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Report on the implementation of resolutions adopted at the Seventeenth
United Nations Regional Cartographic Conference for Asia and the Pacific**

**REPORT ON THE ACTIONS TAKEN ON RESOLUTIONS OF THE
SEVENTEENTH 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)***

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

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

This document has been prepared to summarize the follow-up actions taken on the resolutions adopted at the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific (UNRCC-AP), held in Bangkok, Thailand on 18-22 September 2006. 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 17th UNRCC-AP	STATUS OF ACTION
<p>1. Mitigating large-scale disasters</p>	
<p><i>The Conference,</i></p> <p><i>Bearing in mind</i> that there is a need for more effective and efficient use of geoinformation by decision makers for disaster monitoring, assessment and management, and for the realization of improved environmental and sustainable development decision-making, and considering the challenges of the lack of adequate resources facing national mapping offices,</p> <p><i>Recommends that:</i></p> <p>(a) The Permanent Committee on Geographical Information System (GIS) Infrastructure for Asia and the Pacific, national mapping offices and organizations involved in the development of geo-information take the following actions:</p> <p>(i) Collect and provide geo-information on affected areas;</p> <p>(ii) Apply best practices in the development of appropriate geo-databases and applications;</p> <p>(iii) Use remote sensing imagery with other data sets in regional applications;</p> <p>(iv) Coordinate their activities in promoting the wider use of geo-information for disaster monitoring and management with the International Steering Committee for Global Mapping and United Nations activities, in particular including those on the United Nations Platform for Space-based Information for</p>	<p>In response to the resolution recommending the use of geo-information for mitigating large scale disasters in the Asia-Pacific region, PCGIAP member nations, either individually or through each of the Working Groups, have taken actions as follow:</p> <p>(a) Post-disaster event geo-information has been, and continues to be, collected in many (but not all) of the PCGIAP member nations. This is often underpinned or supported by remote sensing imagery. National Mapping Organizations play a major role in this data collection. Many examples have been demonstrated from across the region in the past 3 years. A very good recent example is the Sichuan (Wenchuan) China earthquake in May 2008. There are many others.</p> <p>A specific objective of WG 1: Regional Geodesy is to enhance the regional geodetic infrastructure to contribute to monitoring, warning and post-event reconstruction through cooperative observations of crustal deformation and plate motion, and information exchange, including tide gauge networks and placement of new GPS sites, especially in areas of</p>

