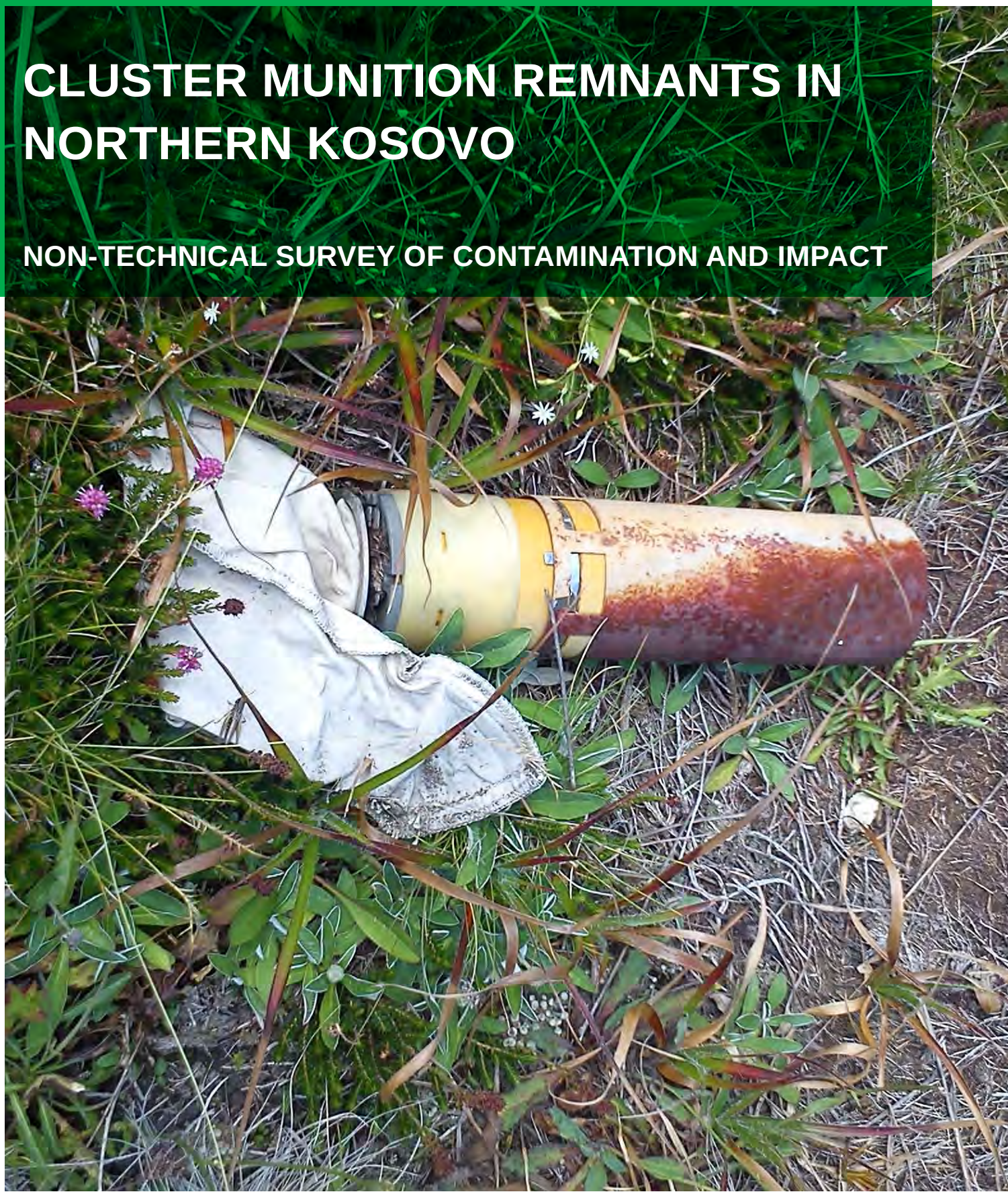
Norwegian People's Aid

CLUSTER MUNITION REMNANTS IN NORTHERN KOSOVO

NON-TECHNICAL SURVEY OF CONTAMINATION AND IMPACT



Cluster Munition Remnants in Northern Kosovo: Non-technical Survey of Contamination and Impact, Norwegian People's Aid.

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Unexploded BLU-97A/B submunition photographed at Makve, Mokra Gora, in Čečevo, Zubin Potok municipality

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1. Executive Summary

On 12–20 May 2014, a Norwegian People's Aid (NPA) team visited Kosovo in order to assess the conditions and needs for the re-opening of a Humanitarian Disarmament Programme. This mission was supported by the Norwegian Embassy in Prishtina, which communicated with the Kosovo authorities as well as with the local authorities in the four municipalities in northern Kosovo (Leposavić, Mitrovica North, Zubin Potok, and Zvečan).

NPA applied to the Kosovo Mine Action Centre (KMAC) for accreditation to conduct non-technical survey (NTS) of areas contaminated with cluster munition remnants in Kosovo in November 2014. As part of its request for accreditation NPA submitted standard operating procedures for NTS in Kosovo that were subsequently approved by KMAC, and NPA received its accreditation on 1st December 2014.

Through July 2015 NPA conducted both desk study and field-based NTS to assess and confirm contamination with cluster munition remnants in the following municipalities: Leposavić, Mitrovica North, Zubin Potok and Zvečan. Based on its assessment of the hazard and impact from cluster munition remnants, NPA plans to develop a land release strategy for areas contaminated with cluster munition remnants for all of northern Kosovo.

Based on its assessment of hazards and impact of cluster munition remnants, NPA plans to develop a land release strategy for areas contaminated with cluster munition remnants for all of northern Kosovo.

1.1. Contamination from Cluster Munition Remnants

North Atlantic Treaty Organization (NATO) members conducted an aerial bombing campaign against the Federal Republic of Yugoslavia from 24 March to 10 June 1999. Along other munitions, NATO dropped cluster munitions on targets in northern Kosovo. The NPA survey team identified cluster munition strikes in nine affected communities in three municipalities of northern Kosovo. Four types of cluster munitions were used there: CBU-87/B (in three versions dispersing BLU-97, BLU-97B or BLU-97A/B submunitions); CBU-99 (dispersing MK-118 BL submunitions); BL-755 (dispersing MK-1 submunitions), and RBL-755 (dispersing MK-4 submunitions).

Records on the clearance and destruction of unexploded submunitions conducted by the NATO-led Kosovo Force (KFOR) were provided to the NPA by KMAC. The total cleared area was reported to be 632,800m^2. According to available data, however, areas were cleared without applying the relevant International Mine Action Standards. During clearance activities, 119 unexploded submunitions were found and destroyed. In addition to planned clearance at Mokra Gora, KFOR units destroyed 299 additional submunitions after calls from citizens, local civil protection, or community representatives.

On the basis of available information the NPA survey team believes that 83 cluster bombs were dropped at 30 locations (cluster munition strike zones) within three municipalities of northern Kosovo, dispersing a total of 17,041 submunitions. NPA estimated the number of unexploded submunitions that would result from each individual strike. In total, 1,459 unexploded submunitions are expected in contaminated areas (8.56% of those fired overall). In total, 8.90 km^2 is believed to be contaminated by cluster strikes.

1.2. Impact from Cluster Munition Remnants

The NPA survey team identified six categories of land blocked due to unexploded submunitions: (1) housing, (2) infrastructure and utility facilities, (3) tourism, (4) agricultural land, (5) use and maintenance of forests, and (6) regulation of river flows and renovation of canals and banks. Analysis shows that mountainous areas intended for tourism (a key development potential for the region) amounted to 42.52% of contaminated areas. Agricultural land (24.75% of contaminated areas) and forests (23.17% of contaminated areas) are also highly impacted.

Preliminary data on accidents (deaths or injuries) and incidents (reports of unexploded submunitions) caused by the NATO bombing were gathered using a survey questionnaire filled by local authorities in the municipalities of Leposavić, Mitrovica North, Zubin Potok, and Zvečan. These data include different types of unexploded explosive items, not only cluster munition remnants. In total, local authorities reported 10 accidents with 40 victims (6 killed and 34 injured) and 34 incidents. The NPA team gathered and analysed additional data, confirming two further accidents and nine incidents from submunitions after use in Zubin Potok and Zvečan municipalities. Among eight explosions of BLU-97A/B and MK-4 submunitions, two caused injuries to a total of three persons.

In total, 3,872 people were assessed to be affected by the presence of unexploded submunitions with 995 at direct risk of death or injury.

2. Introduction

On 12–20 May 2014, an NPA team visited Kosovo in order to assess the conditions and needs for re-opening of an NPA Humanitarian Disarmament Programme in Kosovo. This mission was supported by the Norwegian Embassy in Prishtina, which communicated with the Kosovo authorities as well as with the local authorities in the four municipalities in northern Kosovo (Leposavić, Mitrovica North, Zubin Potok, and Zvečan). Meetings between NPA and Kosovo Mine Action Centre (KMAC) confirmed NPA's role as an operator and implementing partner for KMAC. Meetings with representatives of municipalities demonstrated their interest to see an international impartial organisation assess their cluster munition contamination problem. The representatives were willing to support NPA with available data, coordination support, and local assistance for NPA activities.

NPA applied to KMAC for accreditation to conduct Non-technical survey (NTS) in Kosovo in November 2014. NPA's proposed standard operating procedures for NTS in Kosovo were subsequently approved by KMAC and NPA received its accreditation on 1 December 2014. The NTS survey team consisted of two experienced surveyors from NPA's Humanitarian Disarmament Programme in Bosnia and Herzegovina started implementation of NTS in Kosovo.

Contacts were made with local authorities (municipality representatives, civil protection units, and police stations) as well as with relevant international organisations and the NATO-led Kosovo Force to assemble available data. In total, 41 suspected locations in 27 communities were reported as hazardous as a result of NATO bombing: 20 locations were reported in questionnaires completed by local authorities; 5 locations were confirmed by NATO only; 10 locations were reported by local authorities during field survey, and 6 locations were discovered by the NPA survey team. These data were the basis for desk study and the planning and execution of field NTS activities to assess and confirm contamination from cluster munition remnants in the municipalities of Leposavić, Mitrovica North, Zubin Potok, and Zvečan.

