

“MEMBERS WITHOUT BORDERS”

Assisting the Vulnerable – Using GIS for Preparedness, Mitigation and Response to Disasters

By Marla Maniacco *See maps on Pages 21, 22*

Organizations around the globe have embraced GIS as a powerful enterprise tool for maximizing efficiency, reducing costs and providing powerful data analysis. The general public has adopted it with open arms, searching for addresses of friends, school bus routes for their children and directions to restaurants for Friday night dinners. It has become an integral part of our daily life, and you are not alone if you have ever wondered how we survived before the days, of Google Earth™ and MapQuest®. However, GIS is not only an “urban survival” tool; GIS systems are a vital disaster management tool used daily in real life survival situations.

A GIS provides a sophisticated method for preparing, mitigating and responding to both man-made and natural disasters around the globe. For over ten years, Mr. Zul Jiwani, O.L.S., O.L.I.P., a worldwide leader in Information Technology and GIS implementations, has used his vast expertise and experience in GIS to assist vulnerable communities throughout the developing world. With over twenty years of senior-level management experience, Jiwani has been awarded the “Highest Technical Achievement in GIS” award, conferred by ESRI in May 1995. Zul has served as President of Orion Technology Inc. from its inception in 1998 to this year; where he has recently decided to step down to focus more of his time on his volunteer work. For six years, he has served on the board of Directors for FOCUS Humanitarian Assistance (FOCUS), an international emergency response agency providing humanitarian relief and assistance, and disaster risk management for vulnerable communities located primarily in the developing world. When asked about his volunteer work, the light in his eyes and his jovial smile demonstrate the compassionate person behind this hard-nosed businessman.

Jiwani spends a few months each year on voluntary missions with FOCUS using his expertise and experience in GIS to assist in their mission of protecting the lives of the vulnerable and relieving suffering of victims of disasters and crisis. Comprised of an international group of agencies established in Europe, North America and South and Central Asia, FOCUS, an affiliate of the Aga Khan Development Network (AKDN), has developed a specialization in disaster preparedness, mitigation, prevention and disaster response.



Zul Jiwani on his trip last fall to earthquake affected areas in Northern Pakistan.

Man Made Disasters

Jiwani has been involved with FOCUS projects in a number of countries. He recently witnessed the use of GIS in war-torn Afghanistan where GIS Services are provided by Afghanistan Information Management Services (AIMS). AIMS is an organization set up and operated by the United Nations to develop a common approach to information management. Its purpose is to build information management capacity in the government of Afghanistan, and to provide information management services to the government and the humanitarian community. The goal of AIMS is to establish data and technology standards and to promote the free flow of information by providing customer service, product delivery and capacity building, and supporting information policy development. They currently serve more than ten government departments, and have regional offices in five cities managed by Afghans, including a main office in Kabul. GIS is being utilized in a variety of functions including the repatriation of refugees, building accommodation for families whose homes have been destroyed, providing food in the short-term, road and canal building, and creating economic activities like micro-credit. Additionally they are providing vocational training in GIS to local Afghans so that this may become a self-sustaining project.

Natural Disasters

Natural hazards (i.e. Earthquakes, floods, landslides etc.) become natural disasters when they strike the man-made



already saving lives. Natural disasters in this region result in countless deaths and displaced people every year.

The lack of infrastructure in the area means that help can be hours or even days away. Tiny mountainside roads are often blocked by fallen rocks or washed out entirely by landslides. Heavy machinery must be brought in from nearby villages to clear the way, and this can add even more time to the relief efforts.

FOCUS Humanitarian Assistance works to effectively reduce the impact of these disasters by preparing a complete Disaster Management strategy for each village. The strategy begins with a Natural Hazard Vulnerability Assessment (NHVA) field team visiting and analyzing a village by performing a detailed analysis. The village leaders are visited first so the team may explain their purpose and gather important demographic information. Following this meeting, a geologist will undertake a detailed assessment of all hazards present in the village, record the details and prepare maps. They will also hold discussions with the villagers to discuss disaster awareness. An assistant geologist identifies all critical facilities and infrastructure (ex. roads, schools and hospitals), records the details, and takes GPS coordinates and photos. Once the team has collected all the required data, they move on to the next village. However, the risk assessment does not end here. The NHVA team then delivers all data for each village to a Risk

environment. GIS is playing a major role in designing early warning systems for natural disasters, catalyzing the process of preparedness, mitigation and response in various stages of a disaster management cycle. Mr. Jiwani recently visited an area in Central Asia at the meeting point of four mountain ranges (Himalaya, Karakorum, Hundukush and Pamir) in an area spanning Afghanistan, Pakistan, India, Tajikistan and China, that is prone to such disasters. He visited villages located high up in the mountains, miles away from the nearest town where FOCUS projects are underway and

LSR

Enhanced for Efficiency, Effectiveness & Speed

LAND SURVEY RECORDS INC.

