



# **The Global Disaster Information Network Business Plan**

**Endorsed at the GDIN Annual Conference  
Canberra, Australia  
23 March 2001**

**GDIN is a public-private partnership that gets the *Right Information, to the Right People, On Time* in order to make the **Right Decision**, so as to help mitigate and effectively respond to the toll of natural and man-made disasters.**

**GDIN does not move food and medicine to victims. Instead, it makes that effort easier and more cost-effective through a specific set of information services, to be phased in over five years. GDIN also intends to be appropriate for community relief workers, to foster training, to be relevant to local capacity building and to address all forms of natural disasters (e.g: fires, floods, hurricanes, volcanoes), technological disasters (e.g: oil spills) and complex humanitarian emergencies (refugee flows).**

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## **GDIN-INTERNATIONAL MANAGEMENT**

[www.gdin-international.org](http://www.gdin-international.org) and [www.gdin.org](http://www.gdin.org)

Larry W. Roeder, Jr., MS, Executive Director  
Policy Advisor (Natural Disasters and Emergency Information)  
Bureau of International Organizations  
US Department of State

Karen Risa Robbins, Fund Director  
President & CEO, AmTech Technology Alliances

### **EXECUTIVE COMMITTEE**

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**Alan Hodges, *Committee Chair***

Consultant (Former Director General, Emergency Management, Australia)

**Dr. Albert Simard**

Policy Committee Chair  
Science Advisor, Natural Resources, Canada

**Jonathan Abrahams**

Annual Conference Organizing Committee representative  
Acting Director Development, Emergency Management Australia

**Dr. Raniero Guerra**, Director General, International Relations, Institute of Health, Italy.

**Karen Risa Robbins**

Funding Committee representative  
President and CEO, AmTech Technology Alliances

**Dennis King**

Working Group Chair  
Information Manager, Operations Center, UNICEF Headquarters, NY

**James Bishop**, Disaster Response Director, Interaction

NGO Working Group representative (a co-chairman for this Working Group is to be announced in 2001 through consultations between the American Red Cross and Mr. Bishop)

**Larry Roeder**

Executive Officer  
Policy Advisor (Natural Disasters and Emergency Information), US Department of State

Vacant

Funding Committee representative

Vacant

Working Group Chair (to be elected in 2001 by the Working Group Chairs)

## **WORKING GROUP AND COMMITTEE CHAIRPERSONS**

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These individuals act as a cabinet to the Executive Director. Working Groups and Committees have no set time frame of operation; but are instead geared to meet specific needs, both long and short term. By agreement, the Capacity Building Working group was abolished at GDIN2001; but all Working Groups were asked to add this concept to their work. In addition, the Pilot Project Working Group was also abolished. In its place, each Working Group is responsible for fostering its own pilot projects. A Pilot Project facilitator was also established (Paul Bourget) to facilitate the proper placement of externally proposed pilot projects into appropriate working groups. Working Groups can also recommend that projects are of such worth that they have their own working group. Those working groups that only have one Chair (with the exception of the Policy Working Group) will also be asked to establish a co-chair in 2001. Where possible, co-chairs should be from different organizations or nationalities.

### EXECUTIVE COMMITTEE

**Alan Hodges**, Consultant, Canberra Australia

### FUNDING COMMITTEE

**Karen Risa Robbins**, President and CEO AmTech Technology Alliances, California, USA

### ACADEMIA

**Dr. Al Austin**, Iowa State University, USA

### COMMUNITIES

**Bernard Joyce**, Research Fellow, School of Earth Sciences, University of Melbourne, Australia

### GIS/REMOTE SENSING

Co-Chairs:

**Dr Carmelle Côté**, International Relations/GIS Consultant, ESRI, Virginia USA and

**Dr. Jean-Yves Bouchardy**, Chief Cartographer, UNHCR, Geneva

### INDUSTRY

**Russ Johnson**, Public Safety Solutions Manager, California USA

### INFECTIOUS DISEASES

**Dr. Robert J. Coullahan**, Assistant Vice President, Disaster Preparedness & Consequence Management Programs, Science Applications International Corporation, .Virginia, USA

### INFORMATION FACILITATOR

Laurie Johnson, Risk management, Inc

John Rizie, CINCPAC

### NGOs

**Ambassador James Bishop**, Director of Humanitarian Response, InterAction, Washington DC, USA

### POLICY

**Dr. Albert Simard**, Science Advisor, Natural Resources, Ottawa, Canada

### REGIONAL INITIATIVES: AFRICA:

**Vacant**. Point of contact: **Larry Roeder**, GDIN Executive Director

### REGIONAL INITIATIVES: AMERICAS:

**Vacant**. Point of contact: **Larry Roeder**, GDIN Executive Director

### REGIONAL INITIATIVES: ASIA-PACIFIC REGIONAL WORKING GROUP

Co-Chairs: **Loy Rego**, Senior Manager, Asian Disaster Reduction Center, Bangkok, Thailand and **Jonathan**

**Abrahams**, Acting Director, Development, Emergency Management Australia, Canberra, Australia

### REGIONAL INITIATIVES: MEDITERRANEAN INITIATIVE (MEDIN)

**Dr. Anver Ghazi**, Chief of Disaster Management, European Commission, Brussels, Belgium

### STANDARDS

**Dennis King**, Information Manager, UNICEF Operations Center, NY, USA

Jean Yves Bouchardy, Chief Cartographer, UNHCR

### TELECOMMUNICATIONS<sup>1</sup>

**Hans Zimmermann**, Senior Humanitarian Affairs Officer, UN OCHA, Geneva, Switzerland, and Chairman, the UN Working Group on Emergency Telecommunications (WGET)

### VIRTUAL INFORMATION FACILITATOR SERVICE

Co-Chairs: **Laurie Johnson**, Risk Management Solutions, Inc. California, USA and **John Reitz**, Director Asia

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<sup>1</sup> By agreement, the UN Working Group on Emergency Telecommunications (WGET) acts as an advisory body to GDIN, though it is not a formal working group.

Pacific Area Network, Cubic. Applications Inc, Hawaii, USA

PEACEWING PROJECT:

**Dr. Albin Gasiewski**, Physicist & Group Leader, Microwave Radiometry/Ocean Remote Sensing, NOAA, Office of Oceanic & Atmospheric Research, Environmental Technology Lab, Colorado, USA.

## THANKS

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There are too many to thank for contributions this plan; but management would like to call attention to the following experts, offered in alphabetical order, since all provided essential advice, and none should feel less important than others. If we have left someone off, we apologize.

