCC-AP Conference in Bangkok in October 2009).
- Australia speaking for FIG 2010 has offered to host a Pacific forum and an Asia and Pacific land administration forum as part of the congress in 2010.
- Australia through Western Australia offered to co-host a WALIS Forum with PCGIAP or host a land administration forum.
- Land Administration meetings or forums must be demand driven (provides value and helps solve problems), must pursue cost sharing, focus on specific problems or be thematic.
- Be committed to long term. Building a community takes time. Must be sustainable.
- Be opportunistic and look for individual funding opportunities
- Collaboration not competition.
- A forum must be linked to the UN in some way.

From the issues and challenges presented by speakers and feedback from the Seminar to support the establishment of an annual forum in Asia-Pacific region, the seminar discussed and agreed on the following three resolutions and further agreed to forward these to the PCGIAP meeting for consideration. Following are the resolutions as modified and agreed during the PCGIAP plenary on the 22nd August, 2008 that were agreed to be put to the UNRCC for Asia and the Pacific in Bangkok in October, 2009.

Resolutions

1. Rename WG3 “Land Administration” with a mandate to consider land administration (land policy, land registration, cadastre, land markets) issues, spatially enabling government and their joint role in supporting sustainable development in the context of SDI.
2. PCGIAP supports an annual land administration forum and related activities focusing on land administration issues, challenges and implementation in the Asia and Pacific region.
3. WG3 will facilitate the annual land administration forum and any other related activities and will liaise with the respective agencies in the Asia and Pacific region through WG3 in the pursuit of this objective

Further information about the Seminar (background documents, aims and objectives, seminar outcomes, etc.) and other related materials can be found at the dedicated seminar website http://www.geom.unimelb.edu.au/research/SDI_research/Integrated/

or through the PCGIAP-WG3 web page (www.pcgiap.org).

3. 3rd Land Administration Forum for the Asia and Pacific Region – “Re-Engineering the Cadastre to Support e-Government”, 24-26 May 2009, Tehran, Iran

As part of the WG3 activities, PCGIAP together with Islamic Republic of Iran’s Deeds and Properties Registration Organization, the International Federation of Surveyors (FIG), the Global Spatial Data Infrastructure Association (GSDI) and the Centre for Spatial Data Infrastructures and Land Administration, University of Melbourne, are organized a three days Forum in Tehran to discuss land administration issues and the role of cadastre to support e-government in the Asia and Pacific region. The Forum was Chaired by Prof Ian Williamson and co-chaired by Associate Professor Abbas Rajabifard.

Over 410 people from 15 countries and 4 international organisations attended the forum. The objectives of the forum in Tehran were:

- To discuss the role of cadastre to support e-Government strategies
- To share land administration experiences in the Asia and Pacific region with a focus on re-engineering cadastre to support e-government
- To discuss wide ranging land administration issues including access to land and security of tenure, the role of land administration in supporting sustainable development, the promotion of effective land markets, poverty reduction, protection of vulnerable groups, e-land administration, land registration, cadastral surveying and mapping etc.
- To continue discussion on the need for an ongoing land administration forum in the Asia and the Pacific region that was commenced at the Mongolian and Malaysian forums with a view to preparing a proposal and resolution to be put before the UN Cartographic Conference for Asia and the Pacific in Bangkok 26-29 October, 2009.

This initiative was the result of a Resolution passed by the 14th PCGIAP meeting in Malaysia in 2008 and a desire by many countries in the Asia and the Pacific region to have a forum to discuss and share land administration issues, best practice and experiences, in a similar manner to the Working Party on Land Administration (WPLA) for European countries, organized by the UN Economic Commission for Europe (UNECE).

The focus of the forum was developed both by the PCGIAP and the 2nd Land Administration Forum for Asia and the Pacific hosted by the Malaysian Government in 2008. It was also influenced by the first Land Administration Forum organized by the Mongolian Government in 2007 that was also supported by UNDP, UNECE (WPLA), GSDI Association, FIG, the Asian Development Bank, German Technical Assistance (GTZ), Eurogeographics and the National Land Survey of Sweden.

As part of the program, there were more than 20 presentations including invited presentations from FIG, GSDI and Eurogeographic, Europe and also selected countries from Asia-Pacific that presented. The forum was conducted in seven sessions including an opening session, five invited speaker sessions and each session and presentation was

followed with a discussion. The countries presented were Australia, Bahrain, Brunei, China, Denmark, India, Iran, Laos, Malaysia, Mongolia, Pakistan, Singapore, Switzerland, The Netherlands, UAE (Full report is in Attachment 1).

The speakers were selected based on their expertise on land administration and cadastre as well as understanding of the issues and trends relating to Land Administration in their jurisdiction. They were asked to address the key role of their cadastre in their e-government program or any progress in that regard. Also to address challenges or issues facing the development of their cadastre or land administration system.

Forum Outcomes

The final session of the forum was used to discuss and finalise forum outcomes, resolutions and the report to the PCGIAP. In summary, the following is feedback from the Forum.

The 3rd Land Administration Forum acknowledges the warm welcome from the Head of the Judiciary Honorable Ayatollah Hashemi Shahrodi and noted his message to the Forum to consider issues and strategies that may be useful to Asia-Pacific member nations to improve their cadastre, land registration and related land administration and SDI activities. In response to this message the Forum has developed and endorsed the **Tehran Declaration** (Attachment 2) on Land Administration to Support Sustainable Land Markets and e-Government, and hopes that the declaration will be useful to improving the land administration systems in the region and contributing to a better quality of life for society.

Resolutions

Resolutions to be taken to PCGIAP to support a resolution to the United Nations Cartographic Conference for Asia and the Pacific, October, 2009.

The 3rd Land Administration Forum in Tehran 24-26 May 2009 resolved

- to support the resolution of the 14th PCGIAP to have an annual forum to discuss land administration issues, best practise and experiences in the Asia and the Pacific region.
- to propose that process re-engineering as part of an ICT strategy directed at land administration, cadastre and SDI and spatial enabled government and society be included in any strategies to improve land administration systems and also in the future workplan of PCGIAP-WG3 and land administration forums.

Also, the Forum Expressed Gratitude to the Host Government

Expresses its sincere gratitude to the Government of Islamic Republic of Iran, the Deeds and Properties Registration Organisation, Tehran Municipality for the kind hospitality and gracious support extended to all participants at the 3rd Land Administration Forum, held in Tehran.

