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Bosnia and Herzegovina Mine Problem: Priority Setting

With so many tasks to complete and limited resources with which to complete them, the importance of priority setting to mine action cannot be overstated. The author describes how priority setting relates to mine action in Bosnia and Herzegovina and suggests how to go about setting such priorities.

by Darvin Lisica,
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Bosnia and Herzegovina Mine Action

Bosnia and Herzegovina minefield information is not completely accurate. There are 18,600 minefield records in the Bosnia and Herzegovina Mine Action Centre (BHMIC) database, but 25 percent of these records are believed to be partially incorrect and perhaps up to 40 percent are not available. The suspected risk area in Bosnia and Herzegovina is estimated to be at least 2,100 sq km, which is some 4.1 percent of the total Bosnia and Herzegovina territory. Since the beginning of the war in Bosnia and Herzegovina, there have been 4,798 mine victims;¹ 1,452 have occurred since the cessation of hostilities; 402 of these were fatalities.

The approval of the Bosnia and Herzegovina Demining Law in February 2002 stimulated the transformation of the entire mine action system, and by the end of 2002, the original complex and disunited management structure was integrated into a single BHMIC. At the beginning of 2003, the Council of Ministers adopted the Bosnia and Herzegovina Demining Strategy until 2010. The Strategy is based on the estimated size of the suspected risk area and ways of reducing it in relation to the demining resources in Bosnia and

Herzegovina. The estimated financial requirement to fully implement the Strategy is in the order of \$333,800,000 (U.S.),² most of which should be provided through donations. The high level of dependence on donations was the main reason why a revision of the Strategy was planned for 2004. A second important reason for a revision was the availability of information from the Landmine Impact Survey currently being carried out in Bosnia and Herzegovina. This survey should provide significant new input when it is consolidated and analysed toward the end of 2003.

The humanitarian demining dynamics and flow of funds are insufficient to accomplish the goal, i.e., Bosnia and Herzegovina being free from the effect of mines by 2010. The main reasons for this lack of funds are a deep economic crisis in Bosnia and Herzegovina (although the government managed to invest approximately \$5,280,000 in 2002, which was four times more than planned³) and unexpectedly low funding from donors. This financial reality has brought greater attention to risk management since the beginning of 2003, in conjunction with preparations for more intensive implementation of emergency and permanent marking, mine risk education and technical survey.

Regardless of the fact that all the elements of mine action are in place in Bosnia and Herzegovina, it cannot be expected that such a huge mine problem be resolved quickly and simply.

In this complex context, the decision makers should have a clearer picture of the options open to them in the sequence of risk management and reduction. For this reason, priority setting is the central issue in managing the mine problem.

New Priority-Setting Model to be Developed

“Priority setting is necessary when money, time and staff are limited.”⁴ This statement clearly defines the nature of the problem that confronts all participants in mine action in Bosnia and Herzegovina, where the slow pace of humanitarian demining operations frustrates not only the experts, but also the people, the authorities and the donors, all of whom expect visible results in a short time.⁵

The priority-setting model used so far suffered from several disadvantages: there was no finite sequence in the priority list, the procedure for decision making on how to treat the risk was complex, and the final choice was relatively subjective as it is simply difficult to separate the highest priority from a large group of generally important tasks. In this environment, the first objective that was set was that quality analysis should “divide the subject of research into its components, i.e., structure factors, functions, communications and relations on a certain area in a certain period of time.”⁶ A second objective was to provide continuity within mine action in Bosnia and Herzegovina, and a third objective was based on the need to apply scientific methods of qualitative and quantitative measuring of priority setting. These techniques are mutually conditioned and linked and cannot be applied separately.

The subject of our research is the mine problem, and within that main component is the assessment of risk and its consequences. Therefore, all prioritisation systems must be based on a risk management model. The main elements of the risk management process are establishment of the context, identification, analysis, evaluation and treatment of the problem (risk).⁷ Identification and analysis, resulting in classification of priorities and the evaluation with which it is possible to rank them within classes, are presently fundamentals of priority setting. At the core of identification and analysis process is the risk expressed through the threat (which is clear risk) and its socio-economic impact (which is dynamic risk). They are both conditioned by likelihood and consequences.

threat classification

threat analysis matrix – threat level		consequences of incidents			
		fatal	injuries	no victims	no incidents
likelihood of minefield	almost certain	VH	VH	H	M
	likely	VH	H	M	L
	unlikely	H	M	L	NO

Threat classification table.

The decisive indicators for measuring threats are the consequences of incidents and the likelihood of existence of minefields. The decisive indicators for the socio-economic impacts are the current negative mine impact on communities and potential benefits for mine action. All indicators are qualitative.

The data about the consequences of incidents and the likelihood of the existence of minefields are available through the existing BHMIC database and through the results of survey. The level of impact on communities will be the result of the current Landmine Impact Survey and the existing priority system, modified by the results of the task assessment and planning process, which should provide a better picture of the potential benefits that results from mine action.