Jonathan Abrahams of Emergency Management, Australia; Diane Acurio, PIMS; Dr. Jane De Aguanno; NOAA; Mr. Mario Aguilar Embassy of Mexico; Dr. Al Austin of Iowa State; Dr. Walter Barrows, US GDIN Team; David Baxa, Vice President of Vista Ambassador James Bishop of Interaction; Dr. Einar Bjorgo, UNHCR; Dr. Jean-Yves Bouchardy, Chief Cartographer of UNHCR; Paul Bourget of the US Army Corps of Engineers; Laurence I. Broun, Office of the Deputy Under Secretary of the United States Army; Dr. Juan Carlos, Belausteguigoitia Rius; A.J. Chibber, Director of the Turkey Desk, the World Bank, Ankara Turkey; Dr. Russell Coile, Co-Chair of the Small Communities Working Group; Professor Louise Comfort, Principal Investigator, IISIS Project, University Center for Social and Urban Research, University of Pittsburgh, PA, USA; Dr. Carmelle J. Cote of ESRI; Dr. Robert J. Coullahan, Assistant Vice President Disaster Preparedness & Consequence Management, SAIC; Lori Dando, US Department of State; James Devine, USGS; Sergio De Mello, former Under Secretary General of the United Nations; Arnold Donahue (NAPA); Dan Dubno, CBS News; Dr. Fernando Echevarria, US Department of State; Mustafa Erdik, Director, Centre For Earthquake Engineering, Bogazici University, Istanbul, Turkey; Oktai Ergunay, former General Director for Disasters, Ministry of Public Works & Settlement, Turkey; Dr. James A. Farley, Technical Director, Center for Advanced Spatial Technologies. (CAST); Lt. Col Shmuel Fridman, Homefront Command, Israel; Dr. Luigi Fusco, Head of Multi-mission Infrastructure Section, RSED, European Space Agency, ESA-ESRIN Dr. Al Gasiewski of NOAA; Dr. Anver Ghazi, European Commission; Darci Glass-Royal, GDIN-International research staff; Dr. Theodore (Ted) Glickman of KPMG; Dr. Hussein Guler of METU; Dr. Polat Gulkan, Director Disaster Research, METU; Alta Haggarty, Director of ReliefWeb; Dr. John Harrald, Director, Center for Disaster, Crisis and Risk Management, George Washington University, Washington, DC, USA; Alan Hodges, Consultant (former Director General, Emergency Management, Australia); Dr. Sun Hong, Government of China; Laurie Johnson, RISKINC; Patricia Jocius, Co-Chair of the Small Communities Working Group; Dennis King, UNICEF Operations Center; Peter Krejsa, Austrian Research Centers; Dr. V.I. Larionov, EMERCOM; Karin MacDonald Institute of Governmental Studies, University of California Berkeley, Berkeley, CA, USA; Alberto Maturana, Director ONEIMI, Deputy Secretary of Planning, Ministry of the Environment, Mexico; Wilfrido A. Moreno, University of South Florida; Masahiko Murata, Asian Disaster Reduction Center, Kobe, Japan; Paul Myrea, Reuters; Dr. Eric Noji of CDC and WHO; Mike Orfini, Office of the Vice President of the United States; John Owen-Davies, private expert Elaine Padovani, U.S. Geological Survey; Dr. Earnest D. Paylor II, National Aeronautics and Space Administration (NASA); Nigel Peachey, World Health Organization's (WHO), Health Information Network for Advanced Planning (HINAP), Department of Emergency and Humanitarian Action; Gerhard Putman-Cramer, Deputy Director and Chief, Disaster Response Branch, UN Office, for the Coordination of Humanitarian Affairs, Geneva; Owen Radk of TRW; Karen Risa Robbins, President of AMTECH; Luis Garcia Rubio, University of South Florida; Dusan Sakulski, National Disaster Management Center, South Africa; Pierre-Alain Schieb, Chief of the Systemic Risks Program, OECD; Dr. Lee Schwartz, Geographers Office, US Department of State; General Mikhail Shakhramanjan, Head, Agency on Monitoring and Forecast of Emergency Situations, EMERCOM of Russia; Dr. Margarita S. Studemeister, Library Program Director, United States Institute of Peace (USIP); JD Szwarcop, GDINUSA Office; Dale Tietz of New Vistas, Inc.; Eutizio Vittori, ANPA, Italy; Col Bon Wendo of the Kenyan Operations Center; Dr. Gregory W. Withee Assistant Administrator, NOAA; William Wood, Principal Deputy Assistant Secretary of State for International Organizations and Co-Chair of the US GDIN Program; Ruchan Yilmaz, Director General of Disaster Affairs, Turkey; Zhu Xingming, Chinese Water Resources Bureau and Hydropower Research Institute, China; Hans Zimmermann, Chairman of the UN Working Group on Emergency Telecommunications; Dr. Konrad Zirm, Government of Austria

## EXECUTIVE SUMMARY

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1. GDIN received international support as a result of a meeting in Washington DC in July 1998. It was recognized that harnessing information technology had potential to reduce the devastating cost of disaster on people, property and the environment. The concept has developed through annual meetings in Mexico City in 1999 and Ankara in 2000. To date, GDIN has successfully provided valuable maps-based on remote sensing information to disaster managers in Asia, Africa, Europe and the Americas in response to disaster incidents. In the first three months of 2001, GDIN has provided such products or superior access to products for disasters in Columbia (for mitigation purposes) and for India, Ecuador, El Salvador, and Mozambique.
2. Although the concept was initiated by the United States, GDIN is an independent and politically-neutral organization without allegiance to any country. GDIN is also a public-private voluntary, self-sustaining, non-profit association of organizations and professionals of countries throughout the world, and from all levels of society, with an interest in sharing all types of disaster information. The GDIN vision is to get the right information, in the right form, to the right people, on time in order to make the right decision. Although GDIN cannot stop disasters, it will help governments and other users more effectively to undertake risk assessment, mitigation, preparation, response and recovery activities.
3. The project has been endorsed in UN resolutions. Significant partners have included the UN (especially Reliefweb, UNICEF and UNHCR), OECD, the European Commission and governments such as United States, Italy, Mexico, Australia, Turkey, Russia and others.
4. GDIN is developing a range of specialised disaster-information services to help mitigate and effectively respond to the toll of natural and man-made disasters. Currently, there are no comprehensive and centralized databases or arrangements to provide such information at the international level. The GDIN approach will be to provide comprehensive information speedily and in a form suitable for the user (for example: maps of the appropriate scale or satellite imagery of the resolution needed), at low or no cost, and appropriate to the telecommunications facilities of the users, and in keeping with the Tampere Convention on the Provision of Emergency Telecommunications.
5. The GDIN website already contains much useful information and provides chat and forum services. It will be developed further including the ability to access public and password-protected GDIN databases. An experimental Virtual Information Facilitator Service is currently operating, and this will be developed further to assist in the provision of information for all phases of disasters. The Service will be a key link in facilitating the exchange of information between users and suppliers of information.
6. GDIN Management proposes to continue to pursue relationships with key information providers from the public and private sectors, and to formalize partnership agreements, as appropriate, to foster access to critical products or build GDIN services.

7. GDIN supports 17 committees and Working Groups which consider a wide range of issues to guide the directions of GDIN. These matters are examined in detail at annual conferences in accordance with procedures in accordance with the Ankara Declaration, which was endorsed in 2000. In view of the importance of Working Groups, support to enhance their functioning is proposed. The development of pilot projects, which will be largely self-funded or supported by GDIN, will be considered by coordinated by a Pilot Projects Facilitator.

8. The legal structure of GDIN is being examined with a view to the organization having a legal personality during 2002. Options include establishment as an International Organization or an NGO, or some or some other suitable structure that will allow appropriate levels of membership by all sectors of society in keeping with normal standards of international law.

9. The core staff of GDIN consists of the Executive Director, a Fund Director and Virtual Information Facilitator Service staff. It is proposed that the Executive Director be supported by a Deputy, an assistant and Secretariat Support staff. GDIN also exists through the support of over 1,000 volunteers who participate through conference, working groups and management committees.