Based on its assessment of hazards and impact of cluster munition remnants, NPA plans to develop a land release strategy for areas contaminated with cluster munition remnants for all of northern Kosovo.

3. Contamination from Cluster Munition Remnants

From November 2014 to August 2015, NPA conducted NTS of contamination from cluster munition remnants in Leposavić, Mitrovica North, Zubin Potok, and Zvečan.

This assessment is based on analysis of survey results and contains the following elements: the origin and nature of contamination; types and quantities of deployed cluster munitions and submunitions; the features of cluster strike zones; and estimated size and features of contaminated areas.

Unexploded BLU-97 submunition at Tovarište in Žaža, Zvečan municipality

3.1. The Origin and Nature of Contamination

NATO member states conducted a bombing campaign against the army of the Federal Republic of Yugoslavia from 24 March to 10 June 1999. This included cluster munitions dropped on targets in northern Kosovo.

The NPA survey team identified cluster munition strikes in nine affected communities across three municipalities in northern Kosovo. These strikes have resulted in contamination from cluster munition remnants (unexploded submunitions) which have a direct negative impact on the local population.

3.2. Types and Quantities of Deployed Cluster Munitions and Submunitions

NPA identified four types of cluster munitions that were used in northern Kosovo: CBU-87/B (dispersing three types of submunitions: BLU-97, BLU-97B, and BLU-97A/B); CBU-99 (dispersing MK-118 BL submunitions); BL-755 (dispersing MK-1 submunitions); and RBL-755 (dispersing MK-4 submunitions). According to available information, a total of 83 cluster bombs were dropped on targets in three municipalities of northern Kosovo dispersing a total of 17,041 submunitions.

Based on all available data, NPA estimated the number of unexploded submunitions for each individual strike. In total 1,459 unexploded submunitions are expected to have resulted, equivalent to an overall failure rate of 8.56% of those dispersed.

Table 1: Estimated number and type of air-dropped cluster munitions

Cluster munition type	Submunition type	No. of submunitions per container	No. of fired cluster munitions	Total no. of dispersed submunitions	Estimated number of unexploded submunitions
CBU-87/B	BLU-97	202	21	4,242	262
CBU-87/B	BLU-97B	202	4	808	40
CBU-87/B	BLU-97A/B	202	43	8,686	935
CBU-99	MK-118	247	11	2,717	132
RBL-755	MK-4	147	4	588	90
		Total	**83**	**17,041**	**1,459**

3.3. The Features of Cluster Munition Strike Zones

The features of the strike zones were assessed according to NPA's standard operating procedures for NTS, using the data gathered from a range of sources and confirmed during field visits as well as the features of the footprints of cluster munitions used.

The NPA survey team identified cluster footprints in three municipalities in north Kosovo: Leposavić Zubin Potok and Zvečan. Cluster munition remnants are not identified in the municipality of North Mitrovica.

In total, the survey team estimated the features of 30 cluster munition strike zones affected by a total of 83 cluster munitions. Between 1 and 9 cluster munitions were dropped on each location amounting to an average of 5.93 per strike zone (see Table 2: Overview of the identified cluster strike zones).

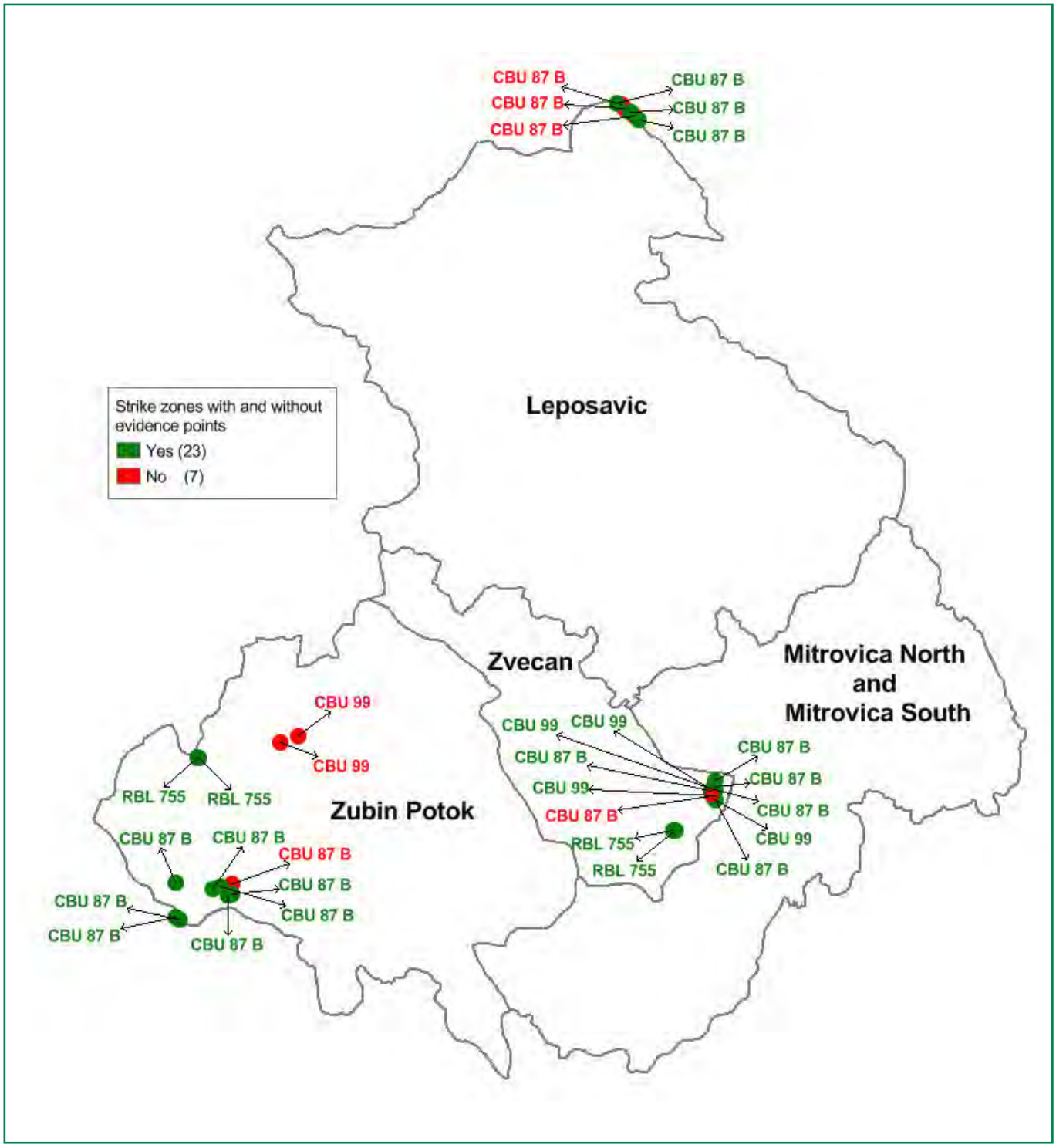
Certain locations are affected by different types of cluster munitions. An example is the strike zone at Tovarište, in Žaža community of Zvečan municipality where two footprints from CBU-99 cluster munitions and four footprints from CBU-87/B cluster munitions were identified. The largest number of cluster strike zones found was in Zubin Potok municipality where 12 strike zones resulted from the dropping of 44 cluster bombs.

The survey team also sought to estimate the number of submunitions within cluster footprints. Of a total of 30 cluster munition strike zones, on 23 zones NPA was able to confirm the presence of unexploded submunitions during NTS.

The team collected and recorded 196 pieces of evidence that enabled more accurate locating of the footprints. On the remaining seven cluster munition strike zones no submunitions were found but available data indicate a serious suspicion of their presence, something that will need to be confirmed by technical survey as the next step of the assessment process for such footprints (see Map 1: Identified cluster strike zones).

Table 2: Overview of the identified cluster strike zone

Municipality	Community	Location	Type of Strike Zones	No. of Cluster Munitions used
Leposavić	Belo Brdo	Jelovarnik - east	CBU-87B	5
		Ravniska planina	CBU-87B	5
		Vojetin	CBU-87B	5
	Guvnište	Velika ravan	CBU-87B	2
		Nebeska stolica	CBU-87B	2
		Jelovarnik - west	CBU-87B	2
	2 affected communities		**6 strike zones**	**21**
Zubin Potok	Brnjak	Vranin krš	CBU-87B	2
	Čečevo	Makve	CBU-87B	4
		Savina voda	CBU-87B	3
		Radopolje	CBU-87B	3
		Berim	CBU-87B	2
	Oklace	Crni krš	CBU-87B	6
		Ciganski grob	CBU-87B	6
		Jerebinje	CBU-87B	9
	Bube	Bubsko Polje	CBU-99	3
		Male Livade	CBU-99	4
	Banje	Gazivode,Local beach	RBL-755	1
		Gazivode Lake	RBL-755	1
	5 affected communities		**12 strike zones**	**44**
Zvečan	Boljetin	Sokolica	RBL-755	1
		Lipa	RBL-755	1
	Žaža	Tovarište - west	CBU-99	1
		Tovarište - east	CBU-99	1
		Tovarište - north	CBU-87B	2
		Tovarište - south	CBU-87B	2
		Oštra Stijena - west 1	CBU-99	1
		Oštra Stijena - west 2	CBU-99	1
		Oštra Stijena - southwest 1	CBU-87B	2
		Oštra Stijena - southwest 2	CBU-87B	2
		Majdan	CBU-87B	2
		Oštra stijena - northwest	CBU-87B	2
	2 affected communities		**12 strike zones**	**18**
Total	**9 Affected communities**		**30 strike zones**	**83 fired cluster munitions**



Map 1: Identified cluster strike zones

3.4. Estimated Size and Features of Contaminated Areas

Estimations of the size and features of areas to be confirmed or which are suspected of contamination with cluster munition remnants areas enable more precise planning and efficient implementation of releasing of land. It is based on identified cluster munition strike zones and topographic features of the land, the users, and the intended use of the land. These features are the starting point for defining the borders of contaminated areas and their hazard and impact level as an entry to priority-setting process and strategic planning for safe release of contaminated land.