<p>Disaster Management and Emergency Response (SPIDER) initiated by the United Nations Office for Outer Space Affairs, accessing the Advanced Land Observing Satellite and new remote sensing imagery sources, investigating geospatial portal technology on mobile platforms and advising countries on the availability and use of web-based spatial data for disaster management;</p> <p>(v) Consider acquiring additional funds through donor agencies for disaster preparedness, mitigation and management, especially in support of the activities of the national mapping offices;</p> <p>(b) Organizations involved in the development of geo-information, such as the International Steering Committee for Global Mapping, collaborate with regional and global initiatives, such as various United Nations programmes and the Group on Earth Observations, which are users of geo-information, and promote the use of geo-information;</p> <p>(c) Organizations active in the geo-information field, such as the International Cartographic Association, the International Society for Photogrammetry and Remote Sensing, and other members of the Joint Board of Geospatial Information Societies, promote geo-information to decision makers and raise their awareness of its benefits;</p> <p>(d) The Permanent Committee consider appropriate mechanisms to enable representatives from developing countries to attend a workshop on monitoring earthquake and tsunami hazards at the time of the planned Permanent Committee- Global Spatial Data Infrastructure Association meeting to be held in Fiji in 2008.</p>	<p>earthquake and tsunami hazards.</p> <p>WG 3: Land Administration has identified that good land administration and tenure is not only an important element to sustainable development, but is also important when considering the makeup of communities and their potential vulnerability to disasters. The largest increases in population in the Asia-Pacific region have occurred in the coastal zones and/or poorest areas, where people are most vulnerable and the impact of natural disasters is greatest. Although complex, central to this is good governance. For example, who is responsible for allowing people to build and live in extremely vulnerable areas? How sustainable is it? What institutional arrangements are in place? What are the risks? What mitigation is taking place?</p> <p>Much has been achieved in applying geo-information to disaster response, especially in using imagery and fundamental spatial data to “record” what disasters took place and what areas were affected. However, these achievements are variable, reactive, often uncoordinated and not to appropriate standards and/or practices. Further, the ability to apply geo-information technologies to disaster mitigation and reduction (before events happen) has been limited due to a lack of capacity and capability within some member nations.</p> <p>There are also ongoing and consistent factors that are challenging the establishment and use of geo-information in disaster risk management: the nature and culture of disaster management, and the lack of appreciation/recognition/availability of geo-information tools. Disaster management, especially the crisis response period, presents unique requirements. Decisions have to be</p>
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	<p>made quickly, often under extreme pressure; there is a lot of uncertainty, due to lack of timely information; and decision making is often based on experience and intuition rather than information. Similarly, the required GIS tools and data are often dispersed across different organisations, information systems, formats, and applications that are devoted to completely different business requirements.</p> <p>The challenge for PCGIAP is to foster data sharing, access, interoperability, administrative and political capacity and capability development at all levels.</p> <p>(b) Global Map was not initially designed with disaster mitigation and management in mind, but over the last five years in particular this has become an increasing priority application area for Global Map. This is because the base map data of the eight layers of Global Map is useful for providing assistance to the nation affected by a disaster. Since 2004 ISCGM has released maps for use in disaster mitigation for all major disasters, including those in the Asia-Pacific region, which have taken place since that time. These maps are downloadable on the ISCGM web site, GSI web site, and the UN Relief Web of the United Nations Office of Community and Humanitarian Affairs (UNOCHA) which coordinates information on disaster areas.</p> <p>(c) Many organizations and agencies active in the geo-information field, have vigorously promoted the value and benefit of geo-information to decision makers, and this value is being recognized. In 2008, JBGIS, (www.fig.net/jbgis/) in cooperation with UNSPIDER initiated a project to produce a "Best Practices Booklet on Geo-information for Risk and Disaster Management" that will</p>
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	<p>create a decision support forum based on the knowledge and experience of experts and will outline the potential uses of the geo-Information technologies to governmental, institutional and operative decision makers all over the world. The publication is planned for July 2010 in Vienna at UNOOSA.</p> <p>(d) No action on this forum.</p>
<p>2. Regional geodesy</p>	
<p><i>The Conference,</i></p> <p><i>Recognizing</i> the importance of establishing a homogeneous geodetic network as the basis for the Asia and the Pacific regional spatial data infrastructure as well as for geodetic activities concerning disaster management of the region,</p> <p><i>Noting</i> the progress made by the Permanent Committee on Geographical Information System (GIS) Infrastructure for Asia and the Pacific Working Group on Regional Geodesy in establishing a precise regional geodetic framework as the base layer in a regional spatial infrastructure,</p> <p><i>Considering</i> that the Global Earth Observation System of Systems ten-year implementation plan, endorsed by more than sixty countries at the Third Earth Observation Summit in Brussels in 2005, is in progress,</p> <p><i>Considering also</i> the frequent outbreaks of natural disasters caused by, in particular, earthquakes, volcanic eruptions and tsunamis in the region,</p> <p><i>Realizing</i> the need to establish a geodetic framework in the Asia and the Pacific region to contribute to the disaster prevention/mitigation programme through associated technology transfer and information exchange,</p> <p><i>Bearing in mind</i> the limited financial resources and the limited availability of equipment and expertise in observation and processing of acquired geodetic data,</p> <p><i>Recommends</i> that the regional geodetic</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 taken actions as follows:</p> <p>a) Three APRGP campaigns (2006, 2007 and 2008) were carried out, coordinated by Geoscience Australia (GA). The campaign data (1997 – 2008) were made available, on request, to participating countries for analysis. GA has carried out preliminary processing of the APRGP data sets from the years 2003 to 2006 inclusive, and re-processed the 1997-2002 APRGP data sets.</p> <p>GSI, Japan has launched a new project: Asia-pacific crustal monitoring project.</p> <p>The catalogue of the tide gauges in the region was completed.</p> <p>b) As for the GPS technology transfer, Australia was discussing with SOPAC to devise strategy for seeking aid money for GPS purchases. China has agreement with Pakistan.</p>