Further information about the Forum (background documents, aims and objectives, seminar outcomes, etc.) and other related materials can be found at the dedicated forum website:

<http://www.csdila.unimelb.edu.au/projects/tehran/index.html>

All of the outcomes of the Forum are available on this website

4. Integration of Built and Natural environmental datasets within National SDI Initiatives

One of the major initiatives of WG3 over the last three years was work on the project of the "Integration of Built (cadastral) and Natural (topographic) environmental datasets within National SDI initiatives. Sustainable development, assisting informative spatial decision making and meeting "the triple bottom line" (economic, social and environmental objectives) requires an understanding of the natural and built environments and the relationship between them in order to observe and monitor change and to create realistic simulations of the changing environment.

This initiative highlights the importance and significance of the integration of various built and natural environmental spatial datasets through the creation of a framework and model for integration, which can be utilized in diverse jurisdictions to support sustainable development (Figure 1). This is done through an understanding of the technical, jurisdictional, institutional, legal and land policy perspective surrounding built and natural environmental datasets, within the context of a National SDI.

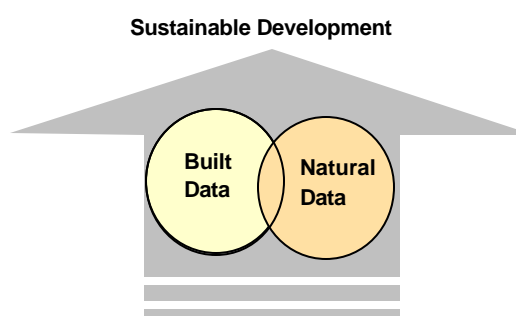


Figure 1: Integration of datasets to facilitate sustainable development

The work on this project began in July 2005 through an overview of the history and application of these two datasets as well as the overall relations within the context of National SDI initiatives. The project finished in September 2008. The project achieved its four main aims which include:

- 1 Investigating the problems and issues in integrating data in National SDIs within Asia-Pacific case study countries.
- 2 Developing a framework mode and associated tools for the integration of built and natural environmental datasets at a national level, through the development of National SDIs.
- 3 Identifying the benefits of the integration framework model for developed and transitional countries in the Asia-Pacific region, with reference to case study countries.
- 4 Undertaking a publication strategy.

As a result of the three years research and contribution from different participants and organisations, the major work undertaken in this project includes:

- International Case Studies completed.
- Case Study of Australia (Victoria, New South Wales and Federal Government Agencies) completed.

- Organised an International Workshop on Data Integration as part of the 17th UNRCC-AP.
- Completed a Pilot study of Geo-web Service Integration.
- Developed a data integration framework.
- Developed of a web-based system using the data integration framework to facilitate data interoperability test and data integration.
- Completed a publication Strategy.

In general, the project capitalized on a number of case studies in the region involving a number of countries and states including Japan, Australia, Singapore, Brunei Darussalam, Malaysia, Philippines and two states of Victoria and NSW in Australia.

A successful workshop was held as part of the 17th UNRCC-AP in 2006, with integration reports and presentations from countries including Indonesia, Australia, Denmark, Japan, New Zealand and Malaysia. Analysis of the information stemming from the international case studies was used in the development of the data integration framework. The project team also collaborated and contributed to an investigation developments in Europe and North America relating to SDI maturity matrix and assessment models which supported the development of the data integration framework. This also contributed to the international case studies.

Issues and challenges of multi-source spatial data integration were investigated and highlighted in the case study jurisdictions which provided inputs for the definition of the necessary technical and non-technical tools for effective data integration. Spatial data integration guidelines, metadata requirements for spatial data integration, spatial data integration services and a integration data model have been identified as the major tools which were developed to contribute to the effective data integration.

The guidelines comprise a number of important items including the consideration of spatial data integration in custodianship agreements, agreement to provide consistent data across the nation and region, agreement of a single point of access, etc.

Two spatial data integration services were also developed as part of the project which evaluate datasets against integration measures including the compliancy of coordinate systems, restrictions, data content, jurisdiction, scale and accuracy to name a few.

One of the tools runs in the web environment. This tool is able to access and evaluate multi-sourced spatial data and metadata via the web. The second tool is a toolbar developed for ESRI ArcGIS which provides more capabilities and toolboxes in respect to the above functionality.

A number of publications were delivered in international journals and conferences. The publications focused on technical and non-technical aspects of spatial data integration.

The results of this project together with a demonstration of the web-based tool were presented to the PCGIAP as part of the WG3 international seminar on “Land administration trends and issues in the Asia and Pacific Region” as part of the 14th PCGIAP meeting in Malaysia during 19-20 August, 2008.

The results of this project was continuously monitored and results communicated among members of PCGIAP and presented through the PCGIAP meetings and in particular discussed within the WG3 meetings. Further information on the integration project can be found at the dedicated project website

http://www.geom.unimelb.edu.au/research/SDI_research/Integrated/ or through the PCGIAP-WG3 web page.

5. Spatially Enabled Government (2006-2008)

As a result of the needs of society and technological development, and in order to capitalise upon this development and to leverage off the achievements of WG3 over the six years period between 2000-2006, WG3 re-named in 2006 “Spatially enabled government” and focused on the development of spatially enabled government. A new vision and objectives for its future direction and its activities was undertaken, which focused on the concept of spatially enabling government. This includes work on:

- Concepts and principles of spatially enabled government
- Design requirements of spatially enabled government
- Issues associated in the development of spatially enabled government including: Institutional; Technical; Policy and Socio-economic
- Relationship between SDI and LA (Cadastre) to support spatially enabled government
- Capacity building for spatially enabled government.

6. International Workshop on “Spatial Enablement of Government and NSDI – Policy Implications”

As part of the WG3 workplan for 2007-09, an international workshop was conducted on the 12 June 2007 on the ‘*Spatial Enablement of Government and NSDI-Policy Implications*’. The workshop was conducted in Seoul, Republic of Korea as part of the 13th PCGIAP Annual Meeting and in collaboration with the GSDI Association. The workshop was actively supported by the Centre for Spatial Data Infrastructures and Land Administration, the University of Melbourne.

125 people from 13 countries and 2 international organisations attended the workshop.