Lessons learned from other countries in south-east Europe where NPA has been operating show that land release strategies for areas contaminated with cluster munition remnants could be based on assumptions related to the criteria for assessing the hazard level. Three levels of areas are classified as high hazard or above, which means they are expected to require release by clearance. Areas classified as moderate hazard are designated mainly for technical survey whereas areas classified as low hazard are expected to be released through NTS.

In total, 8.90km^2 is believed to be contaminated with cluster munition remnants in the three municipalities of northern Kosovo where cluster strikes are identified. According to priority-setting criteria, 3.68km^2 of contaminated areas are classified as extremely high, very high, or high hazard; 2.19km^2 are classified as moderate hazard; and 3.03km^2 are classified as low hazard (see Annex 4: Priorities for technical survey/clearance of areas contaminated with cluster munition remnants).

Table 3: Contaminated area according to hazard level

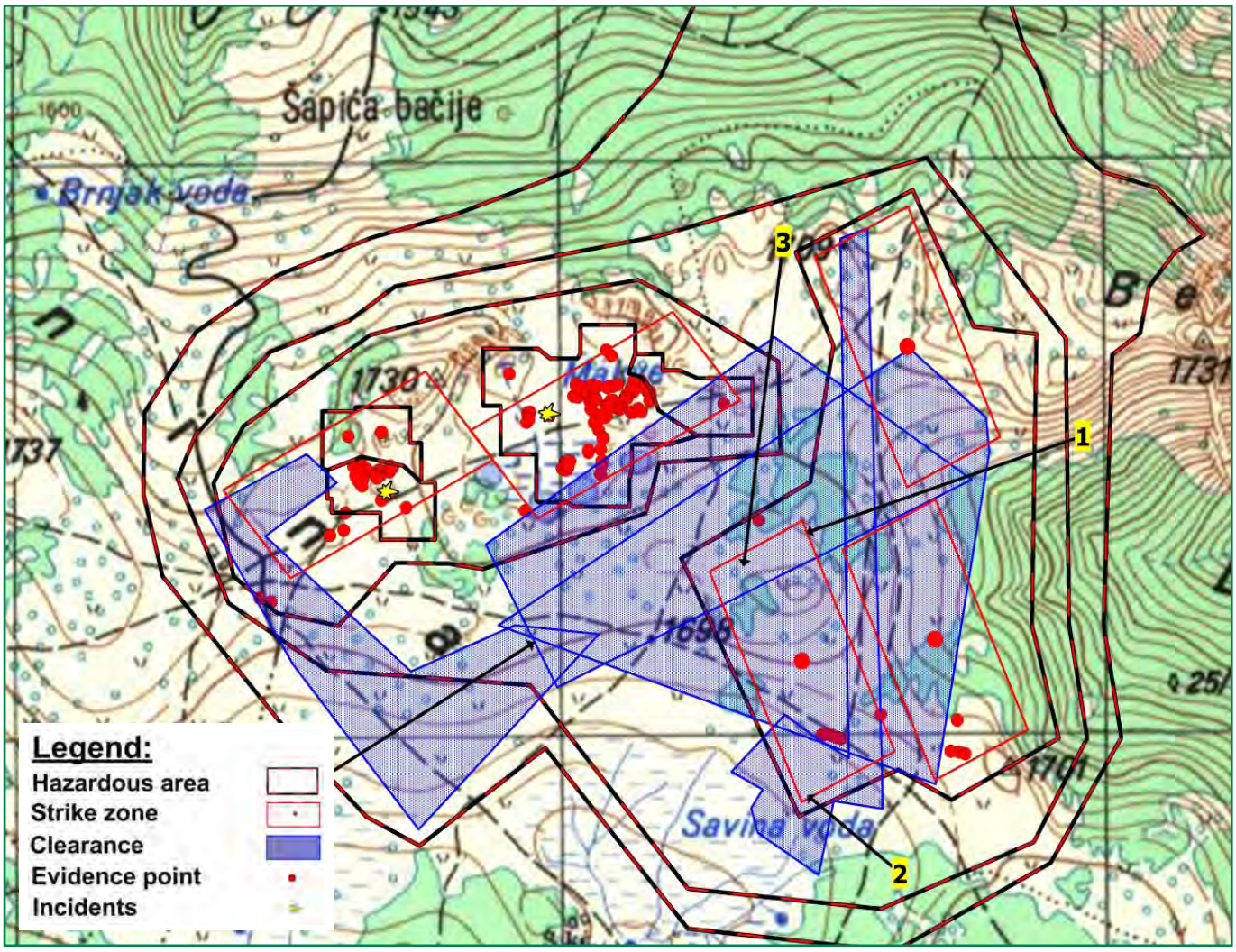
Hazard level	Contaminated area	
	km^2	%
Extremely high	0.41	4.61%
Very high	0.62	6.97%
High	2.65	29.78%
Moderate	2.19	24.61%
Low	3.03	34.03%
Total	**8.90**	**100.00%**

3.5. Cluster Munition Destruction by the NATO-led Kosovo Force

Records of clearance and destruction of unexploded submunitions by KFOR were provided to the NPA by the KMAC.

KFOR units conducted clearance on four tasks in Mokra Gora in 1999 and 2006 (see Table 4: Clearance results by KFOR units without application of the International Mine Action Standards). On most of the areas, only surface search was conducted. Sub-surface clearance to a depth of 50cm was conducted on one task over 88,765m^2, whereas the remaining areas (737,322m^2) were checked visually and unexploded submunitions removed from the surface only. These areas therefore appear to have been cleared without applying the IMAS.

The total cleared area was of 826,087m^2 but with overlapping clearance the total treated area reduces to 632,800m^2 (see Map 2: KFOR clearance at Mokra Gora in Zubin Potok municipality). During clearance 119 unexploded submunitions were found and destroyed.



Map 2: KFOR clearance at Mokra Gora, Zubin Potok municipality

Table 4: Clearance by KFOR without application of the IMAS

ID	KFOR Unit	Municipality	Location	Clearance Outputs				Clearance Timeframe	
				Cluster Submunitions Type	Quantity	Clearance depth (cm)	Area (m^2)	Start date	End date
1	BACTEC	Zubin Potok	Mokra Gora, Makve	BLU 97	113	0	248,252	23/11/1999	02/12/1999
2	DANBAT	Zubin Potok	Mokra Gora, Preseka	BLU 97	2	50 cm	88,765	31/05/2006	17/06/2006
3	DANBAT	Zubin Potok	Mokra Gora, Preseka	BLU 97	1	0	352,170	22/05/2006	30/06/2006
4	DANBAT	Zubin Potok	Mokra Gora, Preseka	BLU 97	3	0	135,900	03/11/2005	22/06/2006
				Total	**119**		**826,087**		

In addition to planned clearance at Mokra Gora, KFOR units destroyed 299 other submunitions after calls from citizens, local civil protection, or community representatives. The majority of these submunitions (276) were found in Žaža community in Zvečan municipality in 2000. In 2015, the latest incident was reported in Oklace in Zubin Potok municipality by KFOR, when an unexploded submunition was found.

Table 5: Destruction of cluster munition remnants by KFOR

Hazard level	Community	Location	Removal Outputs	
			Cluster Munition Type	Quantity
Leposavić	Belo Brdo	Belo Brdo	BLU 97, BLU 97A/B	18
Zubin Potok	Čečevo	Makve	MK-1	4
	Oklace	Crni Krš	BLU 97	1
Zvečan	Žaža	Tovarište	BLU 97, BLU 97A/B	195
			MK-118	81
			Total	**299**

Through activities by KFOR in the municipalities of Leposavić, Zubin Potok, and Zvečan, 418 unexploded submunitions were destroyed. These were taken into account during the assessment and excluded from NPA's estimate of 1,459 unexploded submunitions (see above Table 1: Estimated number and type of air-dropped cluster munitions).

Although KFOR emergency interventions have reduced the hazard level at certain locations, serious risks for the local population still exist and risks are growing as local communities began using the land more intensively for economic development in northern Kosovo.

NPA team conducting field survey at Guvnište in Kopaonik, Leposavić municipality

4. The Impact of Cluster Munition Remnants

The assessment of the social, economic, and environmental impact of unexploded submunitions is based on the risk to inhabitants residing in or near contaminated areas. Together with a hazard assessment, it comprises the risk assessment of the situation with regards to cluster munition remnants in the four municipalities of northern Kosovo where NPA conducted NTS.

The impact of cluster munition remnants is a complex and dynamic issue, dependent on changes in the environment caused by human activity or changes in the threat. Therefore assessment of impact can only be short-term in nature.

The impact assessment carried out includes: (1) analysis of intended use of the land contaminated by cluster munition remnants; (2) analysis of the accidents and incidents that have occurred so far; and (3) analysis of population vulnerability.

4.1. Intended Use of Land Contaminated with Cluster Munition Remnants

Analysis of the intended use of the land refers to current denial of access to resources affected by the presence of unexploded submunitions. The NPA team identified six categories of land blocked due to the hazard posed by unexploded submunitions: (1) housing, (2) infrastructure and utility facilities, (3) tourism, (4) agricultural land, (5) use and maintenance of forests, and (6) regulation of river flows and renovation of canals and banks.