Land Survey Records is pleased to announce that the following firms have recently joined the LSR system:

Speight, van Nostrand & Gibson Limited (GTA)
 Bennett Young Limited (GTA)
 C.E. Dotterill Ltd. (GTA)
 Krcmar Surveyors Ltd. (GTA)
 Robideau & Czerwinski (GTA)
 Paul H. Torrance Surveying Ltd. (Elliot Lake)
 D. Culbert Ltd. (Goderich)

Member benefits include...

- \$\$\$ for each plan accessed
- Quick installation and training with user friendly software
- Email notification of plans purchased
- Fast and easy access to other members' surveys, 24/7
- Secure offsite storage of plans

The first province wide, online database of deposited, registered, building location and other surveys.

Designed by Surveyors for Surveyors

Instant access to more than 400,000 surveys
 In excess of \$60,000 paid to surveyors for images sold
 More than 2 million plans expected by the end of 2007

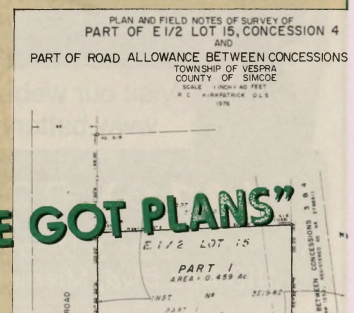
FOR A FREE DEMO OR TO BECOME
 A MEMBER, CALL OR EMAIL

Toll Free: 1-888-809-5513

Email: info@landsurveyrecords.com

100% FINANCING AND SCANNING SERVICES AVAILABLE

www.landsurveyrecords.com



"WE'VE GOT PLANS"

Assessment team. The Risk Assessment team receives the data from the field teams and reviews it for completeness. Once they have approved the data, it is passed on to the GIS team. The GIS team then enters all the data into a database, digitizes all maps, and passes it back to the risk assessment team for analysis and filing.

Mitigating Risk

Once this valuable information is known, FOCUS uses it to mitigate risk by taking preparatory measures. For example, if the team identifies a river as a flood hazard that could potentially cause a landslide, the team will work to divert the flow of the river by creating a dam and canal system that will direct the flow of the water away from the area at risk. The team may also build barrier walls within the village to help block the flow of debris should a landslide occur. Additionally, the FOCUS team may build escape paths to safe havens with shelter and stockpiles of emergency supplies should the villagers need to evacuate. They also work to improve roads, build bridges and establish inter-village communication systems to support relief efforts should an emergency arise. In an effort to create disaster management systems that are self sustaining, the FOCUS team also provides search and rescue training to the



villagers, and GIS training to the program officers so they may one day run the program themselves.

Responding to Disasters

A GIS can support disaster management as a powerful tool for collecting, storing, analysing, modeling and displaying large amounts of data quickly. It can be coupled with the internet to distribute geospatial information over the Web, providing instant access to information about a disaster to response team managers any time and anywhere they are. This enables the response teams to respond more quickly and more efficiently to emergency situations, armed with first hand knowledge of the event. This improvement in response can mean the difference between life and death in a threatening situation.

As professionals in the industry, there are countless ways that we can also use our professional knowledge to assist others. By simply sharing our knowledge and experience with others, we are contributing to a knowledge base that others can draw and learn from. Organizations that offer opportunities to use your professional knowledge in helping others can be found at the following Websites: www.giscorps.org, www.geekcorps.org, www.idealists.org and www.akdn.org/focus.

Marla Maniaco is the Communications Coordinator at Orion Technology.



...Volunteers do not ask, "why volunteer?", but rather "when?", "where?" and "how?". These dedicated and courageous individuals are important partners in the quest for a better, fairer and safer world.

U.N. Secretary-General Kofi-Annan on International Volunteer Day, December 5, 2003.

www.
BATTERYREVIVAL
.com

Send your batteries to the company Land Surveyors have come to trust since 1994

Battery Re-celling:
Total-Stations, Radios, Drills, etc.

