

ECONOMIC AND SOCIAL COUNCIL

**Seventeenth United Nations Regional Cartographic
Conference for Asia and the Pacific
Bangkok, 18-22 September 2006
Item 6 (a) of the provisional agenda*
Report on the implementation of resolutions of the United Nations
Regional Cartographic Conference for Asia and the Pacific**

**REPORT ON THE ACTIONS TAKEN ON RESOLUTIONS OF THE SIXTEENTH UNITED
NATIONS REGIONAL CARTOGRAPHIC CONFERENCE FOR ASIA AND THE PACIFIC**

**Submitted by the United Nations Statistics Division and the Permanent Committee on
Geographical Information System Infrastructure for Asia and the Pacific (PCGIAP) ****

* E/CONF.97/1

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**Actions taken on resolutions of the
Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific**

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This document has been prepared to summarize the follow-up actions taken on the resolutions adopted at the Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific (UNRCC-AP), held in Okinawa, Japan, 14-18 July 2003. It is using a format that has been adopted as a system for monitoring the status of actions taken on UN Regional Cartographic Conference's resolutions.

RESOLUTIONS ADOPTED BY THE 16th UNRCC-AP	STATUS OF ACTION
1. Asia Pacific Spatial Data Infrastructure (APSDI)	
<p><i>The Conference,</i></p> <p><i>Recognizing</i> the importance of Spatial Data Infrastructures (SDI) in supporting sustainable development at national, regional and global levels,</p> <p><i>Also recognizing</i> that all elements in the spatial data infrastructure need to be uniformly geo-referenced to ensure homogeneous integration,</p> <p><i>Noting</i> the progress made by the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific (PCGIAP) in building a regional spatial data infrastructure for Asia and the Pacific,</p> <p><i>Considering</i> the important role that national SDIs play in the development of the Asia and the Pacific spatial data infrastructure (APSDI),</p> <p><i>Bearing in mind</i> that capacity building is also an important need for developing people through training courses and associated technology transfer by participation in international workshops,</p> <p><i>Recalling</i> the benefit of the integration of cadastral and statistical information with topographic information in providing and appropriate basis for supporting sustainable development and environment management,</p>	<p>In response to the Resolution encouraging efforts for development of Asia Pacific Data Infrastructure, PCGIAP Fundamental Data Working Group (WG2) has taken actions focusing on two areas: 1) Pan Asia-Pacific framework datasets, and 2) APSDI Clearinghouse by establishing a taskforce for each goal.</p> <p>1) Pan Asia Pacific Framework datasets A joint workshop of PCGIAP WG1 and WG2 was held on 7-8 Sep. 2004 in Chengdu, China. The status of geodetic datums and availability of fundamental data were assessed as well as potential use of regional data nodes as access points for geodetic data. Possible establishment of a PCGIAP portal and a pan AP framework dataset were also discussed. The workshop had a participation of 54 representatives from 10 countries. Draft technical specifications for Pan Asia-Pacific framework datasets have been prepared.</p> <p>2) APSDI Clearinghouse WG2 co-organized a workshop on "Service and Application of SDI" with ISPRS in Hangzhou, China, in October 2005. The</p>