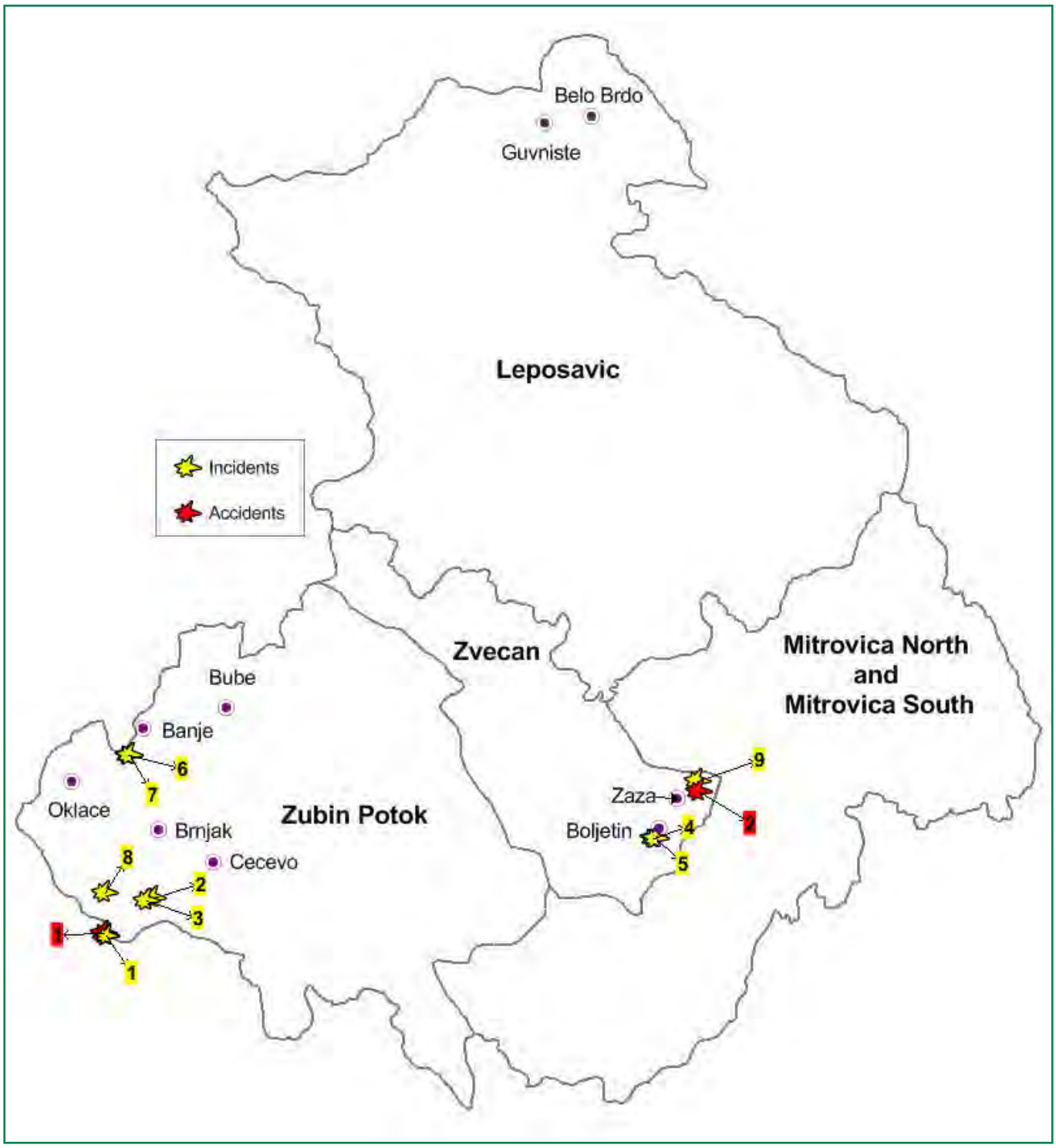
Analysis shows that mountainous areas intended for tourism are one of the key potentials for the development of region, amounting to 42.52% of contaminated areas. Agricultural land (24.75% of contaminated areas) and forests (23.17% of contaminated areas) are also highly impacted.

Table 6: Contaminated area according to intended use of the land

Intended use of the land	Area (km²)	%
Housing	0.35	3.94%
Infrastructure and utility facilities	0.41	4.61%
Tourism	3.78	42.52%
Agricultural land	2.20	24.75%
Use and maintenance of forests	2.06	23.17%
Regulation of river flows and renovation of canals and banks	0.10	1.01%
Total	**8.90**	**100.00%**

4.2. Accidents and Incidents

Preliminary data on accidents (deaths and injuries) and incidents (reports of unexploded submunitions) caused by NATO bombing were gathered using survey questionnaire filled by local authorities in the municipalities of Leposavić, Mitrovica North, Zubin Potok, and Zvečan. This data includes different types of unexploded munitions fired by NATO, not only cluster munition remnants. In total, local authorities reported 10 accidents with 40 victims (6 killed and 34 injured) and 34 incidents.



Map 3: Accidents and incidents caused by unexploded submunitions

Through its field survey the NPA team gathered and analysed additional data, confirming two further accidents and nine incidents caused by unexploded submunitions in the municipalities of Zubin Potok and Zvečan (see Table 7: Chronology of accidents and incidents; and Map 3: Accidents and incidents caused by unexploded submunitions). Among eight explosions of BLU-97A/B and MK-4 submunitions, two injured a total of three people.

Table 7: Chronology of accidents and incidents

ID number	Municipality	Local community	Location	Caused by unexploded submunition	Consequences	Date of accident/ incident
Accidents						
1	Zubin Potok	Oklace	Jerebinje	BLU-97A/B	1 injured	19/08/1999
2	Zvečan	Žaža	Tovarište	BLU-97B	2 injured	18/07/2007
Incidents						
1	Zubin Potok	Oklace	Jerebinje	BLU-97A/B	explosion	16/07/1999
2	Zubin Potok	Berim	Berim	BLU-97A/B	explosion	29/09/1999
3	Zubin Potok	Čečevo	Makve	BLU-97A/B	explosion	12/07/1999
4	Zvečan	Boljetin	Sokolica	MK-4	explosion	27/08/2009
5	Zvečan	Boljetin	Sokolica	MK-4	explosion	27/08/2009
6	Zubin Potok	Banje	Local beach	MK-1		15/07/2014
7	Zubin Potok	Banje	Local beach	MK-1		13/08/2010
8	Zubin Potok	Oklace	Crni Krš	BLU-97		30/08/2014
9	Zvečan	Žaža	Tovarište	BLU-97A/B	explosion	15/07/2014

4.3. Population Vulnerability

In total, 2,022 inhabitants of nine communities are affected by cluster munition remnants in the municipalities of Leposavić, Zubin Potok, and Zvečan. NPA did not identify affected communities in the municipality of Mitrovica North.

Estimates of the number and structure of populations at risk from cluster munition remnants were classified in three categories based on criteria related to population risk behaviour, residence, and interests: directly vulnerable inhabitants, and indirectly vulnerable inhabitants from affected local communities, and other vulnerable populations (see Table 8: Vulnerable population).

Within the category of directly vulnerable inhabitants from communities are: those identified as having a significantly higher probability of exposure to risk such as owners or users of the land, households (adults and children) in direct contact with the contaminated land, and other inhabitants from the community that consistently or frequently enter contaminated areas or their vicinity (hunters, fishermen, people collecting berries, woodcutters, foresters).

The NPA team has estimated that 995 inhabitants of affected communities are directly vulnerable. Other inhabitants of communities affected by cluster munition remnants belong to the category of the indirectly vulnerable. The NPA team estimated that 1,027 inhabitants of affected communities are indirectly vulnerable. Other vulnerable populations is a wide classification of people who are not living in affected communities and who enter the contaminated areas or their vicinity occasionally such as inhabitants from neighbouring settlements, tourists, fishermen, hunters, and other visitors.

The NPA team estimated that 1,850 inhabitants of affected communities belong to the category of other vulnerable populations. A total population of 3,872 is assessed as vulnerable as a result of the presence of unexploded submunitions.

This child found parts of a BLU-97 submunition in Oklace in Zubin Potok municipality

Table 8: Vulnerable population

Municipality	Local community	Affected communities			Other vulnerable populations	Total vulnerable population
		Directly vulnerable	Indirectly vulnerable	Community population		
Leposavić	Belo Brdo	120	137	257	500	757
	Guvnište	80	74	154	400	554
Zubin Potok	Banje	40	45	85	250	335
	Brnjak	180	170	350	150	500
	Bube	45	23	68	30	98
	Čečevo	110	130	240	120	360
	Oklace	90	120	210	100	310
Zvečan	Boljetin	150	200	350	200	550
	Žaža	180	128	308	100	408
Total		**995**	**1,027**	**2,022**	**1,850**	**3,872**

Unexploded BLU-97A/B submunition at Crni Krš in Oklace, Zubin Potok municipality

5. Communities Affected by Cluster Munition Remnants in Northern Kosovo

Community-based assessment of hazards and the impact of cluster munition remnants covers: general information on the community, assessment of the hazard and its impact, estimated potential benefits as a result of clearance and land release scenarios for areas contaminated with cluster munition remnants. NPA team conducted an assessment for all nine affected communities.

Table 9: Chronology of accidents and incidents

Municipality	Local community	Type of cluster munitions dropped	Clearance Outputs					
			Extremely high hazard	Very high hazard	High hazard	Moderate hazard	Low hazard	Total
			(km²)	(km²)	(km²)	(km²)	(km²)	(km²)
Leposavić	Guvnište	BLU-97	0	0	0.399	0.316	0.593	1.308
	Belo Brdo	BLU-97	0	0	0.220	0.224	0.266	0.710
	Total		**0**	**0**	**0.619**	**0.540**	**0.859**	**2.018**
Zubin Potok	Brnjak	BLU-97A/B	0.017	0.021	0.147	0.113	0.405	0.703
	Čečevo	BLU-97A/B	0.073	0.019	0.550	0.509	0.347	1.498
	Oklace	BLU-97A/B	0.075	0.184	0.472	0.449	0.766	1.946
	Bube	MK-118	0	0	0.371	0.137	0.210	0.718
	Banje	MK-4	0	0.010	0.024	0.017	0.042	0.094
	Total		**0.165**	**0.234**	**1.564**	**1.225**	**1.770**	**4.959**
Zvečan	Boletin	MK-4	0	0.015	0.028	0.038	0.062	0.143
	Žaža	MK-118, BLU-97, BLU-97A/B	0.242	0.371	0.436	0.385	0.341	1.774
	Total		**0.242**	**0.386**	**0.464**	**0.423**	**0.403**	**1.917**
Total			**0.407**	**0.620**	**2.647**	**2.188**	**3.032**	**8.894**

5.1. Guvnište in Leposavić municipality

Guvnište is situated in the north of the municipality and on western slope of Kopaonik mountain, 21km from Leposavić town. The community extends over 20.65km^2. It is located at over 1,000m above sea level.