The objective of the workshop was:

- To communicate and refine the draft PCGIAP WG3 workplan
- Commence dialogue in PCGIAP and better understand and describe spatial enablement of government
- Gather preliminary data and refine the understanding of data requirements for the PCGIAP WG3, task of facilitating spatial enablement of government; and
- Better understand and describe the legal and economic issues in the development and implementation of spatial data infrastructures (SDIs).

The workshop addressed the development of SDIs, including legal and economic issues at both a global and regional level. Countries including Australia, the Republic of Korea,

Malaysia, Singapore and Japan shared their experiences and knowledge of spatial enablement at the Workshop, with consensus on the need to develop a path to spatial enablement of government and society.

The workshop endorsed the concept of Spatially Enabled Government (SEG) as an important tool for governments to improve effectiveness, efficiency, better decision making, business processes, and policy implementation, nationally, regionally and globally. SEG facilitates the use of spatial information from a whole-of-government perspective by all of government and society, using place or location as a means of organizing activities. It builds on traditional uses of spatial information in mapping, positioning, asset management, visualization, web enablement, and GIS in supporting economic development and environmental management and extends it across the whole of government into non-traditional areas such as taxation, health, human services, census, education, immigration, sustainability accounting, security and emergency response, in a transparent and ubiquitous manner.

The Workshop also recognised SEG as an important part of countries' ICT, e-government and information sharing strategies, and a key activity that fosters innovation. It is an evolving concept that requires ongoing research and development by PCGIAP, the GSDI Association and member countries, in order to clarify and expand the principles and applications associated with a concept that involves policy, social, institutional, legal and technical dimensions. Most importantly however, SEG requires cooperation at all levels of government, from national to lower levels such as states, provinces, counties, municipalities.

The workshop also proposed several recommendations to PCGIAP in regards to the development of SEG. These recommendations were endorsed by PCGIAP in Korea. Due to the importance of the recommendations they will put to the next UNRCC-AP conference in 2009. The recommendations are:

1. PCGIAP and the GSDI Association re-endorse Resolution 4 of the 17th UNRCC-AP, Bangkok 2006 with regard to encouraging countries to explore the principles of spatially enabling government as they support the four dimensions of sustainable development: economic, environmental, social and governance.
2. PCGIAP endorses the outcomes of the PCGIAP Workshop on "Spatial Enablement of Government and NSDI-Policy Implications" conducted jointly by the Working Group 3 (Spatially Enabling Government) and GSDI Association on the 12 June 2007 as part of the 13th PCGIAP meeting, in Seoul, Korea.
3. PCGIAP and GSDI Association encourage closer collaboration between national mapping/GI organizations and large scale land administration/cadastral/land parcel organizations, as a key aspect in promoting the spatial enablement of government.

All of the outcomes of the workshop and full report are available on the PCGIAP-WG3 website.

7. Spatially Enabling Government Conference, Canberra, Australia

After the International workshop held in Korea, and due to the increased international and national importance being placed on Spatial Enablement, the Australian Government conducted a dedicated conference on Spatially Enabled Government (SEG) in Canberra in

August 2007. As part of the activities of PCGIAP-WG3 and in line with the objectives of WG3 on SEG, this conference was chaired by Prof Williamson, Chair of WG3 and was supported by the Centre for SDIs and Land Administration, the University of Melbourne.

The conference discussed the issues and challenges in creating a spatially enabled government and society. Major challenges and issues identified included:

Broader appeal; Institutional processes/institutional failure; Information policy; Research and education; Access issues; Standards; Seamless platform; Licensing; Risk management.

The drivers for spatial enablement were also discussed, with the focus of spatial information needing to be on users, and virtually all strategic decision in the use of spatial information being user driven with a business focus. While Australia leads in some aspects of spatial enablement, such as use of high integrity geocoded street addresses, it is behind leading international trends in creating an appropriate infrastructure for spatial enablement, and especially in promoting a single authoritative repository for each data set. Information policy, interoperability, access, licensing, standards, capacity and risk management all have unanswered themes.

The outcomes and the results of this conference were important input for the activity of WG3 in responding to the SEG strategy development for Asia and the Pacific.

8. GSDI Association and Conferences

The GSDI Association held its 10th International Conference for Spatial Data Infrastructure at the University of the West Indies (UWI) campus, St. Augustine, Port of Spain, Trinidad, from 25 to 29 February 2008. The conference was attended by more than 250 participants from across the globe and several international organisations. The theme of the conference was "Small Island Perspectives on Global Challenges.

The WG3-Vice Chair, Associate Professor Abbas Rajabifard participated and presented a report about WG3 activities and introduced PCGIAP to the GSDI community at the 10th GSDI Conference and also presented two scientific papers. He has also contributed to a joint scientific paper with Prof Bas Kok and Prof Ian Williamson on the Spatially Enabled Government (based on the outcomes of WG3-GSDI joint International Workshop spatially enabled government, conducted as part of the 13th PCGIAP meeting, in Korea in 2007).

The conference outlined the need for a more effective response to society needs and in particular coastal management, including the need for sharing and adopting good practical and feasible data integration and integrated coastal management programs. The conference brought together researchers, practitioners, educators, communities, industries, government and non-government groups with a strong emphasis on the development of national and regional strategies for integrated spatial data management. There was also a strong emphasis on building collaborative linkages between agencies, programs and professionals, a point which we believe PCGIAP can contribute to.

Action: PCGIAP Executive to note desire for stronger collaborative internationally.

8.1 President of the GSDI Association

PCGIAP-WG3 Vice Chair, Associate Professor Abbas Rajabifard has assumed his role as President of the Global Spatial Data Infrastructure Association (GSDI) at the recent GSDI 11 World Conference in Rotterdam in June this year. Associate Prof Rajabifard was elected President Elect of the GSDI Association at GSDI 10 International Conference and Board meeting in Trinidad in 2008. This is an important appointment for PCGIAP to develop stronger links with the international SDI community. Since the PCGIAP is the key regional forum engaged in SDI development, this also provides an opportunity for PCGIAP to become a full member of GSDI Association and a member of its Board in order to contribute more and stronger to the strategic direction of SDI development worldwide. This membership will be based on the in-kind contribution of PCGIAP Committee through its members.

Another key opportunity of this appointment is the joint PCGIAP/GSDI-12 conference which will be held in Singapore in October 2010 during Professor Rajabifard's presidency. As a result of this and the full support received from the PCGIAP-Executive Board meeting in Canberra, in April 2008, the 16th PCGIAP meeting will be conducted jointly with the GSDI 12 Conference in Asia-pacific region and Singapore will be host of this joint event. Based on this and as a result of the efforts and arrangements by the Singapore's delegation to PCGIAP, the Singapore government approved to host this joint event from 18-22nd Oct 2010 and the preparation of this joint event is well underway.