10. GDIN has benefited from financial support from the European Commission, the United States, Mexico, Australia, Turkey, Russia and industry, as well as in-kind support from the United States, the United Nations, Industry and the NGO and the Small Community Working Groups. Avenues of revenue to be explored in the future are through organizational membership fees, charging commercial partners for services and seeking further in-kind contributions. Additionally, a donor event is planned for the GDIN2002 conference.

11. Detailed activities have been identified for the next five years and related expenditure has been estimated at: Year 1 \$US 1.2 million; Year 2 \$US 3.1 million, Year 3 \$US 2.9 million; Year 4 \$US 2.9 million; and Year 5 \$US 3.9 million. It is expected that actual expenditure will be reduced by provision of in-kind services.

12. It is intended that the Executive Director produce annual performance guidelines that set out project priorities and requirements in greater and measurable detail and validated for consideration at the annual conferences. The conference in 2005 will consider, in particular, the level of international commitment and future development options.

## **1. DEVELOPMENT OF GDIN**

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1.1 GDIN's international aspects grew out of US Department of State experiences in the early 1990s from examining the crisis in Rwanda, when it first decided to create an international strategy on sharing crisis information. Canada and the United States worked together on this vision under a Canadian-led G7 Information Society initiative, and more recently with OCED to tie in their Systemic Risks Project. The initial US Government effort (with UN HQ and UNICEF assistance) established a UN website called ReliefWeb. A need was also recognized for a program to push highly technical information in usable format to disaster managers in the most remote regions, and to facilitate finding essential data not readily available on the Internet.

1.2 In 1996, the US Department of State was asked to send a satellite photo to former Zaire to help rescue relief workers on an erupting volcano, and examine risks to thousands of refugees at the base. There was no Internet in Zaire, or color printers, so the normal approach of emailing a large map based on remote sensing data would not work. Instead, A US Department of State team arranged for satellite-based infrared imagery to be converted into a small black and white map within eight hours, which was then faxed to Zaire and emailed to Kenya. We do not know in fact if the product actually was used to rescue anyone; but the product was developed as a direct result of a call for assistance and delivered (email/faxed) in a format appropriate for the need. The current vision of GDIN is to be able to do this in any phase of a crisis to send the right information in the right format to the right people on time – and then to have in place a quality control process to see if information provided actually was used, and if not, why not. For example, while in 1999 GDIN was involved the in the provision of data to Turkey at their request, the dissemination was weak. As a matter of routine, the maps were posted on ReliefWeb and other for a; but as briefed by OCHA, the products were then not pushed down to relief workers in the field in an efficient manner.

1.3 In July 1998 an international meeting was held in Washington DC to consider the development of a Global Disaster Information Network. The outcome of the meeting was support for the concept and agreement to meet again. Since then, GDIN has continued to develop as outlined in Annex A. Although the concept was initiated by the United States, GDIN is an independent and politically-neutral organization without allegiance to any country.

1.4 GDIN has now developed to the stage of being able to identify its future directions through this Business Plan. During 2001 and subsequent years detailed implementation plans will be developed.

## **2. WHAT IS GDIN?**

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2.1 GDIN is also a public-private voluntary, self-sustaining, non-profit association of organizations and professionals of countries throughout the world, and from all levels of society, with an interest in sharing all types of disaster information. GDIN is developing a range of specialized disaster-information services, as described in this plan, in order to gets the right information, to the right people, on time, in order to make the right decision, and to help mitigate and effectively respond to the toll of natural and man-made disasters.



## 2.2 Core elements of sharing include:

- 2.2.1 Foster the development of information to suit unique needs and to convey that information to those who need it, regardless of technological restrictions. This will require outreach, user<sup>2</sup> surveys and the use of pilot projects.
- 2.2.2 Help users find appropriate information providers more effectively than current systems.
- 2.2.3 Avoid duplicating other systems and, as much as possible, partner with other systems that are reliable.
- 2.2.4 Undertaking advocacy activities by representing the needs of disaster managers in appropriate information management forums.
- 2.2.5 Improve global sharing between providers and users of information about all disaster management functions. GDIN will do this, in part, by providing a primary portal of access and linkage to existing national, regional and international emergency and disaster-management networks. In addition, GDIN will develop internet-reliant databases of provider experts and organizations, a virtual information service that allows for human interaction, and an agreements system (otherwise known as an MOU system) that links GDIN as an organization to potential providers under an umbrella of "best information sharing practices."
- 2.2.6 Use current and new information and communication technologies for existing and international emergency and disaster management networks, especially remote sensing, GIS and telecommunications technologies.
- 2.2.7 Improve information sharing (of all forms) for all phases of disasters (mitigation, preparation, response and recovery), with a particular focus on natural and technological events and humanitarian emergencies.<sup>3</sup>
- 2.2.8 Undertake activities to develop and increase effectiveness and interoperability of national, regional and commercial disaster management systems. GDIN will also promote and support more timely access to disaster information by potentially affected communities and the general public.
- 2.2.9 Identify information management capabilities and needs of disaster managers in GDIN-relevant technologies through pilot projects, seminars, conferences, training and other appropriate methods.

## 3. THE NEED

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3.1 On average, a world-class disaster strikes every three days somewhere on the planet, each requiring some sort of UN action or monitoring. Local authorities handle thousands of smaller disasters. Annex B provides some details on the cost of disasters. All would benefit from more effective access to, and use of, the world's disaster-management knowledge and monitoring capabilities. The problem is that information providers are not linked, and no one country, association of governments or corporations has the capability or the arrangements to provide the

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<sup>2</sup> Users include, but are not limited to, emergency managers, NGOs, scientific and technical specialists, academia, professionals and decision makers, risk managers.

<sup>3</sup> At GDIN1998 in Washington, DC and at GDIN2000 in Ankara, Turkey, the participants agreed to include humanitarian emergencies as a class of disaster than can benefit from GDIN.

needed data for early warning, mitigation and response for every disaster. A revolution in information and computer technologies is transforming the global community from an industrial to an information society. Tailored use of these technologies can assist in preventing or reducing the considerable impacts of disasters on people, their infrastructures, and their environment.

3.2 What is needed is an international cooperative arrangement that links users to providers 24 hours a day, seven days a week, and one that gets the right information in the right format to the right people on time in order to assist in decision making. GDIN proposes doing this.

## **4. THE SOLUTION**

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4.1 The crisis in the rise of natural and technological disasters is such that OECD experts have declared them a systemic risk to the global society, one that threatens economies and political structures, and inhibits international commerce. GDIN's synergy and services will change this, improve risk assessments and the mitigation, preparation, response and recovery phases of disaster management, and set the stage for more effective building codes and the placement of infrastructure, investments and populations.

4.2 The time for GDIN is now. International GDIN's linkage of governments, international and regional organizations and agencies, NGOs, disaster managers, academics and industry, with a focus on capitalizing on developments in information technology, could have an enormous impact on the world. GDIN cannot stop natural disasters, but it will help governments and other users more effectively prevent, mitigate, plan for and respond to all phases of disasters. National organizations will no longer be limited to relying on their own information assets. They will be able to count on GDIN harnessing international sources to provide information on time and in the right form.