<p>framework continue to be maintained and enhanced through integration of national geodetic networks and through appropriate linkages to global reference frames over the next three years through the following activities:</p> <p>(a) Enhancing the regional geodetic infrastructure in order that it may contribute to monitoring, warning and post-event reconstructions through cooperative observations of crustal deformation and plate motion, and information exchange, including tide gauge networks and placement of new Global Positioning System key sites;</p> <p>(b) Encouraging the transfer of Global Positioning System technology to nations in need through annual campaign observations, and the development and sharing of analysis techniques in the geodesy workshop activities mentioned below;</p> <p>(c) 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;</p> <p>(d) Interacting with International Association of Geodesy Commissions 1 and 2 on the status of the regional geodetic reference frames and geoid determination using absolute gravity, and satellite, airborne and terrestrial gravity;</p> <p>(e) Reviewing the status of geodetic networks in individual countries and upgrading Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific website information;</p> <p>(f) Supporting the expansion of continuous Global Positioning System installations in areas of earthquake and tsunami hazards and strongly encouraging nations to make such data readily available on a weekly basis for shared scientific study and warning systems in relation to tectonic events.</p>	<p>c) Each country is encouraged to refer to the guideline (compiled by GA) in our web page.</p> <p>China's Datum went geocentric in 2008.</p> <p>d) GA will participate as a regional coordinator for the International Association of Geodesy - Working Group Regional Dense Velocity solution, Asia-Pacific. The PCGIAP solution will be contributing to the ITRF2008 densification activity.</p> <p>Korea began to develop its precise geoid model in 2007</p> <p>e) This work is on going.</p> <p>f) China, Japan, Korea and Australia are densifying their networks. Indonesia and Philippines are planning to build and/or densify their CGPS networks.</p>
<p>3. Marine administration</p>	
<p><i>The Conference,</i></p> <p><i>Noting that the majority of national spatial data</i></p>	<ul style="list-style-type: none"> • Maintained momentum and interest in marine administration through dedicated web site and

<p>infrastructures and cadastral initiatives are related to only the land environment and that most countries in the region have an extensive marine jurisdiction and related administrative responsibilities,</p> <p><i>Noting also</i> the requirements and obligations imposed upon countries under the United Nations Convention on the Law of the Sea¹ with respect to supporting the management of their marine environment,</p> <p><i>Acknowledging</i> that the marine environment and particularly the coastal zone are critically important for food production and sustainable development within Asia and especially the Pacific island countries,</p> <p><i>Recognizing</i> the outcomes of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific Working Group 3 International Workshop on Marine Administration, held in Malaysia in 2004, which recommended that a marine cadastre be defined as a management tool that spatially describes, visualizes and realizes formally and informally defined boundaries and associated rights, restrictions and responsibilities in the marine environment as a data layer in a marine spatial data infrastructure, allowing them to be more effectively identified, administered and accessed,</p> <p><i>Recommends</i> that:</p> <p>(a) All countries in the Asia-Pacific region with a marine jurisdiction and administrative responsibilities be encouraged to include the development of a marine administration component (including a marine cadastral component) as part of a seamless spatial data infrastructure that covers both land and marine jurisdictions so as to ensure a continuum across the coastal zone;</p> <p>(b) The Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific through Working Group 3 continue investigations regarding marine cadastre, marine spatial data infrastructure, and the spatial dimension of marine administration and ocean governance, and particularly encourage member nations to complete the Marine Cadastre Template available from www.marineadministration.org.</p>	<p>ongoing research</p> <ul style="list-style-type: none"> • Several countries in the Asia and Pacific region (such as Australia and Indonesia) have formally included a marine dimension in their national SDIs • Many of the activities and outcomes concerned with marine administration and marine SDI are part of the overall outcomes of WG3 more fully described below in Resolution 4 • Have contributed to IHO strategy and technical working group on marine SDI development for safety of the seas
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<p>4. Spatial data infrastructure support</p>	
<p><i>The Conference,</i></p> <p><i>Noting</i> the outcomes of Agenda 21 and the Bogor Declaration of the United Nations Interregional Meeting of Experts on the Cadastre held in Bogor, Indonesia, from 18 to 22 March 1996, that promote the importance of efficient and effective national spatial data infrastructures and land administration systems as key factors in support of sustainable development and environmental management,</p> <p><i>Noting also</i> the resolutions and deliberations of the Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific and the Eighth United Nations Regional Cartographic Conference for the Americas on the need to integrate land administration, cadastre and land registration functions with topographic mapping programmes within the context of a wider national strategy for spatial data infrastructures,</p> <p><i>Mindful</i> of the benefits and difficulties of integrating natural and built (including legal, cadastral, economic and demographic data) environmental data sets with a view to providing an understanding of the real world and supporting decision-making for sustainable development,</p> <p><i>Recognizing</i> the outcomes of the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific workshop on integration of natural and built environmental data which concluded that, first, such integration was an important component in the delivery of technical, economic and social solutions to real-world problems in government, business and the community at large; and second, that spatial data infrastructures served as an enabling platform supporting spatially enabled government in supporting strategies such as e-government,</p> <p><i>Recommends</i> that:</p> <p>(a) Member nations develop a better understanding and pursue the principles of:</p> <p>(i) The integration of natural and built environmental data sets in support of sustainable development;</p>	<ul style="list-style-type: none"> • Continued to promote, discuss and exchange ideas on spatially enabled government and land administration in the Asia and Pacific region • Continued to maintain and contribute to the joint PCGIAP-FIG Cadastral template project to compare cadastral systems globally at www.cadastraltemplate.org • Successfully re-engineered WG3 to embrace current important topics of land administration and spatially enabled government at the request of member countries resulting in the establishment of an annual “Land Administration Forum” under PCGIAP titled MOLAAP • Successfully ran a SDI newsletter for Asia and the Pacific • Successfully liaised with related international organisations such as the UN, EUROGI, UNECE (WPLA), FIG and GSDI to pursue issues of mutual interest. The appoint of the Vice Chair of WG3, Associate Professor Abbas Rajabifard as president of GSDI is very important in these developments • Successfully completed a major project on multi-sourced data integration (data integration project) involving many member countries. Useful software was developed and tested by member countries to support data integration within SDIs • initiated and contributed to a new project (spatially enabled government) and also initiated

