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The Landmine Impact Survey Process

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United States Department of State

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ally hired by a German NGO, Medico. This sums up a lot for me about the *esprit de corps* at MAG. This is not just a job—it touches people quite deeply. In this instance, you had people living in extraordinarily difficult circumstances and continuing to work in a voluntary role in mine awareness.

What are MAG's plans for the future?

AW: We will continue to make our programs indigenous in Laos, Cambodia, Northern Iraq and elsewhere and slowly reduce our presence in Kosovo. Increasingly, we are involving ourselves in short-term work, either through the United Nations or by directly [establishing] indigenous capacity in many countries. We are shortly to start the second stage of training with OSIL, a local demining organization in southern Sudan. OSIL is one of the few indigenous mine action organizations in East Africa. We are working alongside of them training them in mine clearance, mine action and mine awareness activities. We are helping to reinforce their skills and build up their capacity to respond to the mine threat.

Other programs will depend on our ability to continue to attract donor funding.

Is it one of the main goals to hand the programs over to the governments or local capacity?

AW: We try to create a sustainable program with

self-sufficient capacity in the countries we work in. That is always the ideal or the goal we work towards. In Laos, that worked very well. The Mennonite Committee and the Lao government invited us in 1994 to join a small-scale clearance and mine awareness program. That was so successful that the government set up a national program called UXO Lao, which, with a lot of UNDP support, has been successful in managing mine action in many of the provinces. ■

Andy Wheatley has worked in relief and development for over 10 years, in northern and southern Sudan, Rwanda, Zaire, Mozambique and Sri Lanka. Most of that time was spent with Save the Children Fund (SCF) UK. More recently, he was the MAG Program Manager in Laos and is currently the Community Liaison Manager based at the MAG HQ in Manchester, UK.

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THE LANDMINE

IMPACT

SURVEY PROCESS

Introduction

On August 22, the United Nations certified the process and the results of the Landmine Impact Survey conducted in Yemen. This survey is the first of its kind to be performed in accordance with international standards and marks a revolutionary event in the field of humanitarian mine action. The enhanced quality of information gained through the impact survey will change the way that resources are allocated and operational plans developed. Sophisticated analysis can now take place in support of decision-makers at all levels and progress measured in terms of real value to affected populations.

With the completion of this survey, Yemen now has the most comprehensive set of mine related socio-economic impact data in the world. This data will allow Yemen to engage in a sophisticated, computer supported planning process that channels resources to the target areas posing the greatest threat to human safety and economic development. Such a process can be expected to create a new level of responsiveness to international donor requirements, while meeting the most pressing local needs quickly and effectively.

A Call for Action

The participants involved in global humanitarian mine action recognized that in order to address the horrible consequences inflicted on civilians by these weapons, efforts would have to be made to improve both the effectiveness and efficiency of current mine action operations. Central to bringing about these improvements is ensuring that policy and management decisions are based upon reliable information, formatted and available through a modern information management system.

At the time the Ottawa treaty was signed, key

SURVEY WORKING GROUP

Association of Aid and Relief
Handicap International
International Center for Humanitarian Demining-Geneva
Landmine Survivor's Network
Medico International
Mine Clearance Planning Agency
Mines Advisory Group
Norwegian People's Aid
United Nations Mine Action Service
Vietnam Veterans of America Foundation

by Richard Kidd,
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Action Center

EMPOWERING

continued from page 39

and the U.S. Information Support teams—have made it a priority to visit schools in affected communities. During these visits, a representative speaks to the children about the dangers of mines and plays games with the children that teach them how to identify mine-filled areas. At this time, materials are also distributed including pencils, schoolbags, hats, posters and T-shirts. The most interesting and controversial of these materials is the Superman and Wonder Woman comic book created by UNICEF, DC Comics, the U.S. Department of State and the OAS. This comic book depicts children encountering mines in everyday situations. Through the use of the well-known superheroes, Superman and Wonder Woman, they are taught how to behave if they find themselves in a mine-filled area. This serves the double purpose of educating children and captivating them to the extent that they bring these comics home and pass on what they have learned to their parents who, unfortunately, most of the time are as unaware of the problem as their children.