4.3 Although all nations will benefit from more effective early warnings and the speedy sharing of information products describing fast moving disasters, in the developing world, the social and economic impact of such disasters on local societies is especially significant. The insurance industry is often weak, building codes are often non-existent or weakly enforced, and governments and local disaster managers often either do not have the training to interpret remote sensing data, the money to buy it, or the bandwidth to receive it. In cooperation with national authorities, GDIN aims to complement local, national and regional information sources by providing direct early warning of impending disasters to key national and sub-national decision makers, and to corporate, academic and NGO partners. As GDIN develops, it is planned that there will be a Virtual Information Facilitator Service staffed by experts with direct links to national authorities, key disaster agencies and information supplier to establish the world's most effective bridge between a wide range of users and information providers – and also broaden access to information otherwise not in the public domain.

## **5. GDIN VISION**

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5.1 The GDIN vision statement looks ahead to see the desired future:

*The right information, in the right form, to the right people, on time in order to make the right decision so as to help mitigate and effectively respond to the toll of natural and man-made disasters.*

## **6. GDIN MISSION**

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6.1 The mission statement describes GDIN's purpose:

*To develop information management capabilities to save lives and reduce damage to property and the environment resulting from all forms of disasters.*

## **7. GDIN GOALS**

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7.1 The following goals of GDIN were also adopted as part of the Ankara Declaration:

- 7.1.1 Increase awareness of the importance and value of disaster-related information and best practices for managing it.
- 7.1.2 Adapt remote sensing, computer, communication, information, and network technologies to acquire, produce, and disseminate and access disaster data, information, and knowledge.
- 7.1.3 Promote the development of national and regional capacity and infrastructures to access, manage, disseminate and use disaster information carried by GDIN in a digital format.
- 7.1.4 Foster the sharing of information about all disaster management functions via a primary portal of access to national and international networks.
- 7.1.5 Facilitate development and foster adoption of mutually agreed interoperability, metadata, and classification standards to support global sharing of disaster information.

7.2 Provide disaster information and support services as directed by GDIN's governing body.

## **8. GDIN APPROACH**

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8.1 GDIN capabilities are applicable to all phases of a disaster, not just for response. Information requirements are not necessarily immediate for risk assessment, mitigation and preparation activities, and for recovery to an extent. However, information for all phases of disasters need to be comprehensive and to draw on worldwide examples of exemplary practices. There is also a complementary need for relevant data to assist planning. Currently, at the international level, there are no comprehensive and centralized databases or arrangements to provide such information. GDIN proposes to identify and, as appropriate, foster the development of standard best practices. In addition, GDIN-fostered databases linking users and providers will provide a portal to reliable providers and valuable pilot projects.

8.2 During all disaster phases, there is often a critical need for detailed and up-to-date information to assist decision-making, such as access to accurate maps and remote sensing images together with geographic information system (GIS) products. These will be fostered

through a Virtual Information Facilitator Service and other elements of GDIN. The following features will be particularly applicable during actual disasters, but also will have application during other disaster phases:

- 8.2.1 **Timeliness:** Once a disaster such as an earthquake strikes, emergency managers need rapid access to maps, images and data to assess the extent of damage; however, no owner of remote sensing platforms provides simultaneous worldwide coverage. GDIN proposes developing arrangements whereby potential providers can be alerted to a specific problem and thus increase the chances of obtaining the right information in the right form on time.
- 8.2.2 **Resolution:** Following a disaster, emergency managers normally require a broad picture in the first instance to define the area of impact, especially as first reports may be vague. Once the extent of damage has been identified, more specific information is required, and this may change from day-to-day. In relation to remote sensing data, these needs reinforce development of arrangements so that a variety of space and ground-based sources can be accessed. GDIN proposes to create such arrangements through a development of a Memorandum of Understanding (MOU) between GDIN and information suppliers. Such MOUs will, however, recognize that information providers may have data that is sensitive for national security or commercial reasons.
- 8.2.3 **Cost:** Data is not normally a free good and costs can rise depending on use. For instance, placement of remote sensing images on the Internet may be many times more expensive than purchase for sole use. Moreover, raw data may require expensive processing to make it usable in a particular situation. GDIN will negotiate with owners and processors of information for no-cost or reduced cost services to be provided on humanitarian grounds. There will, however, be a need for the purchase of some data to assist lesser-developed countries, especially during crisis situations. Where purchase is between a user and supplier, GDIN will, however, not be responsible for negotiation of costs.
- 8.2.4 **Appropriateness:** There is generally a worldwide knowledge gap between disaster managers and the technical providers, such as satellite companies and GIS firms. There is a clear need for an intermediary organization, such as GDIN, to have links with technical providers to assist them to tailor data for disaster management. In this role, GDIN can fill a critical gap, by fostering training, pilot projects, by assisting disaster managers to define their needs for such data and by filling an advocacy role on their behalf to ensure that the needs of disaster managers are given due attention.
- 8.2.5 **Communications:** GDIN will continue to foster close working relationships with the UN Working Group on Emergency Telecommunications (WGET) and other similar international organizations and groups. Further, GDIN will emphasize the importance of communications in all aspects of disaster management, including the need to foster communications interoperability and to support research into resolving communications issues.
- 8.2.6 **Technology:** GDIN will keep abreast of new and emerging technologies that improve the ability to acquire or deliver critical information, and facilitate knowledge about them within the disaster management community.

## 9. SERVICES AND ARRANGEMENTS

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9.1 Given the need to provide information to for disaster management, it is anticipated that GDIN will need to provide a range of services and arrangements, phased in at appropriate levels over five years, as follows:

- 9.1.1 **Information Sharing:** (*Start Year One*) Through a system of MOUs, arrangements will be made for governments and organizations to respond to calls for disaster-management information relayed through GDIN. Providers of information may place limits on the use of information and seek cost recovery.

In developing the approach to information sharing, consideration will be given to the following:

Preparing a GDIN partner data base on information partner activities and functions; adding the data base to the GDIN website and encouraging GDIN partners to place a data base link on their web pages.

Continuing to pursue the indexing of information partner networks and adding to listings of other collaborative relationships, including joint efforts, best practices and lessons learned.

Pursuing the Virtual Information Facilitator Service model as a pilot approach and by using MOUs to expedite the transfer of relevant proprietary information to partner agencies including NGOs. The final scope of this function will be recommended when a strategic information niche assessment is completed.

Assessing the level and function of services that might be provided by a GDIN Web Portal. During the first year, an assessment of AUSDIN and other partner Web Portal experiences will be conducted. The potential functions of a GDIN Web Portal will be presented within the context of the strategic communications plan and strategic information niche assessment.

- 9.1.2 **GDIN Website:** (*Continuation*). The GDIN website is in a continual state of development, currently describes the GDIN program and the Working Groups, has links to partner programs, provides chat room and forum services, provides current news and also covers forthcoming conferences and meetings. As the site develops further, it will be a portal to GDIN databases, have FTP facilities so that providers can directly post products for easy download by users, and provide information on GDIN fund expenditure.