The main access road is an asphalt road from Leposavić. Most of the land is forested or pasture. Orchards and agricultural land covers a smaller area.

The community has a population of 154. Most of the population exploit the forest, use pastures, or conduct agriculture as their main source of income. Land is also used for hunting, forestry, berry collecting, and tourism.

Local Community Guvnište

Parts of a BLU-97 submunition photographed in July 2015 in Jelovarnik

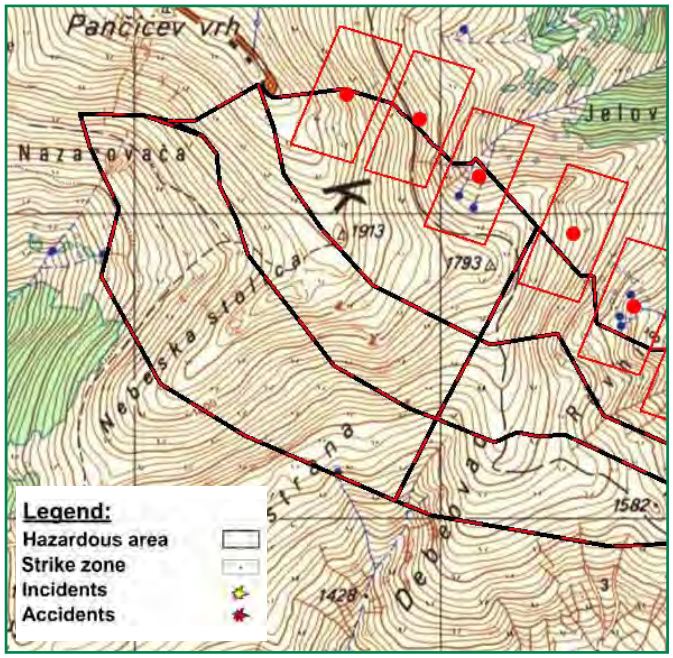
In accordance with available data, NATO bombed Jelovarnik location with CBU-87/B cluster bombs, containing BLU-97 submunitions. NATO strikes were focused on wider area of Pančićev vrh (top of Kopaonik mountain) at Guvnište location. This information was confirmed during NTS as cluster munition remnants were observed during field visit.

NATO strikes with cluster bombs focused on the western areas in the community. Radar systems and anti-aircraft defence systems were positioned in this area.

The total hazardous area is 1.308km^2. During NTS NPA estimated that this area was hit by at least two CBU-97/B cluster bombs, containing BLU-97 submunitions.

NPA estimated that 155 BLU-97 submunitions remained.

Aerial view of the area contaminated with cluster munition remnants at Jelovarnik



Map 4: Contaminated area in Guvnište

No accidents among the local population from cluster munition remnants were registered in this community. In the north-west, incidents comprise reports by the local population of unexploded submunition. NPA received information from KMAC on cluster munition removal by KFOR at this community. Due to the presence of unexploded submunitions, the safety of local population is threatened. The population from this and other communities in Leposavić enter hazardous area mostly for pasture but also for berry collection and hunting. Other people enter hazardous areas for tourism, hiking, cycling, etc. The total affected population is 400. Of this number, 80 are considered as directly affected while 320 others enter hazardous areas occasionally.

The importance of clearance in this community is to reduce the risk of accidents among the local population. This location is used by hunters, berry collectors, hikers, and other tourists for rest and sport. This location is the Kopaonik mountain range, a natural resource for Leposavić municipality, and as such represents an important tourist destination for municipal development. The cluster contaminated area spreads on the north from this community, covering Raška municipality. The area in Raška municipality is not presented on the map left.

Table 10: Land release scenario for Guvnište

Operations	Released area (km^2)
NTS	0.593
Technical survey	0.316
Clearance	0.399
Total released land	**1.308**

5.2. Belo Brdo in Leposavić municipality

Belo Brdo is in the north of the municipality, 19km from Leposavić. The community extends over 21.54km^2. It is situated 4km south of the top of Kopaonik mountain (Pančičev vrh), 2,107m above see level.

The main access road is the asphalt road from Leposavić. The terrain is mountainous, forested, and pasture. Orchards and agricultural land cover a smaller area.

Community has a population of 257 in 64 households. The majority of the population exploit the forest, use pasture, or conduct agricultural work as their main source of income. Land is also used for hunting, forestry, berry collection, and tourism.

Parts of BLU-97 submunitions photographed in July 2015 in Belo Brdo

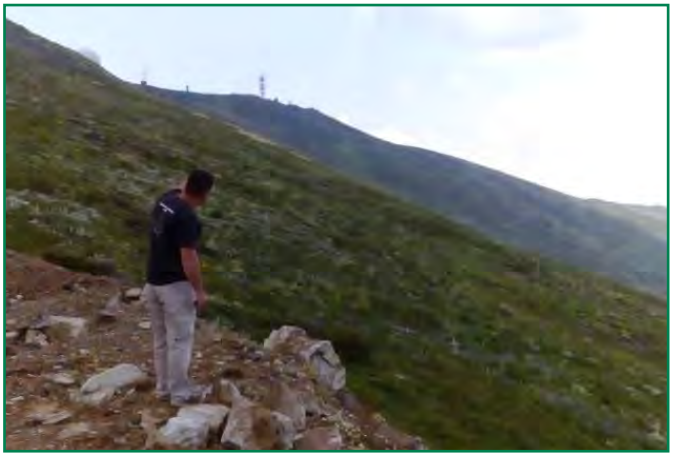
Local Community Belo Brdo

Available data indicate that NATO bombed Belo using CBU-87/B cluster bombs, dispersing BLU-97 submunitions. NATO strikes were focused on wider area of Pančićev vrh (top of Kopaonik mountain), west from local community Belo Brdo. This information is confirmed during NTS with cluster munition remnants observed during field visit.

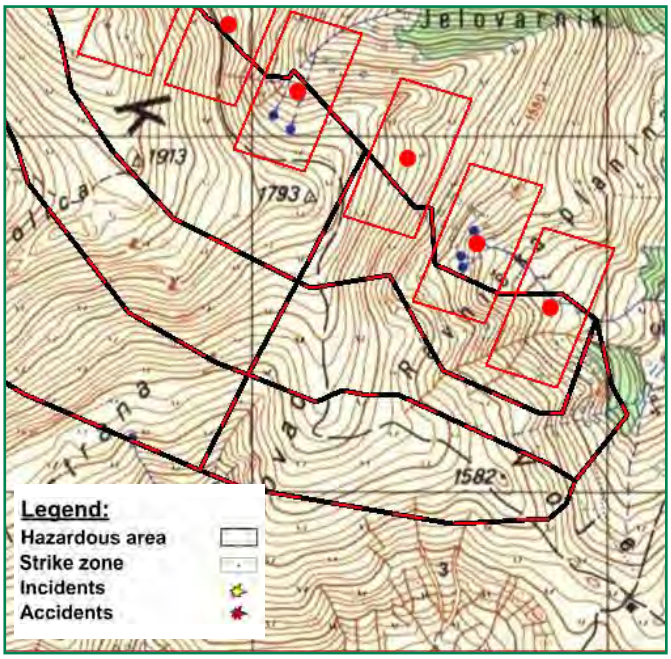
NATO strikes with cluster bombs were focused on a wide area on the west of the community. Radar systems and anti-aircraft defence systems were positioned there.

The total hazardous area is 0.71km^2. During NTS NPA estimated at least two CBU-97/B cluster bombs were dropped, dispersing BLU-97 submunitions.

NPA estimated that 147 BLU-97 submunitions remained.



Views of the area contaminated with cluster munition remnants in Belo Brdo



Map 5: Contaminated area in Belo Brdo

No incidents or accidents from cluster munition remnants were registered in this community.

Due to presence of submunitions in this community, the safety of local population is threatened. The population from this and other communities in Leposavić enter hazardous areas for berry collection and hunting. Others enter the hazardous area for tourism, hiking, cycling, etc.

The total affected population is 500. Of this number, 120 are considered as directly affected and another 380 enter the hazardous areas occasionally.

The importance of clearance in this community is to reduce the risk of cluster munition accidents. The area is used by hunters, berry collectors, hikers, and other tourists for rest and sport. This location is the Kopaonik mountain range and natural resource for Leposavić municipality, and as such represents an important tourist destination with importance for the development of the municipality.

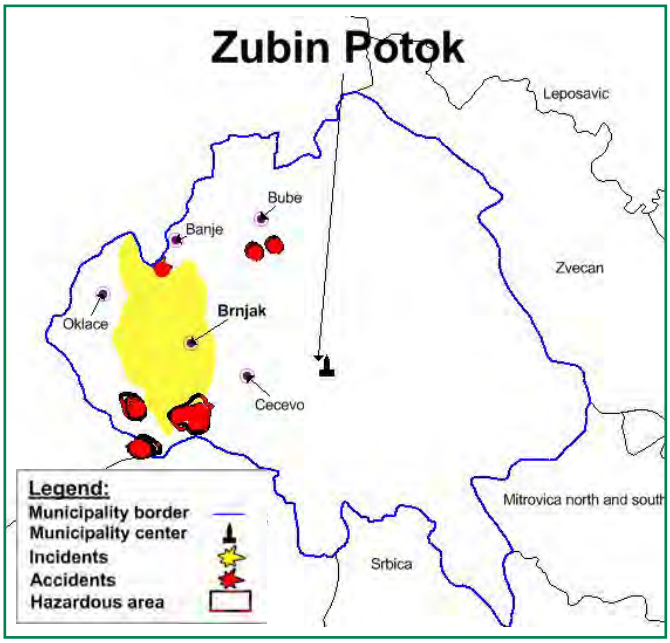
The cluster contaminated area also spreads on the north from this community, covering Raška municipality. The cluster contaminated area in Raška municipality is not presented on the map left.