Conclusion

As the progress made by each of these countries is examined, one realizes that there is still much to be done. For every child that is reached through one of the many government and social mine awareness programs, another is walking blindly upon a mine field. It is a tragic and devastating reality and one that continues to claim the lives of thousands around the world. As the OAS, the Red Cross and other organizations join forces to fight this battle through education and awareness, we begin to see that not only are countries demanding special programs and aid but even students are dedicating their time to spreading what they have learned. Yet it is difficult to trace exactly how much impact particular programs have had. However, we believe that "knowledge is power" in confronting the landmine problem. ■

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TABLE 1
AFFECTED DISTRICTS, COMMUNITIES, AND POPULATIONS BY GOVERNORATES

Governorates	Districts	Communities	Population affected
Abyan	3	19	31,552
Aden	5	20	49,690
Al Baidha	7	54	125,113
Al Dhale'	7	81	118,981
Al Hodaïda	1	1	700
Al Jawf	6	20	15,960
Al Mahra	2	3	911
Amran	3	6	47,550
Dhamar	2	16	3,890
Hadramout	8	32	32,552
Hajji	6	11	10,455
Ibb	10	95	73,922
Lahij	6	52	104,158
Mareb	4	23	20,437
Sa'ada	4	23	27,545
Sa'ana	9	47	109,540
Shabwah	6	9	8,030
Taiz	6	80	46,808
Total	95	592	827,794

a large number of individuals, government agencies and NGOs set forth a broad vision for the conduct of surveys to gather socio-economic impact data. In response, the Survey Working Group (SWG) was formed to provide overall management for impact surveys. In many ways the SWG is analogous to a "board of directors" and is composed of ten international organizations active in the field of humanitarian relief and/or mine action. The Survey Action Center is the full time entity tasked with executing and coordinating impact surveys worldwide.

The first ever Landmine Impact Survey working to the vision of the Survey Contact Group was conducted in the Republic of Yemen starting in July of 1999, with fieldwork and data collection finished one year later in July of 2000. This survey was requested by the United Nations Mine Action Service (UNMAS) on behalf of the Yemen National Demining Committee (NDC), which is chaired by the Minister of State for Cabinet Affairs. The Survey Action Center (SAC) implemented the survey in conjunction with the Afghan-based Mine Clearance Planning Agency (MCPA) in accordance with the

TABLE 2
VICTIM TOTAL

Period	Communities Involved	Victims		
		Killed	Injured	All
Recent Victims	78	57	121	178
Victims of Less Recent	474	2,503	2,223	4,726
All Victims*	488	2,560	2,344	4,904
Had no Victims	104			

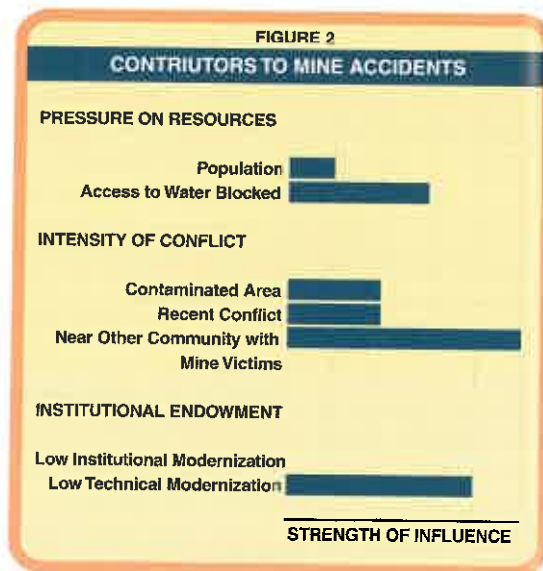
* The set of communities with some victims, regardless of the date of accidents, is the union of the two period sets, not a simple addition. Some communities had victims in both periods. The victims however are mutually exclusive; their numbers add up.

guidelines and protocols set forth by the SWG. The governments of Canada, Japan, the United States, and Germany provided funding for the survey that included partial matching by the U.N. Foundation. The survey was made possible through a contracting mechanism and with the support of in-country U.N. staff provided by the U.N. Office for Project Services (UNOPS).

Results

The Landmine Impact Survey conducted in Yemen from July 1999 to July 2000 conclusively identified 592 mine-impacted communities and 1,078 contaminated areas. The survey covered at least 95 percent of the suspected mine-impacted communities in the country with a high degree of confidence.

While the data collected during this effort affords extensive opportunities for research and analysis, a



number of key points are salient:

- **Water is critical** to the health and well being of the communities in Yemen and when mines block access to water the negative impacts upon local communities can be profound. Special attention should be given to those communities where water access is blocked.
- **Impacts are clustered** in groups of communities creating broad swaths of contamination, suggesting that well targeted mine action programs can quickly reach a large number of affected communities.
- **Community size** does not matter that much in the final analysis. In other words, communities should not be ignored.
- **Accident profiles** indicate that mine awareness

Scope of Problem

The 592 landmine-impacted communities indicated by the survey are distributed in 18 out of the 19 Governorates in Yemen. There are 827,000 Yemeni civilians, roughly six percent of the total population, living in these communities. This means that at least one in every 16 Yemenis lives or works near or is otherwise affected by the presence of landmines. Demining organizations located 1,078 distinct mined areas with a total reported surface area of 923,000,000 sq. m.