<p>(ii) A spatially enabled platform to support the integration of natural and built environmental data by exploring related conceptual, institutional, policy, legal and technical issues;</p> <p>(iii) Designing spatial data infrastructures to support spatially enabled government;</p> <p>(b) The Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific, through Working Group 3 for the period 2006-2009, assist member nations in building or re-engineering their spatial data infrastructures to support the role of spatially enabling government by examining the concept and associated institutional, technical, policy, legal, socio-economic and capacity issues.</p>	<p>an annual land administration forum</p> <ul style="list-style-type: none"> • Successfully organised three successful international workshops and seminars – Korea 2007, Malaysia 2008, Iran 2009. Up to 30 countries were involved, six international organisations and over 400 delegates attended one or more of the forums. • Established three dedicated website for the projects, • Instituted a successful and widely disseminated publication strategy. • Developed with PCGIAP support, resolutions to be taken to the 18th UNRCC for Asia and the Pacific
<p>5. Fundamental data</p>	
<p><i>The Conference,</i></p> <p><i>Recalling</i> that the Asia and the Pacific region is a potential area for disasters, for example, earthquakes and tsunami,</p> <p><i>Recalling also</i> the importance of generating a seamless data set covering the entire Asia and the Pacific region,</p> <p><i>Noting</i> the significant interest expressed by the participating countries and the results obtained so far in the context of the pilot project for the generation of a set of seamless data layers for the tsunami-affected area,</p> <p><i>Noting also</i> the strong support for the pilot project emanating from the eleventh meeting of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific, held in Bali, Indonesia, from 18 to 21 May 2005, and the meeting of the Executive Board of the Permanent Committee, held in Bandar Seri Begawan, Brunei Darussalam, on 26 November 2005,</p> <p><i>Welcoming</i> the efforts of the Global Map project</p>	<p>In response to the resolution, especially to respond to the disasters that happened in the Asia and the Pacific region, the PCGIAP Fundamental Data Working Group (WG2) has taken actions as follows:</p> <ul style="list-style-type: none"> ➤ Developed a regional framework dataset as a framework for mapping of potential area for disasters such as earthquakes and tsunami. Initiated with dataset development of countries hit by Indian Ocean tsunami in 2004, this is continued to covering 22 Asia Pacific countries. The dataset is a seamless vector dataset consisting of the following layers: international and administrative boundaries, road network, hydrography, populated places. The regional framework dataset has been developed in close collaboration with the National Mapping Agencies of each country, PCGIAP WG1, ISCGM and the