<p><i>Realizing</i> the need to gather further information to better assist national agencies in the development of nation spatial data infrastructure and to identify the best practice procedures,</p> <p><i>Recommends</i> that</p> <p>(1) The PCGIAP continues its work in the development of a regional spatial data infrastructure for Asia and the Pacific through data integration in the following activities:</p> <ul style="list-style-type: none"> • Continued development of a regional geodetic infrastructure, • Identification of fundamental datasets and linkages to statistical information, • Development and integration of the cadastral and land tenure layers within the regional spatial data infrastructure using geodetic referencing techniques, and • Institutional strengthening for building spatial data infrastructure through capacity building, education, training, and workshops together with identification of needs and funding options for member countries to improve participation in PCGIAP activities, <p>(2) Governments of the region strongly support the further development of National SDIs and their smooth integration into the APSDI, and</p> <p>(3) The PCGIAP ensures that appropriate linkages are developed between the APSDI and other global initiatives.</p>	<p>status of APSDI clearinghouse portal and related issues were introduced.</p> <p>ESRI GIS Portal Toolkit workshop was held on 6-8 April 2005 in Hong Kong for PCGIAP members to promote establishment of geo-spatial clearinghouse nodes in the member countries.</p> <p>A pilot project and joint researches were conducted in Iran with a local university.</p> <p>Guideline for APSDI Clearinghouse development Revision 1.2 has been prepared, which give step-by- step technical instruction for APSDI Clearinghouse node and gateway construction with the help of Isite2 and other complementary software package provide by the taskforce.</p> <p>A gateway of APSDI clearinghouse has been set up at http://nfgis.nsd.gov.cn/apsdi. Efforts for initial APSDI Clearinghouse Portal are underway</p>
<p>2. Regional Geodesy</p>	
<p><i>The Conference,</i></p> <p><i>Recognizing</i> the importance of establishing an homogeneous geodetic network as the basis for the Asia and the Pacific regional spatial data infrastructure as part of the International Terrestrial Reference Frame (ITRF),</p> <p><i>Noting</i> the progress made by the PCGIAP Regional Geodesy Working Group in establishing a precise regional geodetic framework as the base layer in a regional spatial infrastructure,</p> <p><i>Realizing</i> the continuing need to extend regional geodetic infrastructure established so far to include other countries in Asia and the Pacific region together with associated technology transfer and information exchange,</p> <p><i>Bearing in mind</i> the limited financial resources and availability of equipment and expertise in observation and processing of acquired GPS data,</p> <p><i>Recommends</i> that the regional geodetic framework continues to be developed through integration of national</p>	<p>In response to the resolution recommending the work in the development of regional spatial data infrastructure for Asia and the Pacific region, PCGIAP Regional Geodesy Working Group (WG1) has take actions as follows:</p> <p>1) APRGP campaigns A precise regional geodetic network was established and integrated processing of APRGP97-02 data has been completed. The campaign is still on-going. To tie to vertical datum origin points needs to be completed after the data collection. The APRGP2005 took place during the second week of October 2005.</p> <p>2) Regional geoid Review of the status of the regional geoid in relation to current and improved global gravity models available from satellite gravity was given in the International</p>

<p>geodetic networks and through appropriate linkages to global reference frames through the following projects :</p> <ul style="list-style-type: none"> • Enhancement of a regional geodetic infrastructure through annual cooperative campaigns, including ties to vertical datum origin points, • Review the status of the regional geoid in relation to current and improved global gravity models available from satellite gravity, and the application of absolute gravity as a means of developing a regional gravity reference frame , • Promoting the application of new geodetic adjustment techniques and datum change transformation parameters for regional spatial data integration and for geo-referencing cadastral and statistical information, • Encourage the transfer GPS technology to Pacific Island nations and other developing countries through regional and local geodesy workshop activities, • Development of a catalogue of regional tide gauges for monitoring sea level changes and placement of GPS at key sites, and • Review the status of geodetic networks in individual countries and upgrade PCGIAP web site information. 	<p>Workshop of Height System, Geoid and Gravity of the Asia-Pacific in June 2006 in Ulaanbaatar, Mongolia.</p> <p>3) Geodetic adjustment Some countries such as Australia and China have completed new geodetic adjustment. Experience was reported in WG1 workshops.</p> <p>4) Technology transfer The transfer of GPS technology to Pacific Island nations has been promoted as well as loan of GPS equipment for regional campaigns.</p> <p>5) Catalogue of regional tide gauges The work is ongoing.</p> <p>6) Regional Geodesy Workshop It was held jointly with the IAG Commission 1 Sub Commission on the Geodetic Reference Frame for Asia and the Pacific on 20-21 August 2005 in Cairns, Australia. Country reports on the status of geodetic networks were presented, which are available at the PCGIAP web site.</p>
<p>3. Fundamental Data</p>	
<p><i>The Conference,</i></p> <p><i>Recognizing:</i></p> <ul style="list-style-type: none"> • The policy for sharing of fundamental data endorsed at the 15th UNRCC-AP, • The progress made by PCGIAP Working Group 2 (Fundamental Data) on regional fundamental data sets , • The progress made by Global Mapping, such as the recent release of the data sets for six additional countries bringing the total number of countries to 18, the availability of Global Map data on the web and the development of a web portal, <p><i>Recommends</i> the endorsement of the PCGIAP Policy Statement for Asia-Pacific Boundaries Dataset, and the PCGIAP Basic Principles for Developing and Utilizing the AP Regional Fundamental Dataset,</p> <p><i>Further recommends</i> that the PCGIAP continues to develop regional fundamental data sets, clearinghouse and GIS applications, in particular :</p> <ul style="list-style-type: none"> • Starting the development of a pan Asia-Pacific regional fundamental dataset, which contributes to Global Map, and encouraging member nations 	<p>Actions taken are described in the column of 1. Asia Pacific Spatial Data Infrastructure (APSDI)</p>