8.2 SDI Asia-Pacific Newsletter

Following the 10th GSDI conference, the Centre for SDIs and Land Administration at Melbourne University, Australia through the WG3-Vice Chair, has agreed to facilitate the production of SDI Asia Pacific Newsletter and to assist in establishing permanent arrangements for newsletter production.

The SDI Asia Pacific Newsletter had been produced only occasionally. As part of the effort to re-commence this publication, the Centre for SDIs and Land Administration conducted a brief assessment of the Newsletter focus and content. Based on this assessment, the Centre decided to focus the Newsletter on the core issue of SDI rather than trying to cover the extremely broad geospatial information sector. In addition to the type of content that has been published in the past, the Centre also wished to obtain information that describes and communicates aspects of SDI design and implementation in countries in the Asia Pacific region.

It is felt that much knowledge and practical experience of SDI is contained in publicly available project documents and that these resources represent an excellent source of practical information for colleagues who are involved in trying to develop SDIs. Examples of this type of materials are, requirements gathering reports, standards (metadata and others) that have been developed, details of national SDI governance arrangements and structures.

Newsletter information collection process

To-date, the newsletter has been put together using content collected through web surfing, plus unsolicited submissions by contributors. However, the Centre feels that this approach can be improved upon and are therefore pursuing the establishment of a proactive process for content collection. As the PCGIAP is the key regional forum engaged in SDI development, and in order to improve the content of the Newsletter, the Centre request assistance in developing a network of national and sub-regional 'focal points'. The aim of this network would be to solicit, coordinate and submit contributions of SDI information for a country to the Newsletter on a monthly basis.

In practical terms The Editor needs assistance in formal support for this initiative from the PCGIAP, a request from PCGIAP to its members requesting identification of a focal point to act as a conduit for SDI information from a country to the Asia Pacific Newsletter and broadcasting a request for information for the April newsletter to PCGIAP members with content to be sent to p.box@pgrad.unimelb.edu.au. The re-launch of this important SDI publication offers a great opportunity to re-vitalise SDI information exchange in this region and for key actors to showcase their efforts and share their experiences with other practitioners.

Action: PCGIAP to note developments and in the short term to use and contribute to the Newsletter to promote their SDI activities in Asia and the Pacific region. After discussion at the PCGIAP Executive Board Meeting in China and at the UNRCC-AP in Bangkok in October, 2009, put a resolution to the UNRCC-AP to institutionalise the SDI Asia Pacific Newsletter within the ongoing activities of PCGIAP.

9. Cadastre Template Project

The development of a cadastral template was one of the objectives of WG3 for nine years. As part of this objective and the implementation of the Resolution 4 of the 16th UNRCC-AP, WG3 in collaboration with FIG/Commission 7 has jointly designed and successfully established a dedicated website for publicising the results of the cadastral template project (www.cadastraltemplate.org). This website was maintained and run by the Centre for SDIs and Land Administration, Department of Geomatics, the University of Melbourne until end of 2006 according to the WG3 Workplan. However, due to the importance of this project and its value for all countries and international organisations such as FIG, PCGIAP and others, it is now maintained and run by FIG Commission 7 (through a request from FIG and in agreement with PCGIAP-WG3).

As a result of all activities through WG3 and FIG Commission 7, currently *40 country reports on cadastral systems* have been placed in this website. Analysis of these reports has been undertaken over the past year, culminating in the creation of a technical paper titled "*Assessing the Worldwide Comparison of Cadastral Systems*" which summarises the results of the analysis. This paper has been published in the International Journal of Land Use Policy in 2007. This paper has employed several indicators which have been used to analyse

and benchmark countries' cadastral systems, which contribute to an improved understanding of the complex relationship between cadastral, land administration system and National SDI initiatives. This analysis helps to enable a worldwide comparison of cadastral systems, forming the basis for best practice and a tool to improve national cadastral systems.

The cadastral template project and its results through its website are continuously being cited and visited by many countries and jurisdictions and its serves as a reference point for cadastral activities. In the last year both Thailand and Spain have given a commitment to complete the Template.

Action: PCGIAP to note the ongoing interest in the joint PCGIAP-FIG Cadastral Template Project and to consider a strategy to maintain and expand the project.

10. Future Workplan

The proposed Workplan for the next 3 years is as follows:

No	Activities/Steps	Date
1	Presentation of the results and outcomes of the research and work on land administration forum and also Spatially Enabled Government	18 th UNRCC-AP Conference and 15 th PCGIAP Meeting
2	Facilitate and coordination of Land Administration Forum meetings and Seminars in Asia-Pacific region	2009-2012
3	Keep the joint PCGIAP-FIG Cadastral Template Project up to date and extend the number of countries contributing	2009-2012
4	Report on outcomes of WG3 activities (including analysis of current projects, recommendations, future plan, etc.)	PCGIAP Meetings

NOTE: PCGIAP to note that at the end of this period of WG3 at the UNRCC-AP in Bangkok in October, 2009, Professor Williamson, Chair of WG3 and Associate Professor Abbas Rajabifard, Vice Chair of WG3, will not be standing for re-election. However they understand Australia is interested in continuing to provide a leadership role within WG3.



Report on
3rd Land Administration Forum
Re-Engineering The Cadastre to support e-Government
24-26 May 2009-Tehran, Iran

PCGIAP-Working Group 3 (Spatially Enabled Government)

The UN sponsored Permanent Committee on GIS Infrastructure (PCGIAP) together with Islamic Republic of Iran's Deeds and Properties Registration Organization, the International Federation of Surveyors (FIG), the Global Spatial Data Infrastructure Association (GSDI) and the Centre for Spatial Data Infrastructures and Land Administration, University of Melbourne, are organizing a three days Forum as part of the PCGIAP-Working Group 3 activities in Tehran to discuss land administration issues and the role of cadastre to support e-government in the Asia and Pacific region. The Forum was Chaired by Prof Ian Williamson and co-chaired by Associate Professor Abbas Rajabifard.