Data Cable Repairs

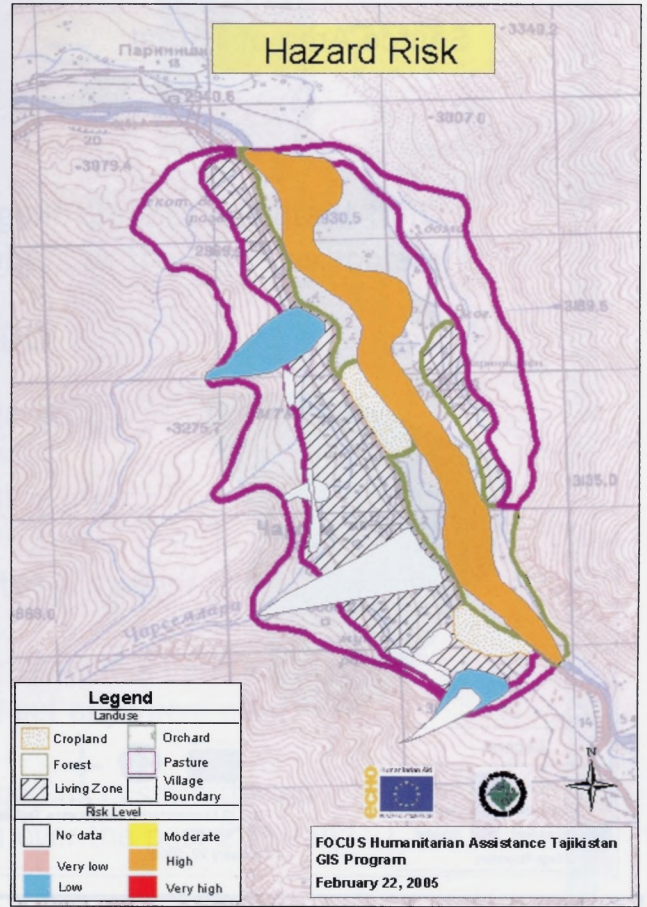
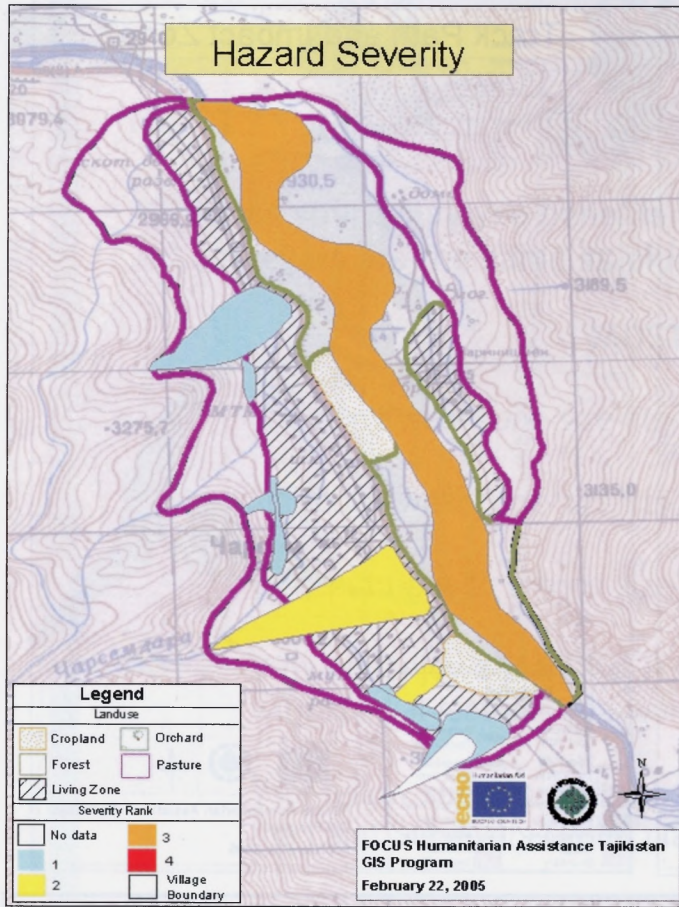
Bar Finder Repairs