Results indicated a tendency for mine-affected communities to be grouped together into "clusters" of contamination. Two large clusters dominate the dispersal pattern of affected communities, concentrating the adverse impacts of mines in an area straddling six Governorates in the south and central portions of the country.

Impact Assessment

A scoring mechanism rank orders communities in terms of the degree of mine impact. Indicators considered include the number of victims within the past 24 months, blocked access to facilities or livelihood areas and the type of contamination. Based on this system, 14 communities are considered to be highly impacted, 84 moderately impacted and 494 lightly impacted. The most significant difference between a "high impact" and a "moderate impact" community is the reporting of a mine incident within the last two years. The following shows the number of people living in these respective communities: 36,000 in highly impacted communities, 178,000 in medium impacted communities and 612,000 in low impacted communities.

The survey collected extensive information regarding the types of livelihood activities and institutions that are denied to local populations through the presence of landmines and UXO. The most frequently reported impact of mines is blocked grazing land, with 89 percent of all communities reporting this loss. The impact most closely associated with mine accidents and often perceived as the most detrimental in the minds of the villagers is loss of access to a water source, either for drinking or irrigation.

The survey indicates that there have been at least 178 mine victims in the last two years—136 males

education programs should target persons of both genders engaged in livestock grazing and risk-taking behaviors among teenage boys and young men.



Coordination with the community is paramount for organizing survey work. Photo c/o Richard Kidd

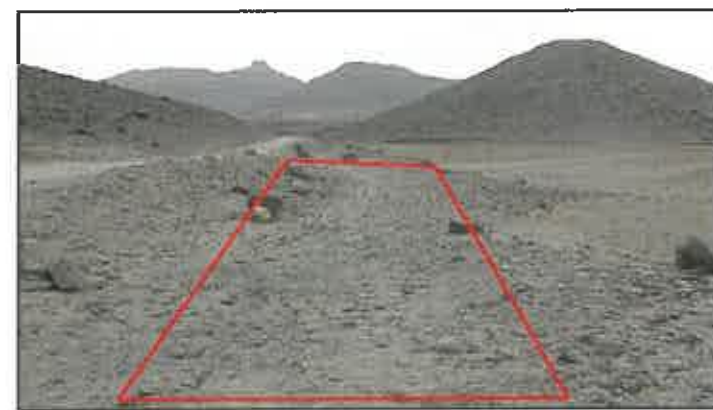
and 42 females. The largest concentration of incidents was experienced by persons of both genders engaged in livestock herding (60 cases), followed by young males who were tampering with mines or UXO (40 cases).

Causality

Statistical analysis confirms a number of factors associated with increased mine risks. These include the pressure on existing resources and the need to search for access to water, land, etc; the intensity of the past conflict; and the level of institutional capacity within given communities. Moreover, high-risk communities tend to group together, increasing the risks across all the communities.

Methodology

Efforts to develop a methodology for the execution of impact surveys began in 1998. After a review of earlier landmine survey practices, an analysis of the applicability of social-science research methods to



An example of how a mined area would be defined. Photo c/o Richard Kidd

mine action, and a review of current mine action management practices, the Survey Action Center presented a set of operational protocols to the Survey Working Group. Once approved, these protocols, in turn, served as a basis for the development of a portion of the Information Management System for Mine Action (IMSMA) and the United Nation's Quality Assurance guidelines.

The methodologies used in impact surveys pursue two general avenues of investigation. The first involves the collection of "expert opinion" to establish the location of possible mined communities. Community interviews are then conducted in each suspected community in order to assess the nature of the mine impacts.

Expert Opinion Collection

The collection of expert opinion is a reiterative process that begins at the national level and proceeds through each subsequent administrative layer, gaining detail until a comprehensive list of all impacted communities is generated. Opinion collection involves interviewing knowledgeable persons such as national authorities, former combatants and medical professionals, as well as conducting a review of relevant databases, mined area records and any existing overhead imagery.

In Yemen, 1,294 communities were initially suspected to be affected by mines. Further investigation at district and sub-district level confirmed that only 577 of these communities were indeed impacted, while an additional 15 communities were uncovered at the local level and through the quality assurance process.