Over 410 people from 15 countries and 4 international organisations attended the forum. The objectives of the forum in Tehran were:

- To discuss the role of cadastre to support e-Government strategies
- To share land administration experiences in the Asia and Pacific region with a focus on re-engineering cadastre to support e-government
- To discuss wide ranging land administration issues including access to land and security of tenure, the role of land administration in supporting sustainable development, the promotion of effective land markets, poverty reduction, protection of vulnerable groups, e-land administration, land registration, cadastral surveying and mapping etc.
- To continue discussion on the need for an ongoing land administration forum in the Asia and the Pacific region that was commenced at the Mongolian and Malaysian forums with a view to preparing a proposal and resolution to be put before the UN Cartographic Conference for Asia and the Pacific in Bangkok 26-29 October, 2009.

This initiative was the result of a Resolution passed by the 14th PCGIAP meeting in Malaysia in 2008 and a desire by many countries in the Asia and the Pacific region to have a forum to discuss and share land administration issues, best practice and experiences, in a similar manner to the Working Party on Land Administration (WPLA) for European countries, organized by the UN Economic Commission for Europe (UNECE).

The focus of the forum was developed both by the PCGIAP and the 2nd Land Administration Forum for Asia and the Pacific hosted by the Malaysian Government in 2008.



It was also influenced by the first Land Administration Forum organized by the Mongolian Government in 2007 that was also supported by UNDP, UNECE (WPLA), GSDI Association, FIG, the Asian Development Bank, German Technical Assistance (GTZ), Eurogeographics and the National Land Survey of Sweden.

As part of the program, there were more than 20 presentations including invited presentations from FIG, GSDI and Eurogeographic, Europe and also selected countries from Asia-Pacific that presented. The forum was conducted in seven sessions including an opening session (4 presentations), five invited speaker sessions (20 presentations) and each session and presentation was followed with a discussion. The countries presented were Australia, Bahrain, Brunei, China, Denmark, India, Iran, Laos, Malaysia, Mongolia, Pakistan, Singapore, Switzerland, The Netherlands, UAE.

The speakers were selected based on their expertise on land administration and cadastre as well as understanding of the issues and trends relating to Land Administration in their jurisdiction. They were asked to address the key role of their cadastre in their e-government program or any progress in that regard. Also to address challenges or issues facing the development of their cadastre or land administration system.

FORUM OUTCOMES

The final session of the forum was used to discuss and finalise forum outcomes, resolutions and the report to the PCGIAP. In summary, the following is feedback from the Forum.

The 3rd Land Administration Forum acknowledges the warm welcome from the Head of the Judiciary Honorable Ayatollah Hashemi Shahrodi and noted his message to the Forum to consider issues and strategies that may be useful to Asia-Pacific member nations to improve their cadastre, land registration and related land administration and SDI activities. In response to this message the Forum has developed and endorsed the **Tehran Declaration** on Land Administration to Support Sustainable Land Markets and e-Government, and hopes that the declaration will be useful to improving the land administration systems in the region and contributing to a better quality of life for society.

Day 1: 24 May 2009

Session 1 – Opening Ceremony

Ayatollah Hashemi Rafsanjani, Chairman of the Assembly of Experts of the Leadership, provided an excellent and inspiring opening address to the Forum. He focused his talk around three words: land; cadastre; and e-governance. The Ayatollah pointed to the guidance in the Qoran on land as a place for location that is a gift from God and it is our obligation to harness and exploit land in a responsible manner. The Ayatollah noted his role as President of the Islamic Republic of Iran in fostering the cadastre. He observed that his speech was on the 20th anniversary of the liberation of Khorumshar. It became clear in the reconstruction of Khorumshar that better cadastral records were needed in Iran and this experience was a key impetuous in the increased emphasis on developing the cadastre in the past decades. The Ayatollah reminded us that God had all knowledge and it was our responsibility to develop IT and e-governance as these systems enabled us to efficiently gather information and make better decisions.

Session 2 – Forum Plenary

Prof. Ian Williamson outlined the Forum structure and objectives. He provided background to the land administration Forum under UN-PCGIAP – the first Forum in Mongolia in 2007 and the second last year in Malaysia. Professor Williamson noted that key stakeholders in the region pointed to

other organizations such as the UNECE Working Party for Land Administration in Europe and felt that there was the need for such an organization in Asia and the Pacific. Professor Williamson announced that he and Professor Abbas Rajabifard would be standing down after more than 10 years involvement with UN-PCGIAP at the UN RCC-AP meeting in Bangkok in October 2009 when their current terms as Chair and Vice Chair of Working Group 3 end. Professor Williamson announced that the current Chair of UN-PCGIAP, Mr Greg Scott, who is responsible for all spatial activities in the Australian government, had announced recently that when he stepped down later this year he would be available to take on the vacant position of Chair of Working Group 3 to represent Australia.

Professor Williamson also announced that Mr Ahmed Fauzi from Malaysia was available for the position of Vice Chair of Working Group 3 responsible for Spatially-Enabled Government and that Judge Amiri from the Islamic Republic of Iran was available for the other Vice Chair of Working Group 3 responsible for Land Administration. These changes were to be confirmed in the UN RCC-AP meeting in Bangkok in October 2009.

Prof. Abbas Rajabifard then provided a summary of the achievements of Working Group 3 in the past 8 years. The Working Group had participated in 4 major projects: support in Asia and the Pacific for the FIG-sponsored cadastral template; investigations into the marine cadastre; study into data integration; and development of concepts related to spatially enabled government. In addition the Working Group had organized 5 workshops, established a dedicated website and developed and implemented a publication strategy. Future action for the Working Group concentrated on continuation of work on spatially enabled government and land as part of e-governance.

Prof. Ian Williamson then presented on the issues related to re-engineering the cadastre to support sustainable development. He highlighted in particular that each day there was an additional 120,000 new residents in cities in Asia and noted the serious implications of this increasing urban population for governments in ensuring that these new residents had access to adequate housing and land for livelihoods. A key point made by Professor Williamson was that the needs of national governments for land information was not well understood and that land records would have to become national assets rather than the operational records in land sector agencies.

Prof. Stig Enemark then presented an invited paper on land administration and cadastral systems in support of sustainable land governance. He noted that land governance was a new term that was not well understood, but was becoming increasingly important with increased pressure on land resources and global commitments to reduce poverty through the Millennium Development Goals. Professor Enemark pointed out that systems to record rights and restrictions would have increased importance and that the key aspects in systems to record restrictions will be decentralization, comprehensive planning and public participation. Professor Enemark emphasized that there is no one ideal land administration system that will suit all situations. He finally emphasized the key role of the cadastre in building spatially enabled societies.