Visit our website for pricing
www.batteryrevival.com

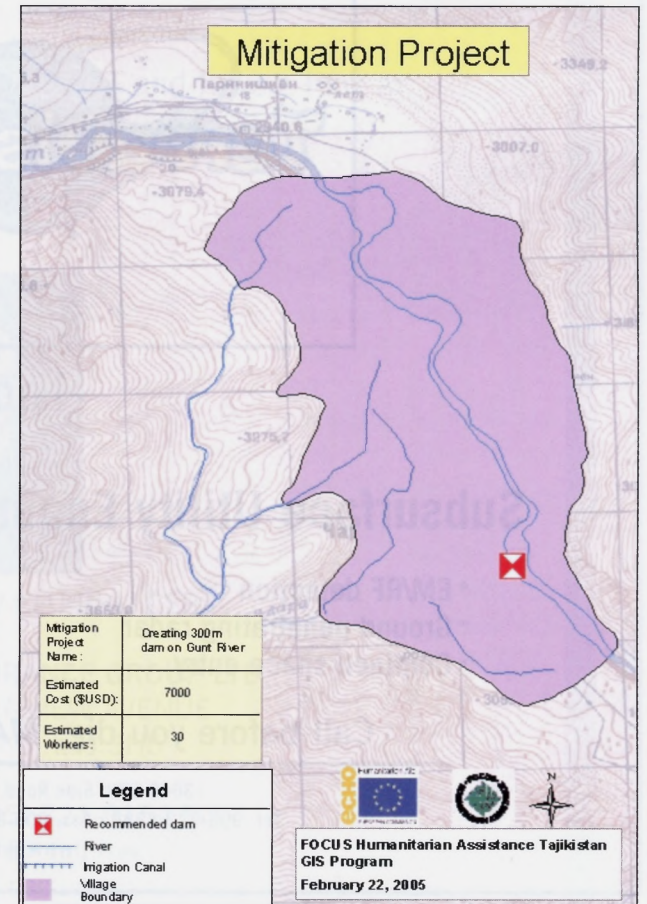
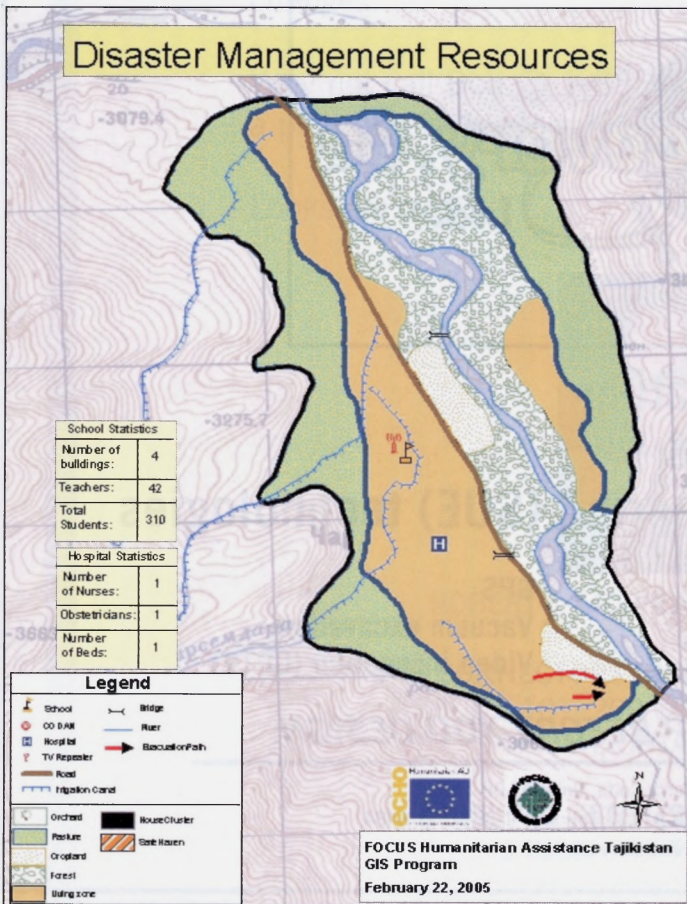
(416) 823-0489