- 9.1.3 **Databases:** (*Start Year One*) The UN and GDIN are collaborating on the development of a set of databases that GDIN management intends to have operating in 2001 under the Virtual Information Facilitator Service. One such database may be a Public Access User/Provider Database. This will be a sophisticated relational database maintained on the GDIN website to provide a portal to other reliable databases. The database will allow the general public to use forms to describe disaster problems and then easily link via one email message to a range of providers, organizations or experts who are able to assist in

the particular problem. Industry will especially find this tool attractive, as it will enable users to readily locate appropriate providers. To be listed on the database, providers must have a proven track record. A second database already exists, but is currently limited to GDIN staff. This may be expanded to critical partners. Some providers such as national authorities or the United Nations can only respond to calls for help from UN agencies, governments or perhaps NGOs working within the UN system. Such organizations will be listed in a password-protected database. In addition, this database could link users to relevant specialized databases maintained by the UN and others.

- 9.1.4 **GDIN Virtual Information Facilitator Service:** *(Start Year One)* GDIN has already established an experimental Virtual Information Facilitator Service that can receive calls for assistance, discuss the issue in question and facilitate gaining onward assistance from GDIN partners.

The current service is only experimental in nature, and will have to be expanded after GDIN2002. However, as it is supported by the US Department of State as an in-kind contribution, it can now provide basic needed services, e.g. the staff can link users and providers, and has already provided assistance in four emergencies in 2001.

The service monitors crises around the world, and accepts early warning data. In the future, information will be shared with the members according to common rules, which are to be developed.

The service will also help GDIN participants use public access databases and with requests for information such as, risk assessment, preparedness and mitigation. However, the service is to be used as a subsequent call point. In other words, GDIN participants should go to their normal information providers first, and the web-based portals and databases that will be placed on the GDIN web site during 2001. Should those tools prove insufficient, participants can then seek help from the information service.

On request the staff will also send out emergency calls for help from participants. They will also make recommendations on using the GDIN fund to assist financially-challenged disaster managers when lives are at risk. The Executive Director in accordance with Executive Committee Policy will make a final decision on the expenditure of funds.

As resources and circumstances allow, the Virtual Information Facilitator Service will be linked to other existing centers in different regions of the world, each of which, based on MOUs, will have full access to GDIN information and agree to take on responsibilities similar to those of the Virtual Information Facilitator Service.

The service will from time to time have access to non-public information, which GDIN has agreed to protect. The provider or user might restrict release of the

information for security or commercial reasons, for example. The MOU system, which GDIN intends to sign with providers, will allow GDIN to hold a copy of products developed. Therefore, if a product is originally provided to one user, GDIN will be able to coordinate between future users and the provider for release of the product - though never releasing protected information without permission. No other service in the world can do that

Although the Virtual Information Facilitator Service is offered by the US Government as an in-kind contribution through the US Department of State until GDIN2002, GDIN management proposes to be open to offers from other sources as well. Regardless of the location, the service will be an independent international entity, not a US Government operation.

Disaster Report Database: (Start Year One) Summaries of calls for help that have been answered by GDIN will be posted on the GDIN web site.

- 9.1.5 **Post an Alert:** (*Start Year One*): The website will allow for anyone to post messages on current disasters by filling out keyword-based forms. These alerts will be on the Virtual Information Facilitator Service “read only” site in order to avoid spreading misinformation or panic. Although all of the information on such a page will not be able to be verified, it will still offer a means to see public views about how a disaster is being handled and to post news. Such news may offer clues to the situation not otherwise known.
- 9.1.6 **Early Warning System:** (*Start Year Two*) The Information Service will send out early warning alerts to dues-paying corporation and experts, national authorities and relief agencies, as appropriate, and encourage members to share breaking news. We propose also that in developing countries such organizations as tourist hotels, firms, restaurants and Internet cafes could receive GDIN alerts by email if they agreed in advance to share such alerts with their local community. There would be no charge for this service. An obvious market for such alerts would be warden system run by Embassies, a tool often used to protect their staffs and families in time of an emergency.
- 9.1.7 **Expert Advice:** (*Start Basic Service In Year Two*) Expert advice can be provided by the Information Service but, for the most part, members will be directed to experts in the GDIN Data Bases and to members of the working groups. The capability to undertake a search on behalf of an inquirer and provide consolidated information will also be examined. In Year One, GDIN will maintain a watch list of experts who can be called upon, though they may charge for their services.
- 9.1.8 **Working Groups:** (*Start Year One*) Working **Groups** are made up of experts who will foster global information standards to ensure that information can be quickly accessed by those who need to make decisions. Working Groups are critical in providing guidance to the directions of GDIN and in ensuring that the needs of users are identified and are met by GDIN. The functions of the Working Groups are described on the web site.

- 9.1.9 **Conferences:** (*Continuation of current practice*) As **described** in the Ankara Declaration, these annual events determine GDIN's direction. The nature of voting may change after the legal structure is examined at GDIN2002.
- 9.1.10 **R&D and Training Pilot Projects:** (*Start Year Two*) GDIN will develop a budget line item for GDIN2002 used to foster research efforts by the working groups or to underwrite pilot projects proposed by the Pilot Project Working Group. However, most pilot projects must find their own sources of funding, using GDIN as a means of endorsement to donors. Self-funded pilot projects have already begun. Rules for pilot projects will be coordinated by the Pilot Projects Working Group, which will set up arrangements for peer review of proposals.
- 9.1.11 **Information Purchase System:** (*Start Year Two*) As the resources allow, GDIN will buy information for needy disaster managers in order to foster mitigation and response. Initial requests are filtered through either the Working Groups or the Information Service, with a final decision to be made by the Executive Director. A long-term goal is the establishment of an endowment to ensure that the information purchasing and R&D (pilot project) functions will be self-sufficient.
- 9.1.12 **Products** (*Continuation*) GDIN's primary value is to facilitate linkages between users and providers, to help disaster managers find sources of information more effectively than now and, when needed, to facilitate the creation of unique products. We propose doing that mainly through Working Groups, a Virtual Information Facilitation Service and through user-provider databases and portals on the GDIN homepage. GDIN, itself, will not produce maps and images. However, partners might post products or information on the GDIN website for use by members and disaster managers.

9.2 The indicative services to be achieved over the next five years are listed on a yearly basis at Annex C, 'Schedule of Proposed Goals'. Some information services, which have already been delivered by GDIN, are listed under 'GDIN Successes' at Annex D.

## 10. WHY INVEST IN GDIN?

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10.1 GDIN is a worthwhile activity for investment as it will save lives and reduce damage to property and the environment.

10.2 What are the alternatives? There is none that addresses disaster-information needs comprehensively, although there are organizations which will meet some of the needs. GDIN will seek partnership arrangements with such organizations.<sup>4</sup>

10.3 Of course, GDIN will cost money. As a public-private partnership, the plan is to raise revenue from governments, international organizations and industry, some with subscriptions and others by donations or in-kind contributions.

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<sup>4</sup> GDIN is, for example, working closely with ReliefWeb, UNICEF, UNHCR, OECD, CRED, the French and European Space Agencies and US National emergency agencies.

10.4 In addition, GDIN will also help the helpers. Large transnational firms need early warning to protect assets, quick access to reliable damage assessment data, and expert advice on a moment's notice. In return for a fee, such firms would gain access to the GDIN Virtual Information **Facilitator** Service and benefit from its expertise. The project would want such information shared as much as possible with local communities, thereby helping poor, vulnerable nations develop local disaster networks.

10.5 Local, state and provincial governments will greatly benefit from GDIN, as the synergy of such a service will bring more benefits than can be obtained through any one nation's information assets. GDIN intends to link together public and private assets, the NDINs (national disaster information networks), and RDINs (Regional Disaster Information Networks) of the world.