Session 3 – Invited Speakers

Mr. Tony Burns (Australia) described indicators of an effective LAS derived from a comparative study of 17 countries and stressed the need to interpret indicators from a countries perspective. The indicators from this study provide a framework to assess efficiency, undertake benchmarking and provides parameters for land administration reform.

Prof. Bas Kok (Netherlands) stressed the importance of the cooperation between PCGIAP and GSDI and gave another short overview of their common workshop in Seoul in June 2007 and presented the main conclusions. This cooperation provides a model for collaboration in the further development of spatially enabled governments using successful SDI/e-government implementations in Europe and elsewhere as a model. Prof. Kok in the second part of his presentation detailed various successful

projects in Europe. He discussed high level achievements from Finland, Sweden and the Netherlands in building up their geodata sector. Spain has achieved close cooperation with academia and emphasized education and capacity building.

Mr. Pengiran ABD Wahab Pengiran Hassan (Brunei-Darussalam) reported on the re-conceptualization of land as Brunei moves from a feudal to a modern system and the development of a strategic action plan to recast its technical and legal frameworks so that land can be released to enter the market. A key issue is the provision of a legal framework for handling restrictions on land in a rapidly developing country with large industrial projects.

Mr. Jahangard (Iran) reported on a high level of digitization of records, strong cooperation with other agencies, especially the municipality of Tehran and the development of an SDI vision and architecture. A key issue for Iran is building bridges amongst key agencies to achieve an SDI framework.

Day 2: 25 May 2009

Session 1 – Invited Speakers

Mr. Peter Holland (Australia) made a presentation on e-government in Asia and the Pacific and the implications for the cadastre. He referred to the newly published UN report on e-Government Survey 2008. He emphasized that modern ICT provides an enabling environment for the processes of transformation and, on the other hand, the requirements for e-government raises questions on the effectiveness of spatial data infrastructures. He pointed to the cadastre as a strategic governmental and societal asset.

Mr. Hasan bin Jamil (Malaysia) presented the cadastral reform in Malaysia to support spatial enabled government. He pointed out that the Malaysian SDI includes framework data, meta data standards, feature codes, unique parcel identifiers, and street addresses. He emphasized the recent e-cadastre project facilitating land acquisition for purposes such as road construction. The current system of qualified titles (not surveyed) and final titles (surveyed) is now increasingly moving towards a fully surveyed title system.

Mr. Richard Ho (Singapore) presented the Singapore land administration system in an electronic age. The system represents a world best practice in terms of e-government. It includes conversion of former common law deeds system into a modern Torrens title system. The road ahead is about introducing electronic signatures and intelligent maps. The development of the advanced Singapore model has, however, not been cheap and has been a long journey. The private sector has played a key role in this implementation in partnership with government.

Ms. Bayarmaa Byambaa (Mongolia) presented on the cadastral developments and good governance initiatives in Mongolia. She mentioned the recently developed National Land Information System (NLIS) that includes cadastral procedures, land registration, land fee and tax collection, the use of cadastral data for multi-purpose and services to the public. She emphasized a range of obstacles for sustaining the system in terms of quality improvements, completion and on-line access.

Session 2 – Invited Speakers

Ms. Jude Wallace (Australia) highlighted that cadastral data themselves may not be well understood by the people. But if the cadastres learn from the Google maps phenomenon, and spatially enable their data, the benefits can be enormous. Address data will play a key role in this.

Prof. Bas Kok (Netherlands) presented the huge benefits that the Dutch cadastre has by having the cadastre, the land registry and the topographic mapping function in the same organization. The creation of one-stop-shops and web-based services allows the provision of manifold e-Government services. The pragmatic approach and definition of key registers including address data and some 80

public restrictions increases the use and thus value of cadastral data. The cadastre has been assigned to be the distribution for cable and pipeline data and the Dutch topographic large scale basic map.

Dr. Nasir Javed (Pakistan) illustrated the shortcomings that the Punjabi land administration system is confronted with. The present system is based on a 100 year old deeds system, which itself is based on a 450 year old system. He shows that in order to revise a system, it is not sufficient to only revise single parts, the whole system has to be revised as a whole, in analogy to a car. The missing links are business process re-engineering and change management, both of which are lacking from current initiatives for land administration reform in Punjab.

Mr. Chantaviphone Inthavong (Laos) provided an overview of land administration reform initiatives in Laos which is one of the poorest countries in Asia and where about half the population still using slash and burn cultivation. The Government with donor assistance had been successful in building a policy and legal framework, issuing about 500,000 land use certificates in urban areas and in building capacity. The challenges now faced by the National Land Management Agency are bedding down a new institutional structure and developing policy and procedures to undertake planning and formalize rights in rural areas. A key issue that was highlighted was the difficulty in aligning government and donor priorities.

Session 3 – Invited Speakers

Dr. Daniel Steudler (Switzerland) gave a presentation about Switzerland and its Cadastre. The key principles for land ownership are (i) no ownership without registration, (ii) no registration without survey, (iii) no survey without boundary definition. The key elements for providing the basis for an SDI is a unified geodetic foundation, standardized data modeling respecting a layer approach with the layers connected only through coordinates. This enables a simpler data model and facilitates the addition or removal of layers. The federal structure forms a challenge in building a national SDI. A key lesson has been to develop a core federal data model that the cantons must respect as a minimum in developing their own systems.

Mr. Ali Ghameni (Tehran Municipality) showed the progress of the Municipality of Teheran in its ambition for an electronic city. The municipality maintains a land-use planning system which will be integrated in data bases. Updating problems are being solved. They are working on an integrated topic and locations data base with 2.5 million parcels. Legislation for surveying exists. Recent and historical aerial photographs are available on-line. The municipality has made a strategic alliance between the municipality and the cadastral office to provide high quality, real-time and on-line information through an in-house Intranet.

Ms. Seema Ahmed Al-Langawi (Abu Dhabi) presented on land administration reform in Bahrain, Dubai and Abu Dhabi. In Bahrain, the land registry has traditionally been under the jurisdiction of the courts with no linkage to the cadastre. In 2003 a single land administration agency was created in Bahrain. In Dubai, there has been rapid real estate development and changes in policy to stabilize the market. The department and municipalities have struggled to develop their systems to service the demands resulting from this development. Abu Dhabi is trying to be more pro-active in developing a municipal land registration system that meets the needs of the market. The key lesson is in an environment of booming economic development, there is an increased need to integrate land administration systems.