Identification and analysis provide better planning as a function of management for choosing the most efficient direction to achieve the goals set (i.e.,

improved structure of activities and resource management,⁸ establishment of the registry of affected communities and the registry of mined locations grouped by priorities, and development community action plans). Determination of priority level is achieved through qualitative measurement. The basis for applying qualitative qualification as a means for managing information⁹ and reaching the priority level is achieved by dividing the mine problem into more specific problems and their main characteristics.

If priority evaluation is looked upon as a part of risk management, then it can be defined as a comparison of priority levels with the previously established criteria for evaluating the contamination problem.¹⁰ These criteria may vary from country to country depending on the strategic goals set, country policy, economic situation, resources available and other factors. There are different quantitative methods of multi-criteria analysis for measuring and evaluating risk defined in different software packages, but these shall not be separately addressed in this article.

Evaluation image.



Usage of Qualitative Classification for Determining Priority Levels

Classification is a type of measuring, meaning that the scale must be chosen and established based on instruments of information collected.¹¹ Qualitative classification cannot be a substitute for quantitative measuring, but it does precede it in principle. The value of qualitative classification is multiple. Apart from

providing the starting rank list of locations according to the priority groups, it comprises within itself all the criteria that actually cannot be measured in the process of risk evaluation and determination of the individual rank for every location.

By identifying and analysing a mine problem, a choice can be made based on the most important mine risk indicators and socio-economic impact and the scales for each indicator are defined separately. Characteristics and instruments for gathering information about chosen indicators for qualitative classification condition the construction of the scale.

The choice of matrixes for qualitative measurement and analysis is not accidental; rather, it is recommended by different risk management standards. In this case, the matrixes represent the modified application of the Australian and New Zealand Standards.¹²

The threat level is determined by threat analysis matrix. This matrix is obtained by combining the scale of consequences of incident with the scale of likelihood of existence of minefield.

impact analysis matrix – impact level		potential benefits		
		1. priority	2. priority	3. priority
current negative impact	high	VH	H	L
	medium	H	M	L
	low	M	L	W

Threat analysis table.

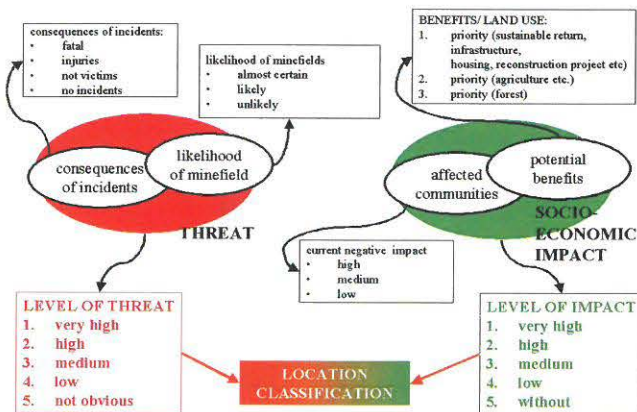
The level of socio-economic impact is assessed by using the impact analysis matrix. This matrix is obtained by combining the scale of current negative impact on communities with the prioritised scale of potential benefits.

location analysis matrix – priority level		threat level				
		very high	high	medium	low	not obvious
impact level	very high	1	2	3	3	0
	high	2	3	3	4	0
	medium	4	4	4	5	0
	low	5	5	6	6	0
	without	6	6	7	7	0

Location classification.

Landmines in Europe & the Caucasus

The results of matrix usage are the scales of the threat level and the socio-economic impact level with equal number of classes. These two scales will be used to construct the matrix for location analysis, which will affect the priority level classification of locations. By combining these scales, we get classes, each of them being a priority level. The distribution of the priority levels within the matrix depends on the assessment of the importance of specific criteria, which is always an executive/management decision. In this case, it is our estimation that the centre of gravity in the selection of priorities should be on the socio-economic impact.



Every risk micro-location where general survey was conducted is subject to qualitative classification. The ultimate result will be the initial list of priorities grouped through levels of priority and ready for quantitative analysis.

Final Considerations

Mine action in Bosnia and Herzegovina is a process with a large number of interested parties participating at the same time, often with different and conflicting interests and aims. Therefore, it is necessary to establish a hierarchy within mine action goals. This hierarchy is not only strategic, but also includes the goals and the interests expressed at a lower level, down to the local community. It is at the basic level of the local community that most misunderstandings and subjectivity in priority selection appear.

Correct priority setting is a transparent process with a clear choice of areas and activities that will most efficiently reduce the risk and bring benefits to Bosnia and

Herzegovina. It is a key factor in influencing the will of the donors to continue supporting mine action in Bosnia and Herzegovina and mine action decision makers must therefore base their decisions upon scientific and unbiased models for risk management.

The current status of mine action, the availability and accessibility of information, the transformation of BHMIC operational management system and new information from the Landmine Impact Survey all work to open possibilities for developing a new model for mine action priority setting in Bosnia and Herzegovina. This "new model" is the "missing link" between the large scope of work done gathering and assessing information, and planning and taking actions to solve the mine problem. In Bosnia and Herzegovina, we now have the chance to do this. ■

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*All graphics courtesy of author.

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