Table 11: Land release scenario for Belo Brdo

Operations	Released area (km^2)
NTS	0.266
Technical survey	0.224
Clearance	0.220
Total released land	**0.710**

5.3. Brnjak in Zubin Potok municipality

Brnjak is situated in south-east of the municipality, 10km from the centre of Zubin Potok town. The community extends over 29.81km^2. The main access road is from Zubin Potok, crossing through the villages of Gazivode and Čečevo. The area is hilly and mountainous. Most of the land is forested or pasture. Orchards and agricultural land covers a smaller area. The community has a population of 350, in 88 households. Part of the population lives in Zubin Potok but regularly visit the community for agriculture, orchard work and livestock farming. Only 20% of population is permanently employed. Others exploit the forest, conduct agricultural, orchard, and pasture work as their main source of income.



Local Community Brnjak

Parts of a BLU-97A/B submunition photographed in December 2014 in Brnjak

The land in this community is also used for hunting, forestry, berry collection, and tourism.

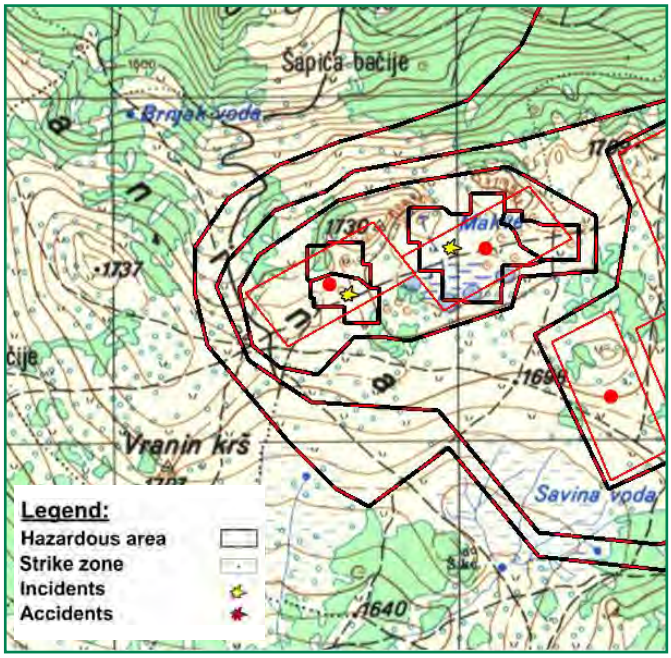
Available data indicates that NATO bombed Brnjak with CBU-87 cluster bombs, dispersing BLU-97A/B submunitions. This information was confirmed during NTS as cluster munition remnants were observed during field visit.

NATO strikes with cluster bombs focused on a wide area on the south of the community. Radar systems and anti-aircraft defence systems were positioned there. Repeaters were also positioned on neighbouring hills equipped with an underground power supply.

The total hazardous area is 0.703km^2. During NTS NPA estimated that at least one CBU-97/B cluster bomb was dropped, dispersing BLU-97A/B submunitions.

NPA estimated that 30 BLU-97A/B submunitions remained.

View of the area contaminated with cluster munition remnants



Map 6: Contaminated area in Brnjak

No incidents/accidents from cluster munition remnants were registered in this community. Incidents occurred in the neighbouring community of Čečevo, south-east of this hazardous area.

Due to the presence of unexploded submunitions in this community, the safety of the local population is threatened. The population from this and other communities in Zubin Potok enter hazardous areas for various reasons: agriculture, forest exploitation, berry collecting, and hunting. Others enter hazardous areas for tourism, hiking, cycling, etc.

The total affected population is 330. Of this number, 180 are considered directly affected in this community and another 150 enter the hazardous areas occasionally.

The importance of clearance in this community is to reduce the risk of cluster munition accidents. The area is used by hunters, berry collectors, hikers, and other tourists for rest and sport. This location is a mountain range of Mokra Gora mountain and natural resource for Zubin Potok, and as such represents an important tourist destination with importance for the development of the municipality. Recently, Mokra Gora mountain is declared as National Park and as such represents an strategic interest of Zubin Potok municipality development.

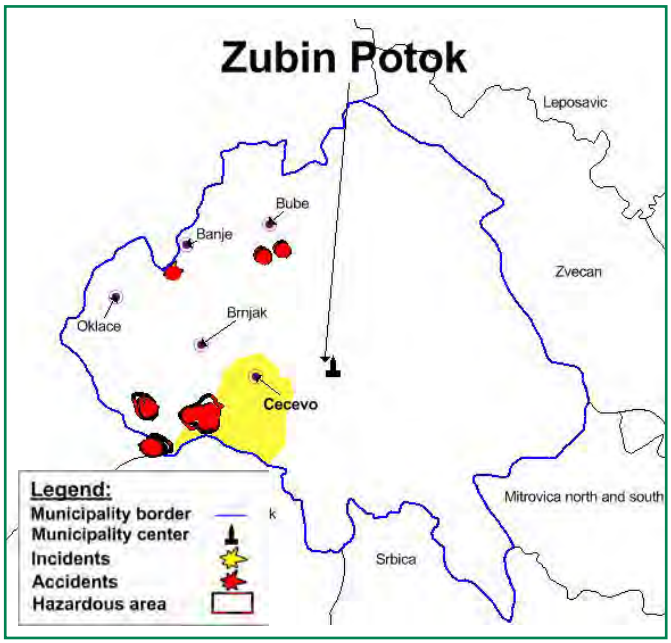
Table 12: Land release scenario for Brnjak

Operations	Released area (km^2)
NTS	0.405
Technical survey	0.113
Clearance	0.185
Total released land	0.703

5.4. Čečevo in Zubin Potok municipality

Čečevo is situated in the south-east of the municipality, 4km from the centre of Zubin Potok town. The community extends over 16.12km^2. The main access road is from Zubin Potok, crossing through the villages of Gazivode and Rezala. The area is hilly and mountainous. Most of the land is forested or pasture.

The community has a population of 240, in 55 households. Some people live in Zubin Potok and regularly visit the community for agricultural and orchard work and livestock farming. Most people exploit the forest or conduct agricultural, orchard, or pasture work as their main source of income. In addition, land is used for hunting, forestry, berry collection, and tourism.



Local Community Čečevo

Parts of a BLU-97A/B submunition photographed in December 2014 in Makve

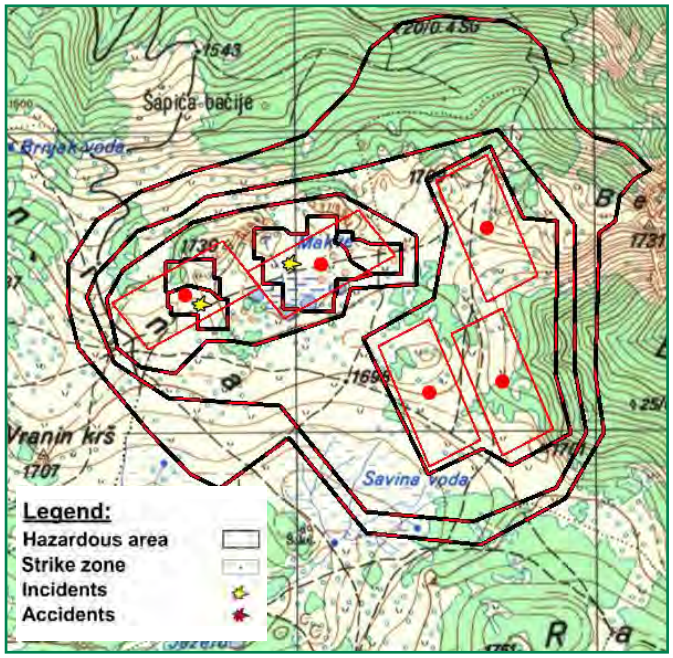
Available data indicates that NATO bombed Makve and Berim with CBU-87 cluster bombs, dispersing BLU-97A/B submunitions. This information was confirmed during NTS as cluster munition remnants were observed during field visit.

NATO strikes with cluster bombs focused on a wide area on the west of the community. Radar systems and anti-aircraft defence systems were positioned there. Repeaters were also positioned on neighbouring hills equipped with an underground power supply.

The total hazardous area is 1.498km^2. During NTS NPA estimated that eight CBU-97/B cluster bombs, dispersing BLU-97A/B submunitions were dropped in this community.

NPA estimated that 385 BLU-97A/B submunitions remained.

Views of the area contaminated with cluster munition remnants at Makve



Map 7: Contaminated area in Čečevo

Two accidents were caused by wild animals detonating submunitions in this community. No accidents among the local population were registered.

Due to the presence of submunitions in the west of this community, the safety of the local population is threatened. The population from this and other communities in Zubin Potok enter hazardous areas for various reasons: agriculture, pasture, forest exploitation, berry collecting, and hunting. Other population enter hazardous area for tourism, hiking, cycling, etc.

The total affected population is 230. Of this number, 110 are considered as directly affected and another 120 enter hazardous areas occasionally.

The importance of clearance in this community is to reduce the risk of cluster munition accidents. This area is used by hunters, fruit collectors, hikers, and other tourists for rest and sport. This location is a mountain range of Mokra Gora mountain and natural resource for Zubin Potok, and as such represents an important tourist destination with importance for the development of the municipality. Recently, Mokra Gora mountain is declared as National Park and as such represents an strategic interest of Zubin Potok municipality development.