10.6 GDIN will also provide a global market place for the information industry. Firms that produce information products of value to the disaster arena will now hear about disaster needs more effectively than before. Such providers would be charged to be listed on the GDIN database and be verified as firms with track records of delivering quality products.

10.7 Industry may also support GDIN so as to expand their access to traditional markets. Providing products to nations in need is an excellent advertisement for those who want to buy the same sort of product. A software or computer manufacturer might donate software or equipment, thus lowering GDIN's costs, in return for which they would gain access to the disaster community and the ability to advertise their humanitarian good work.

10.8 GDIN will also reach out to governments and industry that invest in disaster-prone regions seeking contribution of resources on the basis that providing more effective early warning through GDIN and easier access to products will reduce the risks to life, property and the environment.

10.9 Traditional disaster donors such as governments should invest in GDIN to reduce the need for just a few governments to service a large number of disaster managers, as is now the case. Governments should see GDIN as means to streamline the flow of disaster information and lower costs. Traditional humanitarian donors should also contribute, since the synergy created by GDIN will reduce the burden on donor resources. In other words, many information providers will now be engaged in disaster management around the world, rather than having an ad hoc system that relies on a few.

10.10 NGOs and academic institutions that rely on disaster-related data products should support GDIN in return for access to GDIN resources and tailored products to meet their specific needs. However, recognizing that such organizations are not necessarily well funded, they may have in-kind assets to share as an alternative.

## **11. ORGANIZATIONAL AND LEGAL STRUCTURE**

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11.1 GDIN Management proposes that the Executive Director, working with the Executive Committee, establish a legal structure for GDIN no later than GDIN2002, if not earlier. The

structure will allow for participation by all sectors of society, in keeping with norms of international law. Current recommendations have centered on either forming GDIN as an International Organization or an NGO or some other suitable structure that will allow appropriate levels of membership by all sectors of society in keeping with normal standards of international law. The new structure will retain the basic voluntary funding aspects of the current structure, and a scheme that retains the essential non-profit international Public-Private Partnership envisaged by the Ankara Declaration. In addition, the structure will have as a strategic goal, support of the United Nations and other recognized international, private and national relief bodies, and, as appropriate, will partner with such bodies.

11.2 New methods of voting, any dues and other obligations are to be determined by the new incorporation structure. As described in the Ankara Declaration, the distribution of funds in the new structure can also be limited by donors, so long as their rules are agreed to by the Executive Committee and do not violate basic corporate principles or normal accounting practices. Consideration will also be made for a level of ‘individual Expert Member’.

11.3 GDIN is currently managed by the Executive Director, the Fund Director and three bodies - the Annual Conference, an Executive Committee, and a Funding Committee.

11.3.1 **Annual Conference:** The Annual Conference establishes GDIN goals, objectives, policies, operating procedures, and the types and providers of GDIN services. Direction from the conference is based on a consensus of attending delegates. The Conference is organized and executed by a Conference Committee chaired by the host. It comprises Chairs of the immediately previous and succeeding conferences, the Chair of the Funding Committee, Chairs of GDIN Working Groups, the GDIN Executive Director, and other members, as the Annual Conference or Conference Committee may deem appropriate.

11.3.2 **Executive Committee:** The Executive Committee provides oversight for GDIN and a Secretariat by ensuring that directions from the Annual Conference and the Funding Committee are implemented. Decisions are based on a consensus of members of the Executive Committee, in accordance with this Declaration. The Executive Committee is presided over by a Chair, who is elected by the Committee for a term of one year. It also oversees and coordinates the activities of the various working groups. The Executive Committee comprises nine members: the chair of the Policy Working Group, two members each from the Annual Conference Organizing Committee, the Funding Committee, and Working Group Chairs, the Executive Director, and one representative from the NGO Working Group. Each representative is selected by the committee or group(s) that they represent. The Executive Committee can also add further members. The current membership of the Executive Committee is shown at page 3.

11.3.3 **Funding Committee:** The Funding Committee oversees and directs disbursements from a fund, to be known as the GDIN Fund. The Funding Committee comprises one representative each from any government or other participants that provide 5 percent or more of GDIN core funding, including in-kind contributions or contributions of approved services. Organizations may aggregate their contributions to meet the 5 percent threshold and gain a joint

representative on the Committee. Committee membership is for the year in which a contribution is made. The Executive Director of GDIN is also a voting member of the Funding Committee, except on the GDIN annual budget. Each representative has one vote. An organization is limited to one vote, regardless of the number of contributions from its component parts. The Committee is presided over by a Chair, elected by the Funding Committee for a term of one year. Decisions are based on a consensus of committee members, in accordance with the Ankara Declaration.

## 12. **MANAGEMENT**

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12.1 Except as proposed in the plan, the management structure is as described in the Ankara Declaration (GDIN's organic document – see [www.gdin-org/about\\_policy.html](http://www.gdin-org/about_policy.html)). GDIN will rely on a mix of full time and part-time core staff and volunteers:

### 12.2 **Core staff:**

12.2.1 The **Executive Director**, who is the senior core staff official and manages the project as a whole.

12.2.2 The **Fund Director**, who is in charge of managing GDIN's policy on fund raising.

12.2.3 Management proposes that, given the expected increase in work prior to GDIN2002, the Executive Director be supported by a Deputy (who should have expertise in disaster management), an assistant and Secretariat support staff at the GDIN HQ. The Executive Director and a Deputy would be specifically responsible for reaching out to find new providers and to working directly with users to understand their needs.

12.2.4 By GDIN2002, depending on the availability of resources, Management proposes developing a number of paid Senior Advisors. The concept here is to assign responsibility for priority subjects or regions to experts who will be able to develop and represent GDIN's interests in those areas. These experts, especially the Regional Advisors, will likely reside outside of HQ.

12.3 **Virtual Information Facilitator Service staff** will consist of officials needed to maintain the Virtual Information Facilitator Service, the GDIN databases and GDIN's information management development. By GDIN2002, management proposes that some of the staff be seconded from national authorities and international relief organizations. This will lower costs and enhance GDIN's ability to liaise effectively with these governments and organizations and take comparative advantage of their strengths. This effort is now being co-designed by GDIN and the UN with funds provided by the US Department of State.

12.4 **Volunteers.** Because the expertise of working group volunteers is essential to GDIN and because they provide an international perspective, they have an important role in guiding GDIN directions through their participation in Annual Conferences and other activities, such as virtual forums. In addition, Working Groups chairs sit on management committees, ensuring that policy decisions take into account scientific and disaster management experience. Their main role of

working groups is to establish arrangements and develop solutions to enhance the provision of information required for all phases of disasters. The cost of some travel to meetings and secretarial support, as well as some R&D money for essential research is proposed in the budget at Annex E.

## **13. BUDGET**

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### **Revenue**

13.1 GDIN has always been and should continue to rely upon voluntary contributions. The United States, Canada, Mexico, the UN, Australia, Turkey and Russia have all helped, as has the SAIC, MITRE, VISTA and ESRI corporations, and numerous others.