A sampling regime was used to establish both the degree of coverage and confidence that the expert opinion process had correctly identified mine affected communities. Based on the results of this sampling, there probably remains in Yemen only 10-16 mine-impacted communities unidentified by the survey.

Community Interview

Once it is established that a community is suffering from the impact of landmines, coordination with local leaders takes place and a time is established for the visit by an enumerator team. The visit to the community begins with a group interview. The group interview has two parts: a community mapping session and a structured questionnaire interview. Once the group meeting is complete, the enumerator team would normally split up with one member remain-

ing in the village to review the results of the group interview while the second member would conduct a visual verification of mined areas. The verification of mined areas is conducted in accordance with a strict set of protocols and is only undertaken when it is feasible and safe to do so. The visual inspection of mined areas confirms the information obtained in the interview while also producing a sketch map, a photo and grid reference for each mined area. These items are digitized and stored in IMSMA for future reference. In Yemen, terrain and safety considerations allowed for verification to be conducted on more than 75 percent of all identified mined areas. Yemen is both a Muslim and a tribal society. Special care was taken to ensure that the survey enumerator teams did not offend local sensitivities or customs. Teams were generally recruited from the regions where they would work and in some cases female enumerators were included in the teams to facilitate access to women.

Data Organization

Even the least impacted community in Yemen generates approximately 150 separate data items. All of this information is recorded onto a standardized community questionnaire. This questionnaire contains four modules mirroring the structure of the IMSMA database. Each module is further subdivided into segments that anticipate the logical flow of conversation. The Community Level Module can have one or more mined area modules associated with it, while each Mined Area Module can have one or more associated Individual Victim Module.

The symbiotic relationship between the community interview process and the IMSMA database minimizes the use of text data fields and ensures that all collected data is stored in a logical and easily accessible manner. This represents a dramatic improvement over information management practices found in other mine action programs and allows the Yemen program to quickly and accurately execute a wide range of analytical, planning and mapping activities.

Quality Assurance

In order to ensure the reliability of the process used to collect data and the accuracy of the data itself, a number of mutually supporting internal and external quality control procedures are built into the survey. Internal measures include the testing of survey instruments and interview scripts, periodic operational reviews of outputs and progress and the visual verification of mined areas. A critical internal quality control task was the editing of all collected data for

completeness, consistency and legibility. This was performed in the field by senior supervisory staff within five days of the initial community visit. It is during the field editing process that information is translated from Arabic into English in preparation for entry into the database. Senior survey staff were required to periodically accompany enumerator teams and to revisit surveyed communities to confirm initial findings.

Working closely with the team in both an advisory and quality control capacity was an external U.N. Quality Assurance Monitor, or QAM. The QAM was responsible for ensuring compliance with the UNMAS Impact Survey Certification guidelines. In addition to documenting all aspects of the survey, the QAM participated in every major training and testing activity while also conducting dozens of field visits to verify initial survey results.

Impact Scoring

A central element of the Impact Survey Methodology is the scoring and classifying of mine-affected communities according to the severity of impacts. The impact score's basic function is to permit a priority ordering of communities. Fifteen different variables related to blocked access to sources of livelihood, victims and nature of the mine and/or UXO contamination is used in the calculation of a community score. Each variable is assigned a weighted value and a total score is calculated for each community. Category rankings exist to distinguish between "high, medium and low" impacts, with the total community score being used to determine which category is applicable.

Case Studies

A number of in-depth case studies were undertaken in six separate communities in order to gain a true feel for nature of the impacts and to do a subjective assessment regarding the accuracy of the survey results.

Conclusion

The main objective of Impact Surveys is to provide high quality information to support critical decision making processes at both national and international levels. The critical challenge in the survey was to document in a meaningful and usable manner the mine/UXO impacts experienced at the community level. The Impact Survey in Yemen has met this challenge and clearly achieved its objective.

The next step in Yemen will be to demonstrate

how this information can be used to develop a sound National Strategic Plan. To achieve this, a joint project is currently being undertaken by the Survey Action Center, the Mine Clearance Planning Agency and Cranfield University Mine Action on behalf of Yemen's National Demining Committee and the United Nations. The results of this exercise will be presented in a subsequent article.

This article is the first of two that will be written regarding the impact survey conducted in Yemen. It addresses specifically the survey itself, including the background, methodology and summary of the outputs. The second article will explain how the outputs of the survey have been incorporated into the development of a National Strategic Plan. Both of these articles will draw freely on the *Landmine Impact Survey Report: Yemen* published by the Vietnam Veterans of America Foundation (VVAFA) and on discussion and input from a wide range of colleagues involved in the production of this report. ■

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