<p>not contributing to the Global Mapping project to consider participation in the project with the assistance of ISCGM and PCGIAP,</p> <ul style="list-style-type: none"> • Implementing APSDI clearinghouse, and member nations or regions be encouraged to establish their APSDI data node, and put their Global Mapping data on their APSDI data node and other fundamental data sets they may wish to include, • Encouraging efforts in capacity building in fundamental data, in particular the training program by GSI funded by JICA, and • Undertaking these tasks in collaboration with other initiatives, such as Global Map Project; UN Group of Experts on Geographic Names; UN Geographic Information Working Group, Database Project and Second Administrative Level Boundaries Project. 	
<p>4. Cadastre and SDI</p>	
<p><i>The Conference,</i></p> <p><i>Noting</i> the outcomes of AGENDA 21 which promoted the importance of efficient and accessible land markets based on cadastral systems and the establishment of appropriate land tenure systems, as key factors in support of sustainable development and environmental management,</p> <p><i>Further noting</i> the resolutions and deliberations of the 15th UNRCC-AP and the 6th and 7th UNRCC for the Americas on the need to better understand and appreciate the relationship between land administration and SDIs, and the integration of cadastral and topographic data in SDIs, in Member Nations,</p> <p><i>Mindful of</i> the benefits and difficulties of integrating cadastral and land tenure information with topographic information in providing an appropriate basis for supporting sustainable development and environmental management,</p> <p><i>Bearing in mind</i> the interest of Member Nations in sharing experiences on cadastral and land administration issues, and particularly the role that cadastral data has in developing SDIs,</p> <p><i>Recognizing</i> the difficulties Member Nations have in determining the efficiency, effectiveness and performance, and appreciating the global situation, of cadastral, land tenure and land administration systems,</p> <p><i>Recalling</i> the outcomes of PCGIAP Working Group 3 (Cadastre) during their 2000-2003 Work Plan and its Workshop on Cadastral Systems in Asia and the Pacific</p>	<p>The following are major activities of PCGIAP Cadastre Working Group (WG3):</p> <p>1) Cadastre Template-</p> <p>The aim of a cadastral template is to gather information in order to address key issues such as:</p> <ul style="list-style-type: none"> - the order of magnitude of the basic tasks in a cadastral system; - an indication of the problems involved in the informal occupation of land within both the urban and rural areas; - to try and understand the role of the cadastre in land administration and related SDI activities; etc. <p>WG3 in collaboration with FIG/Commission 7 has established a dedicated website for publicising the results (www.cadastraltemplate.org), maintained by the Centre for SDIs and Land Administration, Department of Geomatics, the University of Melbourne, a world first and is a significant outcome from the project which will provide direct benefits to PCGIAP.</p> <p>Spanish and Portuguese versions were prepared to facilitate participation of South American countries. Also prepared a business card to promote the project world-wide. An invitation letter was sent to the FIG Commission 7, the PCIDEA, the UN</p>