13.2 In FY2001, as part of its continued support for GDIN, the United States Government has paid the UN and OECD \$US250,000 for GDIN-related advice and services and has donated the services, travel and administrative costs of the Executive Director and an experimental Virtual Information Facilitator Service and has paid the Secretariat \$US100,000 for services. In addition, the United States government has contributed funding to the MEDIN Regional Initiative, proposed possible funding of a pilot project in support of the Americas Regional Initiative, funded preliminary work on the PeaceWing pilot project, paid for travel by experts to meetings and has supplied special video conference services in support of the Americas Regional Initiative and GDIN2001. The United States government also contributed funds for the provision of essential maps and data to disasters in Ecuador, El Salvador, India and Mozambique in 2001 and since 1997 has contributed over \$US1 million in information services, outreach and expert travel. American firms ESRI, MITRE and SAIC have donated services.

13.3 The European Commission has made significant funding, and administrative support for the MEDIN Regional Initiative, as has Australia for the Asia-Pacific Regional Initiative. UNICEF and UNHCR have supported working groups, as has the UN OCHA/ReliefWeb, GDIN's first strategic partner, which has contributed significant levels of advice and support to the Virtual Information Facilitator Service development. Russia contributed to a major pilot project in 2000. Important disaster experts like Dr. Eric Noji of CDC and the WHO have volunteered invaluable advice that otherwise would have cost a great deal. The World Bank donated \$25,000 in travel costs for experts in 2000. Mexico and Turkey provided substantial support for annual GDIN conferences in their countries. Australian Government agencies have contributed \$US110,000 in support of GDIN2001.

13.4 This pattern is expected to continue, though as services increase, so too must direct contributions to the GDIN Fund. It is expected that income will be generated by:

13.4.1 *Member fees:* Organizations will be charged membership fees, with different rights occurring depending on the level of contribution.

13.4.2 *Fee for Services:* Commercial partners who benefit from association with GDIN will either be charged a membership fee or a percentage of sales.

13.4.3 *In-kind contributions:* Organizations will be encouraged to provide in-kind contributions, such as equipment and facilities, secondment of staff, and subsidies for travel.

13.4.4 *Other creative arrangements.* GDIN anticipates building strategic alliances with foundations in order to fund charitable work such as paying for disaster information to those least able to pay for it.

13.5 In addition, management has proposed a Donor's event at GDIN2002 to raise significant public-private funds for that year, and plans to co-sponsor the 2002 World Congress on Disasters in cooperation with the American Federation of Civil Engineers. Both events should broaden GDIN's appeal and revenue base.

## **Expenditure**

13.6 A proposed year-by-year budget is provided at Annex E. These figures are unrefined estimates. During 2002, Management will produce a mid-year study that examines how much money in cash and in-kind contributions has been provided to GDIN to-date. With experiences of 2001 and upon advice of prospective donors, these figures will be used to project out actual budget expenditure for GDIN2002 and beyond.

13.7 The budget figures envisage expenditures of the following:

13.7.1 Year 1 - \$US 1.2 million

(Cash requirements in Year 1 are limited largely as a result of US Government contributions and in-kind support from AMTECH)

13.7.2 Year 2 - \$US 3.1 million

13.7.3 Year 3 - \$US 2.9 million

13.7.4 Year 4 - \$US 2.9 million

13.7.5 Year 5 - \$US 3.9 million

13.8 These estimates should be interpreted as the cost of conducting services, were GDIN to pay for them. However, management fully expects many of the services to be obtained through in-kind services.

## **14. DEVELOPMENT OF GDIN**

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14.1 Annual conferences will continue to be held to consider progress of GDIN, plan further activities and endorse Business Plan objectives. At this stage, the Business Plan is, of necessity, broad in nature as GDIN is still in its development phase. It is intended that, following GDIN2001, the Executive Director will be charged with producing annual performance guidelines that set out project priorities and requirements in greater and measurable detail and validated for consideration at the annual conferences. These plans, which will be developed in cooperation with the Executive Committee, will be used to identify specific activities, to assign responsibilities with associated funding and deadlines, and to establish detailed management criteria of GDIN. GDIN2005 will have the special responsibility of considering the level of international commitment and future development options.



## ANNEX A: HISTORY OF GDIN

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1. **1998:** In July 1998 an international meeting was held in Washington DC to consider the development of a Global Disaster Information Network. The outcome of the meeting was support for the concept and agreement to meet again.
2. **1999:** This was followed by a meeting in May 1999 in Mexico City where a conceptual framework and an outline of a proposed GDIN structure were examined. This meeting agreed a process for establishing GDIN. Discussions on capacity building, training and the potential for GDIN in the Americas commenced.
3. **2000:** Turkey hosted the third GDIN Conference at which GDIN's organic terms of reference were agreed. The concept of Mediterranean and Asia-Pacific regional initiatives began. An important achievement was endorsement of the Ankara Declaration, which provides an agreed framework ([www.gdin.org/about\\_policy.html](http://www.gdin.org/about_policy.html)) for GDIN development, including various organizational arrangements to enable GDIN to become a reality.
4. **2000:** The European Commission began to actively design ways of using GDIN in the Mediterranean.
5. **2000:** A meeting of the Asia-Pacific Regional Working Group in Canberra resulted in identification of eight specific joint activities.
6. **2001:** A multilateral working group was established to design ways of using GDIN in the Americas. GDIN will also be discussed at the Summit of the Americas in XXXX. For the first time, closed circuit TV was used to inform governments on GDIN throughout the Americas and Asia
7. **2001:** Australia hosts in March the fourth GDIN conference with the theme of 'Scoring Goals' and a focus on developing working groups. This conference endorsed a plan of action to implement a five-year plan to phase in services.
8. **2002:** Italy has agreed to sponsor the next GDIN conference in June, 2002, which will focus on raising operational funds from the public and private sectors and defining a new legal personality for the project. An Africa regional initiative will begin this year as a matter of priority.

## **ANNEX B: BACKGROUND ON DISASTER COSTS**

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1. By some measure, a world-class disaster strikes somewhere every three days. Between 1900 and 1991, an average of 6.5 disasters a month occurred, according to CRED<sup>5</sup>. In 1999, according to Munich Re, a company that insures other insurance firms, well over 700 natural disasters occurred that year — and 70,000 deaths resulted. The review did not cover deaths from drought and disease, a number in the tens of millions. This century's worst natural disaster was an earthquake in July 1976 that killed 290,000 people in the Tangshan region of northeast China. Many of these floods, earthquakes, or volcanic eruptions, humanitarian emergencies and industrial crises required various levels of UN action or monitoring. Similarly, thousands of other critical natural disasters are handled by local authorities everyday.<sup>6</sup> Many of the world's disasters occur in developing countries where resources and preparation are minimal; access to technology and information is limited. Budgets dealing with such disasters have risen markedly. Floods, volcanoes, earthquakes and epidemics hit even the wealthiest nations. This year alone, the United Kingdom may suffer major food shortages due to an outbreak of foot and mouth disease.

2. The cost of response and mitigation can also be enormous. The experience in the Americas offers a good illustration. Over the last decade natural disasters have caused more than \$US20 billion in damages in Latin America, where major crises average 40 a year. To respond to the threat, major mitigation projects are under way, all which could benefit from GDIN-type technologies. Between Argentina, Belize, Brazil, Colombia and the Dominican Republic this year over \$US600 million dollars will be spent on mitigation.