Dr. Shahidah Mohd. Ariff and Ms. Adibah Awang (Malaysia) presented a good case study of difficulties in integrating a strong customary land tenure system into a formal land registration system. A statute in 1911 froze customary alienation and this has implications today in recording succession and maintaining economically viable land holdings. The government is still struggling to develop land policies to address these issues.

Day 3: 26 May 2009

Session 1 – Invited Speakers

Prof. Abbas Rajabifard (Australia) presented on SDI, cadastre and socially enabled societies. Spatial enablement can contribute to societal benefits, but we need a vision and a roadmap to achieve this outcome. Every country will travel a different road to achieve the vision. An important requirement is governance of the people, policy and resources involved. We will need collective action. One of the pathways is spatial enablement to support e-government. A key point made by Prof. Rajabifard was the importance of SDI, land administration and spatial enablement in achieving the vision of a spatially enabled society.

Mr. Bal Krishna (India) presented on the modernization program for land records in India. Decision-making in India takes time in order to reach a consensus. This particular project is nationally important and also expensive. It aims to transform India's land records from paper to electronic form in order to increase tenure security and the efficiency and effectiveness in decision-making in relation to land. However, if not done correctly, it will have an adverse effect on citizens. The key message from this presentation was that the government's decision to implement a Torrens title system may have adverse impacts.

Dr. Zhang Yonghong (China) presented on the national land use change program of China. Land-use management is very complex in China. The presentation focused on China's use of technology to improve this complex situation. Rapid urbanization is causing great changes to land use. The change from cultivated to constructed land is being monitored by GPS, GIS and remote sensing, and the innovative use of unmanned aerial vehicles (UAV). Imagery is processed in an automated way to detect changes in land. The results are validated in the field. This approach over the last 10 years has provided an independent source of information to the central government on land use change. The central government has recently allocated USD 2 billion to develop a land use management system.

Dr. Mohsen Kalantari (Australia) presented on e-land administration for better governance. He began with a comparison of the development of governance arrangements in relation to land administration between Eastern and Western countries. An important point from this analysis was that by re-engineering the land administration system there are opportunities for wealth generation. He then demonstrated the innovative use of technology in Victoria, Australia where ICT is being used by citizens to readily access information about their own properties, to assess information about rights and restriction in a particular location and geocoded information from the cadastre is being used as a means of integrating government web services.

Mr. Hamid Berenjkar (Iran) presented on modernization of the land registry and the development of a cadastre in Iran. Special registers of land have existed in Iran for centuries and have been an important means of assessing taxation. The land registration system came into effect in the 1920's, and the present cadastral system came into effect in the 1980's. Iran has a deeds registration system and this system is being reformed in three stages: planning, design and implementation. Each land parcel ID has a geocode. This is a huge reform process as there are 140,000 registry books to be converted. The presentation concluded with comments on progress Iran is making towards meeting the goals of the six Cadastre 2014 statements. At the end, he provided an on-line demonstration of e-land government in Iran.

Resolutions

Resolutions to be taken to PCGIAP to support a resolution to the United Nations Cartographic Conference for Asia and the Pacific, October, 2009.

The 3rd Land Administration Forum in Tehran 24-26 May 2009 *resolved*

- to support the resolution of the 14th PCGIAP to have an annual forum to discuss land administration issues, best practise and experiences in the Asia and the Pacific region.
- to propose that process re-engineering as part of an ICT strategy directed at land administration, cadastre and SDI and spatial enabled government and society be included in any strategies to improve land administration systems and also in the future workplan of PCGIAP-WG3 and land administration forums.

Also, the Forum Expressed of Gratitude to the Host Government

Expresses its sincere gratitude to the Government of Islamic Republic of Iran, the Deeds and Properties Registration Organisation, Tehran Municipality for the kind hospitality and gracious support extended to all participants at the 3rd Land Administration Forum, held in Tehran.

Further information about the Forum (background documents, aims and objectives, forum outcomes, etc.) and other related materials can be found at the dedicated forum website: <http://www.csdila.unimelb.edu.au/projects/tehran/index.html> or through the PCGIAP-WG3 web page (www.pcgiap.org).

Forum Program

Day 1 - 24 May 2009	
8:00 – 8:30	Registration
8.30 – 10:00	Opening Ceremony <ul style="list-style-type: none"> • Opening and Welcome Speech, Head of Host Organisation, Iran's Deeds and Properties Organisation and Deputy of Judiciary (Mr Judge Amiri) • Welcome Speech, Chair Land Administration Forum (Prof. Ian Williamson) • Speech by Honorably Ayatollah Hashemi Rafsanjani, Chairman of the Assembly of Experts of the Leadership and Chairman of the Expediency Discernment Council of I.R. of Iran
10:00 – 10:30	Tea Break
10:30 – 12:30	Forum Plenary <ul style="list-style-type: none"> • Welcome Message from the Head of the Judiciary, Honorable Ayatollah Hashemi Shahrodi • Welcome Message from PCGIAP-President, Mr. Greg Scott • Forum Structure and Objectives, Chair (Ian Williamson) • PCGIAP Working Group 3 Status and Report, Vice-Chair, (Abbas Rajabifard) • Position Paper-Re-Engineering the Cadastre to Support E-Government (Ian Williamson) • Land Administration and Cadastral Systems in support of Sustainable Land Governance (Stig Enemark ; FIG President)
12:30 – 14:00	Lunch Break
14:00 – 15:30	Invited Speakers <ul style="list-style-type: none"> • Land Administration Reform (Tony Burns, Australia) • Cooperation GSDI and PCGIAP on Spatial Enabled Government (Bas Kok, GSDI President) • Conceptualization of land in Brunei (Pengiran ABD Wahab Pengiran Hassan, Brunei Darussalam) • Iranian Cadastre System (Nasrollah Jahangard, Iran) <p>Discussion</p>
15:30 – 16:00	Tea Break
16:00 – 18:30	Milad Tower Visit
19:30	Welcome Dinner
Day 2 – 25 May 2009	
9.00 – 10:30	Invited Speakers