<p>and those of the United Nations Geographic Information Working Group (UNGIWG) Second Administrative Level Boundaries (SALB) project in the generation of global seamless data sets including those for Asia and the Pacific,</p> <p><i>Recognizing</i> that the availability of fundamental data sets, such as national administrative divisions, are crucial for the analysis and management of socioeconomic phenomena,</p> <p><i>Recognizing also</i> that the Government of the Russian Federation adopted, in August 2006, the concept of spatial data collection and development,</p> <p><i>Recommends</i> that:</p> <p>(a) Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific Working Group 2 on Regional Fundamental Data, jointly with Permanent Committee Working Group 1 on Regional Geodesy, extend and improve the above-mentioned pilot project in collaboration with the International Steering Committee for Global Mapping, the United Nations Geographic Information Working Group (UNGIWG) Second Administrative Level Boundaries (SALB) project and other, similar initiatives;</p> <p>(b) The Permanent Committee, through Working Group 4 on institutional strengthening in collaboration with Working Group 2, encourage efforts in capacity building in data development, in particular the training programmes provided by the Geographical Survey Institute funded by the Japan International Cooperation Agency;</p> <p>(c) The Permanent Committee encourages close collaboration between its Working Group 2 with International Organization for Standardization Technical Committee 211 in the development of an International Organization for Standardization metadata standard profile for Asia and the Pacific;</p> <p>(d) Countries in the Asia and the Pacific region, particularly through their national mapping organizations and notably with the help of the Permanent Committee, support and participate actively in the Second Administrative Level Boundaries project and the Global Map project by providing the necessary data and information required by those projects, and take full advantage of participating in the Global Map and SALB projects for</p>	<p>SALB project.</p> <ul style="list-style-type: none"> ➤ In relation to building the cooperation with the ISO/TC211 organization, the PCGIAP and the ISO/TC211 created a prototype of AP metadata profile. In addition to that, some presentations have been carried out, as follows: <ul style="list-style-type: none"> • Regional ISO Metadata Profiles • PCGIAP Metadata Profile Survey & Resulting Draft ISO Metadata Profile for Asia and the Pacific. • ANZLIC ISO Metadata Profile: Experiences and Status • Geospatial Metadata Profiles, Catalogues and Interoperability. ➤ The development of the clearinghouse which focuses on the provision of standard protocols and guideline for training purposes is in progress. The materials to provide have been identified as follows: the concept of APSDI, the concept of data sharing, introduction of IT environment, metadata development, metadata service creation, geospatial database development, and map service creation. ➤ Active and supportive participations of national mapping agencies in the Second Administrative Level Boundaries project and the Global Map project
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<p>capacity-building so as to help establish national and regional spatial data infrastructures in the region;</p> <p>(e) Countries in the Asia and the Pacific region continue their efforts to create and support national geo-information databases and spatial data infrastructures and undertake this work in the most efficient and effective way by avoiding duplication of effort.</p>	
<p>6. Timor-Leste spatial data infrastructure</p>	
<p><i>The Conference,</i></p> <p><i>Recognizing</i> the positive and separate efforts of the Government of Timor-Leste and the Department of Peacekeeping Operations of the United Nations Secretariat to develop geographical information and a spatial data infrastructure in Timor-Leste,</p> <p><i>Recognizing also</i> the efforts of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific to establish a regional spatial data infrastructure and multi-country data sets, and the efforts undertaken internationally to improve the geographical information knowledge base in Timor-Leste,</p> <p><i>Recommends</i> that the Government of Timor-Leste, member countries of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific, the Department of Peacekeeping Operations of the United Nations Secretariat and other international entities, collaborate, as appropriate, in developing this spatial data infrastructure so as to maximize its value.</p>	<p>United Nations Integrated Mission in Timor-Leste (UNMIT) together with UN Country Team (OCHA, UNICEF, UNDP and UNFPA) is working with Timor-Leste Government counterparts to develop geographic information activities and initiate the building of a National Spatial Data Infrastructure (NSDI).</p> <p>Through its participation in the country's Geographic Information Group (GIG), UNMIT GIS Unit has collaborated with the Ministry of Administration, Department of Infrastructure, the CNE (Electoral National Centre), Department of Statistics, and several consultants and contractors hired by the Government. More specifically, UNMIT GIS Unit has provided assistance, mostly mapping of polling centers and statistics of election results, to the Government and UN Electoral Team throughout the election process, the latest being the Suco Elections 2009. In addition, it has generated and shared with the Government many geographic data and map products including a place-name gazetteer and city maps derived from high resolution satellite imagery.</p> <p>A GIS Portal, part of the NSDI project, has been developed and is currently under some changes. Also,</p>

	<p>some projects involving the Government and the UN Country Team are planned for next year: Providing GIS assistance during National Census and Municipal Elections. The Deputy Special Representative of the Secretary-General Office and UNDP are planning to launch collaborative project with UNMIT on GIS national capacity building.</p>
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