<p>12-13 July 2003 in Okinawa,</p> <p><i>Further recalling</i> the importance of a cadastral template which is a standardized generic proforma that will enable the discovery of information, including matters concerned with Member Nations' land policy, laws and regulations, land tenure, land administration and cadastre, institutional arrangements, SDIs, technology as well as human resources and capacity building,</p> <p><i>Recommends</i> that</p> <ul style="list-style-type: none"> • The jointly developed PCGIAP/FIG Cadastral Template be adopted, • PCGIAP support PCGIAP Working Group 3 (Cadastre) in encouraging Member Nations in Asia and the Pacific region to complete the template during its 2003-2006 Work Plan, • PCGIAP cooperate with FIG Commission 7 (Cadastre and Land Management), the PC-IDEA, the UN Economic Commission for Europe (UNECE) through the Working Party on Land Administration (WPLA) and the UN Economic Commission for Africa (UNECA) through the Commission on Development Information (CODI), in seeking to have countries world wide complete the template during its 2003-2006 Work Plan, and • PCGIAP cooperate with FIG Commission 7 (Cadastre and Land Administration) in placing the individual country cadastral template information on the joint FIG/PCGIAP Cadastral Template web site during its 2003-2006 Work Plan, <p><i>And further recommends</i> that the 2003-2006 Work Plan of Working Group 3 (Cadastre) of PCGIAP further include:</p> <ul style="list-style-type: none"> • Continuation of its activities to describe the marine cadastre concept, and • Developing a better understanding of the relationship between cadastral and topographic mapping in the establishment and maintenance of Member Nations SDIs, by exploring the justification, and associated conceptual, institutional and technical issues. 	<p>Economic Commission for Europe (UNECE) through the Working Party on Land Administration (WPLA) and the UN Economic Commission for Africa (UNECA) through the Commission on Development Information (CODI). An invitation letter also has been sent to all FIG Commission 7 members and to the Regional Centre of Excellence on Real Property in Eastern Europe and one to the Arab Federation of Surveyors. The project is internationally supported and analysis of these reports has culminated in a technical paper titled "Assessing the Worldwide Comparison of Cadastral Systems", published in the International Journal of Land Use Policy.</p> <p>2) Marine Cadastre WG3 hosted an International Workshop from 46 May, 2004 in Malaysia with an aim to develop guidelines on the establishment and maintenance of marine cadastres with emphasis on the use of appropriate ICT. It also aimed to review best practice, to establish networks and to evaluate the potential for Asia-Pacific ICT expertise in establishing marine cadastres and addressing marine administration-the spatial dimension.</p> <p>It was attended by 102 people from 11 countries. A dedicated website (www.marineadministration.org) gives country reports on Marine Administration systems and the information presented at the International Workshop. The workshop results became a technical paper titled "Administering Marine Environment-the spatial dimensions", published in the Spatial Science Journal in 2005. .</p> <p>3) Integration of cadastral and topographic datasets in the context of National SDIs A project on the integration of natural (topo) and built (cadastre) environmental datasets within the context of National SDI initiatives is underway. A workshop is being conducted as part of the 17th UNRCC-AP, where a review is to be made</p>
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	<p>on the national administration of SDI and data integration within countries based on a common template, to be developed into a model and framework for integration of different datasets, which could be used in diverse jurisdictions in support of sustainable development.</p> <p>Further information are available at: http://www.geom.unimelb.edu.au/research/SDI_research/Integrated/ or through the PCGIAP-WG3 web page.</p>
<p>5. Capacity Building</p>	
<p><i>The Conference,</i></p> <p><i>Noting</i> the results of the Development Needs Questionnaire undertaken by PCGIAP that indicated the need to provide for capacity building for spatial data infrastructure (SDI) development in Member Nations,</p> <p><i>Further noting</i> that capacity building is a concept that involves the development of both human and social capital and includes both capacity assessment and capacity development at three levels – societal, organizational and individual,</p> <p><i>Recalling</i> resolutions 2 and 5 from the 7th UNRCC for the Americas, as they relate to institutional strengthening and capacity building,</p> <p><i>Further recalling</i> the MOU between PCGIAP and PCIDEA,</p> <p><i>Recognising</i> the discussion of the need for capacity building at the 16th UNRCC-AP,</p> <p><i>Acknowledging</i> the difficulties being faced by Member Nations in assessing and developing their capacity for creating and maintaining SDIs,</p> <p><i>Recommends</i> that</p> <ul style="list-style-type: none"> • Working Group 4 redefine its scope of work and develop a Work Plan to be presented to the 10th PCGIAP meeting in India in 2004, • Working Group 4 establish strategic linkages with other agencies and organizations involved in capacity building and identify opportunities to cooperate with capacity building meetings of organizations and institutions with whom PCGIAP has or should create strategic linkages, • PCGIAP endorse the short course on Spatial Data Infrastructures (SDI) to be run in conjunction with the Executive Board meeting of the PCGIAP by the Centre for Spatial Data Infrastructures and 	<p>In response to the resolution PCGIAP Institutional Strengthening Working Group (WG4) organized a two-week course on SDI at Survey Training Institute, in Hyderabad, India, from 12 -28 Oct., 2005.</p> <p>The course was designed to create awareness among the stake holders on the role and functioning of national SDIs among the member nations. Given the progress made by India in developing national SDI, it was agreed that India should take the responsibility of organizing the course with the general support from the Indian government, Survey of India in particular.</p> <p>Experiences and information were shared on various issues ranging from SDI concept to interoperability to capacity building. Field visits were also arranged for the benefit of the participants, including educative and informative centres as well as cultural and historical places. The course was successfully concluded to the satisfaction of 18 participants from 10 countries.</p> <p>In response to the requests from the Executive Board and the participants WG4 will plan another SDI course in Hyderabad in 2006. Considering a considerable expenditure involved in organizing and conducting such a course, it is highly recommended that funding from international organizations be secured for the program to be sustained.</p>

<p>Land Administration, the University of Melbourne, Australia on 19-21 November, 2003 and assist in exploring options to support attendance by Member Nations and representatives from other regions,</p> <p><i>Further recommends</i> that PCGIAP</p> <ul style="list-style-type: none">• Endorse and support the convening, with the support of the United Nations, within available resources, of an inter-regional workshop to be hosted by the Government of Mexico in Aguascalientes, in October 2004 to determine policies and programmes for educational, training and professional capacity building that will ensure the development of appropriate land administration systems and associated spatial data infrastructures, and• Consider the outcome of the resolutions of the inter-regional workshop for inclusion in the implementation of the Working Group 4 Work Plan.	
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