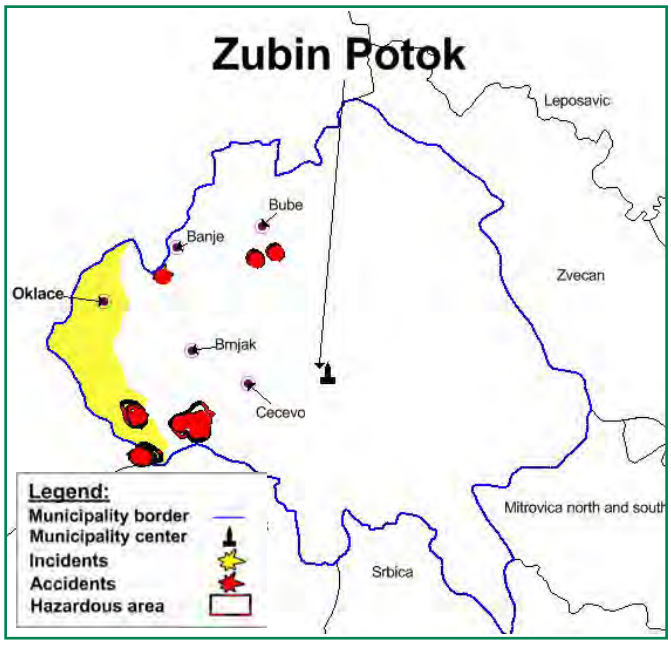
Table 13: Land release scenario for Čečevo

Operations	Released area (km²)
NTS	0.347
Technical survey	0.509
Clearance	0.642
Total released land	**1.498**

5.5. Oklace in Zubin Potok municipality

Oklace is situated in the east of the municipality, 12km from the centre of Zubin Potok town. The community extends over 21.31km^2. The main access road is from Zubin Potok, crossing the bridge on the Ibar river in Vitkovići village. The area is hilly and mountainous. Most of the land is forested or pasture. Orchards and agricultural land covers a smaller area.

The community has a population of 210, in 70 households. Most of the population exploit the forest, use pasture, and conduct agricultural and orchard work. Most of the community owns forested land, exploiting the forest as their main source of income. In addition, the land is used for hunting, forestry, fruit collection, and tourism.



Local Community Oklace

BLU-97A/B submunition, photographed in December 2014 in Crni Krš

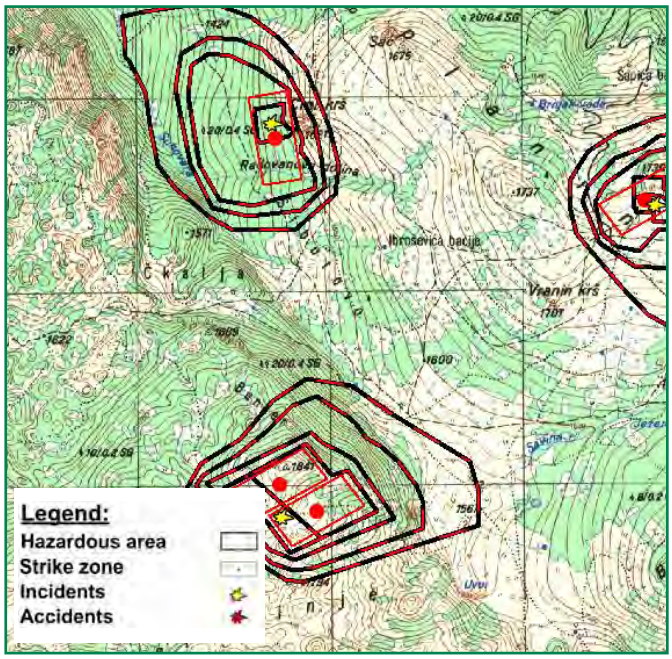
Available data suggests that NATO bombed Crni Krš and Jerebinje with CBU-87 cluster bombs, dispersing BLU-97A/B submunitions. This information was confirmed during NTS as cluster munition remnants were observed during field visit.

NATO strikes with cluster bombs focused on a wide area on the south of the community. Radar systems and anti-aircraft defence systems were positioned there. Repeaters were also positioned on neighbouring hills equipped with an underground power supply.

The total hazardous area is 1.946km^2. During NTS NPA estimated that at least 3 CBU-97/B cluster bombs were dropped, dispersing BLU-97A/B submunitions.

NPA estimated that 440 BLU-97A/B submunitions remained.

View of the area contaminated with cluster munition remnants at Crni Krš



Map 8: Contaminated area in Oklace

No accidents among the local population from cluster munition remnants were registered in this community.

In August 2014, the local population informed the police in the station in Zubin Potok of the sighting of an unexploded BLU-97A/B submunition. KFOR visited the area and conducted a demolition. Another unexploded BLU-97A/B submunition was observed in July 2015. The police station in Zubin Potok reported to KFOR the finding and a further demolition was conducted.The total affected population is 190. Of this number, 90 are considered as directly affected and another 100 enter the hazardous areas occasionally.

The importance of clearance in this community is to reduce the risk of cluster munition accidents. This area is used by hunters, fruit collectors, hikers, and other tourists for rest and sport. This location is a mountain range of Mokra Gora mountain and natural resource for Zubin Potok, and as such represents an important tourist destination with importance for the development of the municipality. Recently, Mokra Gora mountain is declared as National Park and as such represents an strategic interest of Zubin Potok municipality development.

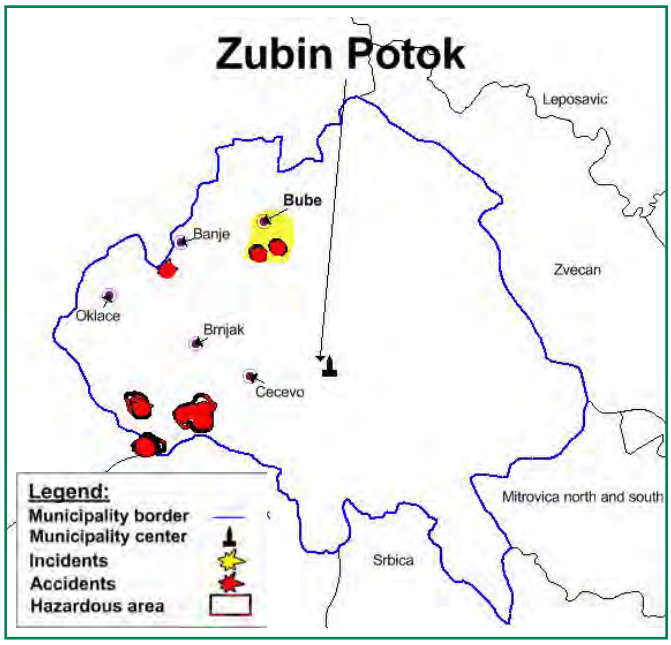
Table 14: Estimated land release scenario in the local community Oklace

Operations	Released area (km²)
NTS	0.766
Technical survey	0.449
Clearance	0.731
Total released land	**1.946**

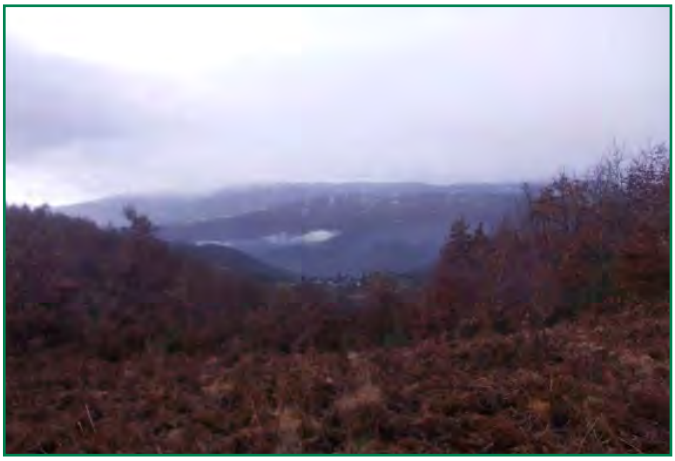
5.6. Bube in Zubin Potok municipality

Bube is situated in the north of the municipality, 10 km from centre of Zubin Potok town. The community extends over 13.15km^2. The community lays on wider plateau under the Bubski Šiljak top. The main access road is from Zubin Potok, crossing the dam on Ibar river and continuing north to the community. The area is slightly hilly. Most of the land is agricultural, forested, or pasture. Agricultural lands neibghoring cluster suspected locations within this community are mostly cultivated.

The community has a population of 68, in 23 households. The population use pasture or conduct agricultural or orchard work as their main source of income.



Local Community Bube



Area suspected on presence of cluster submunition MK-118, photographed in December 2014 in Bubsko Polje

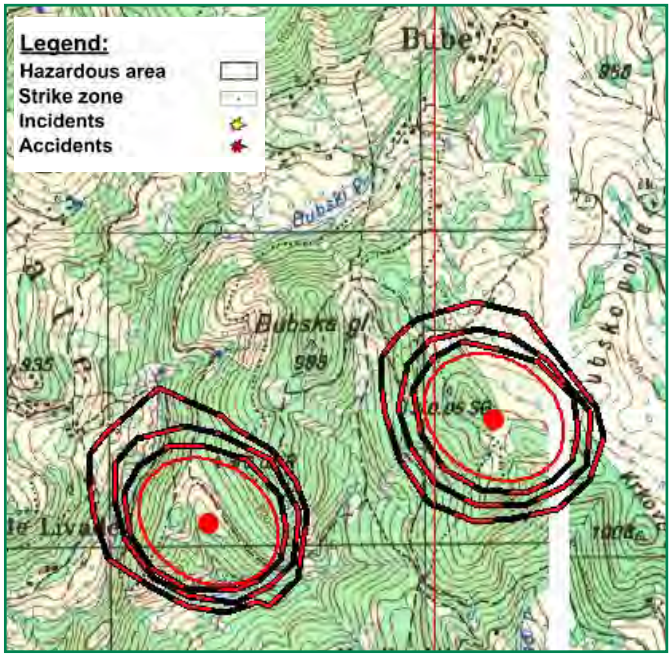
Available data indicates that NATO bombed Bubsko Polje and Male Livade within this community. During its NTS, NPA did not receive any information on the presence of cluster munition remnants, either from the local population or from local representatives. NPA organized several meetings with local police and civil protection unit in Zubin Potok, but neither of them had registered any cluster incident in the past within locations Bubsko Polje and Male Livade. Also, NPA did not find any evidence of cluster munition remnants in Bubsko Polje or Male Livade.