	<ul style="list-style-type: none"> • E-government in Asia and the Pacific: implications for the cadastre (Peter Holland, Australia) • Cadastral Reform in Malaysia to support Spatially Enabled Government (Hassan bin Jamil, Malaysia) • Singapore's Land Administration in Electronic Age (Richard Ho, Singapore) • Cadastre Development and Good Governance in Mongolia (Bayarmaa Byambaa, Mongolia) <p>Discussion</p>
10:30 - 11:00	Tea Break
11:00 - 12:30	<p>Invited Speakers</p> <ul style="list-style-type: none"> • Using Cadastre to Spatial Enable Government (Jude Wallace, Australia) • The Dutch cadastre and E-Government in The Netherlands (Bas Kok, The Netherlands) • Land Administration and E-Government in Punjab (Javed Nasir, Pakistan) • Laos' Experiences with Cadastre and Land Administration (Inthavong Chanthaviphone, Laos) <p>Discussion</p>
12:30 - 14:00	Lunch Break
14:00 - 15:30	<p>Invited Speakers</p> <ul style="list-style-type: none"> • Cadastral Activities in Europe (Daniel Steudler, Switzerland) • Tehran Municipality Land and Spatial data and services Activities (Ghaemi, Iran) • Bahrain and UAE Experiences with Cadastre and Land Administration (Seema, Ahmed Al-Langawi, UAE) • Adapt Land Laws in Malaysia (Awang Adibah and Mohd Ariff Shahidah, Malaysia) <p>Discussion</p>
16:00 - 18:00	Technical Visit

Day 3 - 26 May 2009

9.00 - 11:00	<p>Invited Speakers</p> <ul style="list-style-type: none"> • SDI, Cadastre and Spatially Enabling Society (Abbas Rajabifard, Australia) • Indian Experiences with Cadastre and Land Administration (Bal Krishna, Coordinates Magazine, India) • China Land Use Visualization and Analysis Tool (Wang Rongbin; China)
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	<ul style="list-style-type: none"> • Modern Land Administration; Characteristics for e-Governments (Mohsen Kalantari, University of Melbourne) • Land Registration and Cadastre-Iran (Brenjkar, Iran) <p>Discussion</p>
11:00 - 11:30	Tea Break
11:30 - 12:30	<p>Forum Results and Outcomes</p> <ul style="list-style-type: none"> • Forum Summary • Tehran Declaration • Final Remark and Future Direction <p>Closing Ceremony</p>
12:30	Lunch

**UN Sponsored PCGIAP
3rd Land Administration Forum &
International Land Market Management Seminar**

23-26 May, 2009, Tehran-Iran

TEHRAN DECLARATION

on

Land Administration to Support Sustainable Land Markets and e-Government

The International Seminar on Land Market Management and the 3^d Land Administration Forum, sponsored by the UN supported Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP), discussed wide ranging issues concerned with the management of land, the cadastre, land administration, land markets, spatial data infrastructures, spatial enabled governments and societies, and e-government. The delegates endorsed the following declaration:

Every country should have a formal system of registration for land and property rights with an appropriate spatial framework in order to facilitate good governance and to support secure ownership of land, investments and other private and public interests in real estate. Effective systems for recording land ownership, land values and land use are the foundation on which the efficient operation of a market economy depends and underpin the sustainable and productive management of land resources. These systems reduce the risk to those who wish to invest in property and land development, facilitating greater efficiency and economic growth. Simply, sustainable land markets require good land administration systems.

A good land administration system supports sustainable development. It will guarantee ownership and security of tenure; support land and property taxation; provide opportunities for investment; develop and monitor land markets; protect land resources and support environmental monitoring; facilitate the management of State-owned land; reduce land disputes; facilitate rural land management; improve urban and rural planning and infrastructure development; provide statistical data in support of good governance; and provide a foundation for spatially enabling government, business and wider society. It should be affordable and open to everyone, meeting the needs of all its users, and must be sustainable. Good practice in land administration means:

- The law should define the nature of land, the form and nature of ownership, the legally recognized forms of tenure and the rights, restrictions and responsibilities that must be registered;
- The land administration system should be run on business lines, often in partnership with the private sector, with a long-term financial model and an appropriate regulatory framework and management system that focuses on meeting customer demands;
- The operations of the land administration system must be transparent, with safe and easy access to the land market and affordable for all participants;
- The efficiency, integrity and transparency of the land administration system must be constantly measured and monitored, through performance indicators relating for example to the time and cost of each transaction, and customer satisfaction;
- In order to add value to the basic information, records of ownership, value and use of land should be spatially enabled and integrated either by having one organization responsible for their maintenance or through several organizations sharing data through an e-government strategy;

- Land administration records should be based on a common referencing system such as coordinates on a geocentric datum and street addresses, as part of a spatial data infrastructure and an e-government strategy.

Both the Land Market Seminar and Land Administration Forum identified a number of key issues to assist improvement and management of land administration systems:

1. The creation of a vision or “big picture”, and road map to support long term planning and implementation;
2. Developing a National Land Policy that addresses land-related issues in a holistic way and provides a foundation for economic development, ensures all have access to land and protects women and vulnerable groups;
3. Taking action to improve the legal and institutional framework for land-related activities;
4. Making land-related information more open, transparent and accessible for the public;
5. Speeding up the processes of core land activities (registrations, plans, valuations, etc.) through process re-engineering, computerization and closer co-operation between all land-related agencies;
6. Developing an Information Policy to provide a framework for the sharing of data between agencies as part of an e-government strategy and, as appropriate, with the public;
7. Using Business Process Re-engineering (BPR) as an integral component of the introduction of Information and Communications Technology (ICT) to facilitate the modernization of land administration systems;
8. Strengthening the SDI within the general ICT Strategy as a key component of land administration;
9. Ensuring appropriate institutional and technical arrangements are in place to facilitate the integration of cadastral and topographic data within spatial data infrastructures (SDI) to support sustainable development;
10. Strengthening the relationship and understanding between the land administration and financial sectors;
11. Improving the system of land valuation by adopting international standards and adopting a system of fair and equitable land taxation;
12. Improving procedures for sharing the cost and risk in land development;
13. Strengthening the capacity inside as well as outside government agencies and in universities and initiating research in land administration, spatial data infrastructures and spatial enablement;
14. Encouraging participation in the land administration system through public awareness campaigns both within government and wider society and streamlining procedures to facilitate participation; and
15. Co-operating with international organizations such as the UN-supported PCGIAP and the International Federation of Surveyors in the sharing of knowledge and understanding of issues related to land.

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