Dias & Dias Electronics
1110 Kos Blvd, Mississauga, ON, L5J 4L6

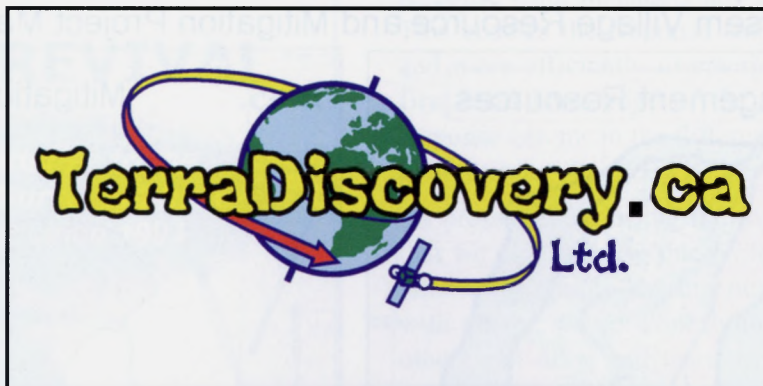
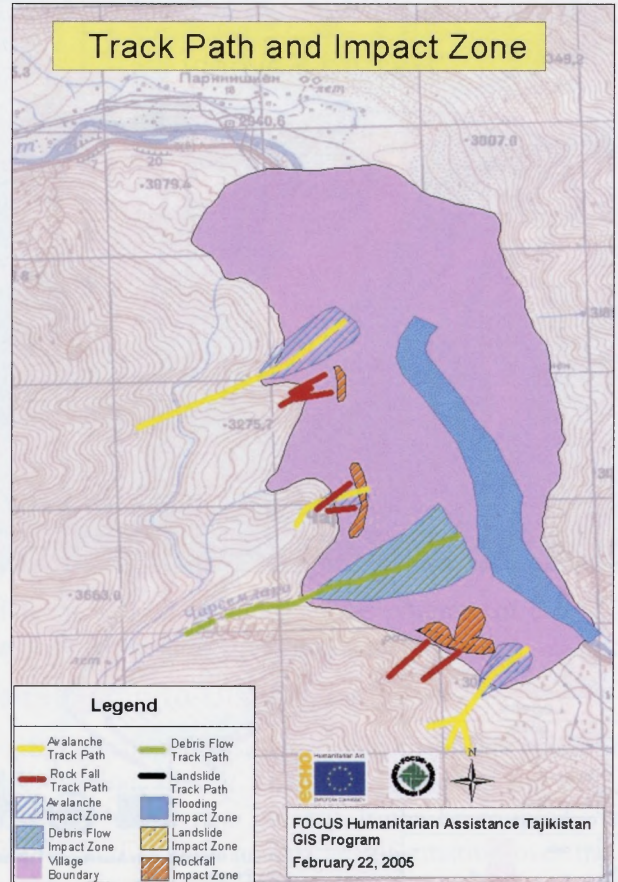
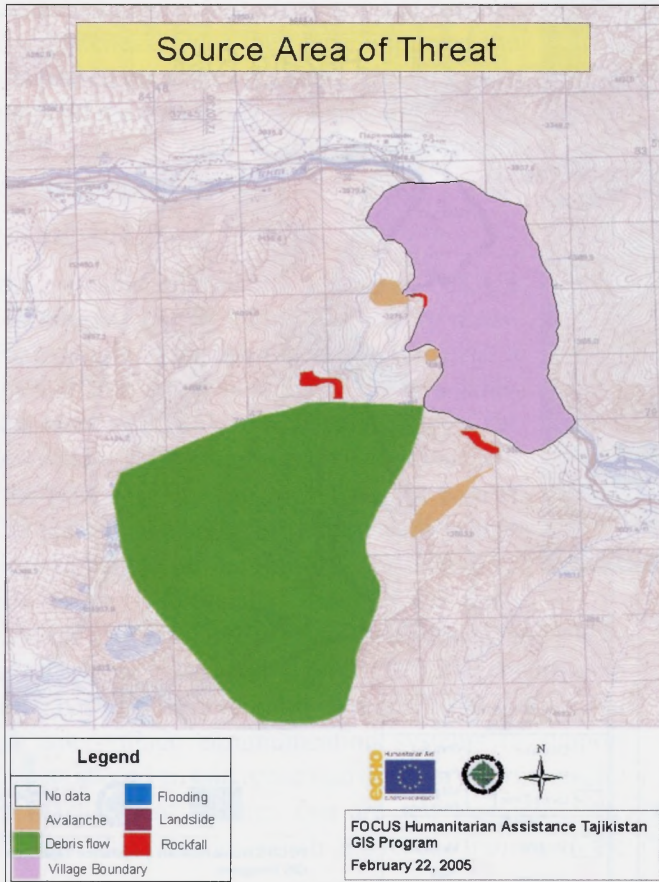
Charsem Village Hazard Severity and Risk Maps



Charsem Village Resource and Mitigation Project Maps



Charsem Village Hazard Maps



Locating & Subsurface Utility Engineering (SUE) technologies

- EM/RF detection
- Ground penetrating radar
- Confined space entry
- GPS
- Vacuum excavation
- Video inspection (CCTV)

Call before you dig, *MAP BEFORE YOU DESIGN.*

13845 27th Side Road, Terra Cotta, Ontario L0P 1N0
 Tel: 905-873-8888 • Fax: 905-873-4111 • Toll Free 1-866-702-8484
www.terradiscovery.ca