3. The fact is that it is hard to judge what will happen this year or the next. 10,000 people died as a result of natural disasters in 2000, compared with 75,000 in 1999, while the number of disasters rose from 750 to 850. But one 7.9 earthquake in Tokyo could kill millions and cost trillions in damage, not only to Japan's economy, but also to that of the world. What we need is better mitigation to reduce the loss of property and lives, and more effective response when disaster strikes. GDIN can help.

4. GDIN has a heavy focus on GIS products and reports based on remote sensing and combinations of other data. This is because they can make a difference in major crises, often at the mitigation stage, nearly always in the response phase. "GIS has been heavily used in the ... demolition, relocation and reconstruction ... in the aftermath of Northridge and Kobe

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<sup>5</sup> <http://www.cred.be/centre/publi/103e/ch2.htm>. The Centre for Research on the Epidemiology of Disasters (CRED), Universite Catholique De Louvain - Brussels - Belgium, A study of disasters covering Accident, Avalanche, Chemical accident, Civil strife, Cold wave, Cyclone, Displaced persons, Drought, Epidemic, Earthquake, Famine, Fire, Flood, Food shortage, Hurricane, Heat wave, Insect infestation, Landslide, Power shortage, Storm, Tsunami, Typhoon, Volcano

<sup>6</sup> Each year, the American Red Cross (a GDIN partner) responds immediately to more than 60,000 disasters house or apartment fires (the majority of disaster responses), hurricanes, floods, earthquakes, tornadoes, hazardous materials spills, transportation accidents, explosions, and other natural and man-made disasters. And the number of disasters has increased steadily over the past five years, with a per year average of 64,800 Red Cross disaster responses in the United States over the last five years. <http://www.redcrossaustin.org/programshtml/disaster.html>

earthquakes." <sup>7</sup> Similarly, GDIN has provided such products for numerous disaster responses since 1997. A 1996 fire in Mendocino County, California could have caused massive mudslides, threatening \$US250 million in property, but sophisticated GIS maps mitigated against that event and saved the US Forest Service \$US25 million in reseeded. The reason is simple. As ESRI, a GDIN partner, said recently, 'Disasters are usually spatial events (floods, earthquakes, hurricanes, wildfires, hazardous spills, public unrest, famine, epidemics, and so forth). Mapping and information acquisition is vital for disaster management. GIS supports all aspects of disaster management. Disaster planning, mitigation, response and recovery all become more efficient through the use of GIS.' <sup>8</sup> As noted by Mexico in GDIN1999, GIS should also be seen as a key sustainable development tool. The problem is financing and access<sup>9</sup>

5. Of course no one entity can provide all services and coverage, but GDIN, as a collaboration of many partners across information technology sector lines, is providing a significant advantage to disaster workers by efficiently linking users and providers and by facilitating the provision of unique information.

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<sup>7</sup> <http://www.unisdr.org/unisdr/forum/unugeo.htm>

<sup>8</sup> [http://www.esri.com/industries/public\\_safety/disaster.html](http://www.esri.com/industries/public_safety/disaster.html)

<sup>9</sup> <http://www.qub.ac.uk/mgt/papers/devel/hall.html>. Brent Hall, University of Waterloo, Canada and his team reported on use of GIS in tourism planning and in the consideration of the environmental impact of tourism on fragile reefs in the Cayman Islands. In China the use of GIS for disaster monitoring using remote sensing data has been very effective. It is clear that where the financial resources are available, the use of GIS based DSS can be effective but this level of financial provision and administrative experience is not easily found in developing countries..

## **ANNEX C: SCHEDULE OF PROPOSED GOALS**

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### **Project Phases Over Five Years**

1. Implementation of GDIN will span over a five-year period, adding services and staff incrementally in response to disaster.

### **2. GDIN 2001: Current Initiatives for Year One to GDIN2002**

Outreach and Conferences: Canberra, Australia

Business Plan: Presentation and Adoption

MOU System Introduced

GDIN Fund: Set-up and Outreach aimed at supporting significant fund raising effort at GDIN2002

Develop Legal Personality and refine through member comments

Agree on Pilot Project Criteria and Foster Projects

Virtual Information Facilitator Service: Set-up begins as an experiment

Virtual Information Facilitator Service Public and Private Access Databases are web enabled.

Working Groups are revised and enhanced

User needs are surveyed

Regional Networks Designed and Enhanced

Real Disaster Products are further developed<sup>10</sup>

Review of website and expansion of services

### **3. GDIN 2002: Proposed Initiatives**

Outreach and Conferences: June, 2002, Rome, Italy

Virtual Information Facilitator Service function grows

MOU System Expansion

GDIN-Fund Outreach and Funds placed into GDIN Fund

GDIN achieves legal personality status

Pilot Projects Continue

Early Warning System Begins

Virtual Information Facilitator Service Expanded

Provide working Groups with funding

RDINs phased in

Purchase of information for disaster managers

### **4. GDIN 2003: Proposed Initiatives**

Outreach and Conferences: Africa has been proposed

Information Facilitator Service Phase-in

GDIN-Fund expanded.

5. **GDIN 2004: Proposed Initiatives** Depends on progress to date

6. **GDIN 2005: Formal Review of Progress**

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<sup>10</sup> Maps, reports, etc in response to requests for assistance.

## **ANNEX D: GDIN SUCCESSES**

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A major disaster happens every 72 hours. With GDIN, we can stimulate better mitigation, faster response, and reduce the loss of life and property, thus laying the foundation for disaster resistant, economically stable societies. The following paragraphs provide a summary of successful activities while GDIN has been developing. However, it should be clear that GDIN does not create maps. Instead, the true GDIN product is the ability to facilitate access to maps and other data, especially that not necessarily on the internet or in the public domain. A number of maps were produced in a relationship to the GDIN program with this in mind between 1999 and 2001 as a test of how to eventually develop a fully operating virtual information facilitator service which would link a network of existing “operations centers” in a partnership with critical providers of essential information.

2. **1999:** Co-facilitated for Turkey at their request, from Turkish Government and US Government the provision of computerized maps based on satellite and ground sensor data and legacy data that showed street-by-street levels of damage in both earthquakes. This was the only international program to accomplish this task with the same speed. Maps were delivered each morning.
3. **2000:** At the request of the UN OCHA, GDIN obtained US Government maps to help in United Nations relief efforts in the Mozambique flood by developing in short order computer generated maps based on satellite and legacy data.
4. **2000:** The US Government, through the GDIN program, provided the Government of Vietnam US Government and RADARSAT data to assist Vietnam during the Cambodia/Vietnam flood by developing computer-generated maps based on satellite data.
5. **2000:** The US domestic GDIN program conducted a successful disaster simulation exercise with Russia aimed at developing a model of live, interactive response to a fast moving disaster, where Internet and telecommunications capacities were not optimum.
6. **2001:** Assisted El Salvador in both of their earthquakes by facilitating access to US Government computer generated maps of the disaster areas based on satellite data. GDIN also directly called upon the European Space Agency, Space Imagery and SPOT Image for imagery.
7. **2001:** The US Government provided Ecuador, through the GDIN program, computer generated maps related to the oil spill.
8. **2001:** Assisted relief agencies involved in the India earthquake by quickly locating hard to find street maps of impacted villages.
9. **2001:** The US Government also provided through the GDIN program, maps of expanding flood in Mozambique. The US Department of State agreed to host an experimental Virtual Information Facilitator Service in support of GDIN.