The total hazardous area is 0.718km^2. Based on data on NATO strikes, NPA estimated that at least two CBU-99 cluster bombs were dropped, dispersing MK-118 submunitions.

NPA estimated that 84 MK-118 submunitions remained.

View of Male Livade, photographed towards the south from Burlati village

View of Bubsko Polje, photographed towards the east from the local cemetery



Map 9: Contaminated area in Bube

No incidents/accidents from cluster munition remnants were registered in this community.

Due to an assumption on the presence of submunitions in this community, the safety of local population is threatened. The population enter hazardous areas for forest exploitation and pasture.

The total affected population is 75. Of this number, 45 are considered as directly affected and another 30 enter hazardous areas occasionally.

The importance of clearance in this community is to reduce the risk of cluster munition accidents. This area is used by pasture owners, hunters, and fruit collectors.

Further, locations Bubsko Polje and Male Livade neibghoring several small villages. Population from those villages regularly use macadam roads passing close to these locations.

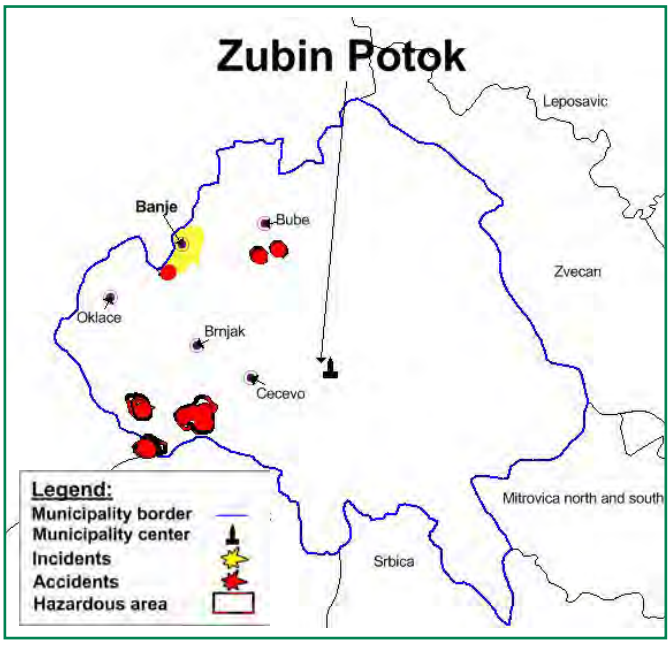
Local elementary school is located in village Bube and children from village Kopilovići on daily basis walk on macadam road passing through Bubsko Polje location.

Table 15: Land release scenario for Bube

Operations	Released area (km²)
NTS	0.210
Technical survey	0.137
Clearance	0.371
Total released land	**0.718**

5.7. Banje in Zubin Potok municipality

Banje is situated in the north-east of the municipality, 10km from the centre of Zubin Potok town. The community extends over 10.33km^2. The main access road is from Zubin Potok by the main road to Novi Pazar. The area is hilly. Most of the land is forested and pasture. Gazivode artificial lake covers some of the community area. Orchards and agriculture land cover a smaller area. The community has a population of 85, in 26 households. Some people live in Zubin Potok and regularly visit the community for agricultural and orchard work, fruit growing, and livestock farming as their main source of income. The land is also used for hunting, forestry, berry collection, and tourism.



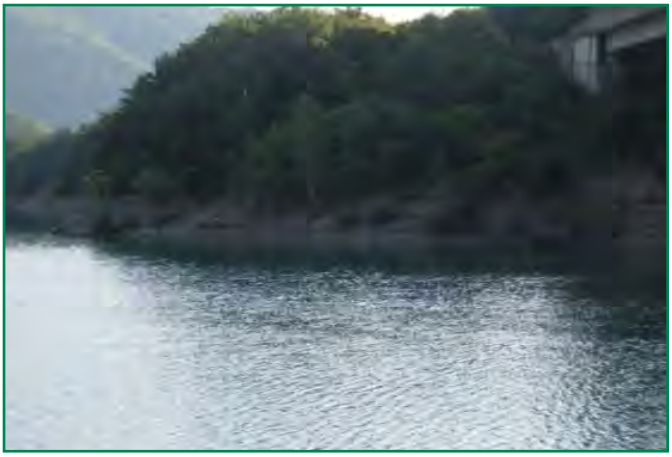
Local Community Banje

Area suspected on presence of cluster submunition MK-4, photographed in December 2014 in Banjski most

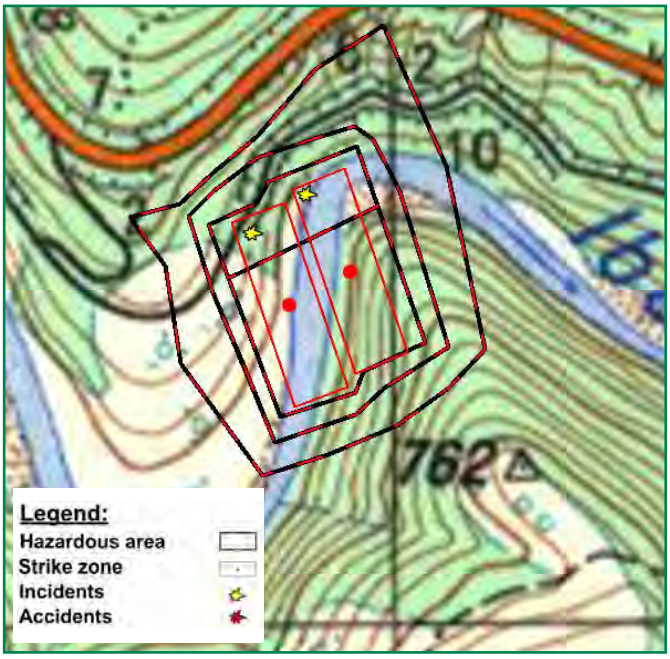
No data were available on NATO bombing of this area. During NTS, NPA received information from Zubin Potok representatives about statements from the local population informing local representatives about presence of unknown explosive remnants of war (ERW) on the local beach. Remnants have been noticed by fishermen and other visitors to Gazivode lake, during the low water level of this lake during the summer. This was confirmed by local police as well as civil protection unit in Zubin Potok, as these cluster accidents were reported to them.

The total hazardous area is 0.093km^2. Based on witness statements, NPA believes that at least two RBL755 cluster bombs were dropped, dispersing MK-4 submunitions.

NPA estimated that 60 MK-4 submunitions remained.



View of local beach on Gazivode lake where fishermen and other visitors have reported seeing ERW when the water level was low



Map 10: Contaminated area in Banje

No accidents from cluster munition remnants were registered in this community.

During the low water level of the lake in the summer, local fishermen and other users of the lake observed ERW. All witnesses based on photographs of submunitions shown to them recognised MK-4 submunition.

NPA survey team had also visited witnesses of cluster incidents and all of them confirmed that they saw cluster submunition MK-4.

Due to an assumption on the presence of submunitions in this community, the safety of the local population is threatened. The population from this and other communities visit Gazivode lake for fishing throughout the whole year and swimming in the summer.

The total affected population is 290. Of this number, 40 are considered as directly affected and another 250 visit Gazivode lake for fishing and swimming.

The importance of clearance in this community is to reduce the risk of accidents. The area is used by fishermen and tourists visiting the lake to swim in the summer, representing an important tourist destination.

Table 16: Land release scenario for Banje

Operations	Released area (km²)
NTS	0.043
Technical survey	0.017
Clearance	0.034
Total released land	**0.094**

5.8. Boljetin in Zvečan municipality

Boljetin is situated in the south-east of the municipality. The main access road is from Zvečan town. It is an asphalt road passing through Grabovac village. This road is the bypass road to Mitrovica town and it's frequently used by population living in this community.

The area is hilly and mountainous. Most of the land is forested or pasture.

The community has a population of 350, in 48 households. Only 45 people from this community are permanently employed. Most of the unemployed exploit the forest, use pasture, or conduct agricultural and orchard work as their main source of income.

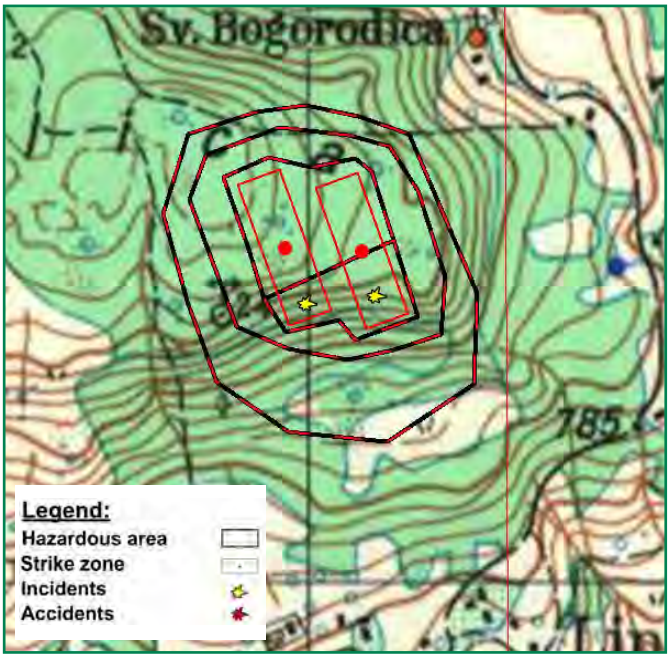
Local Community Boljetin

Area above the houses suspected on presence of cluster submunition MK-4, photographed in April 2015 in Sokolica

No data were available on NATO bombing of this community. During NTS NPA received information from the local authorities and in the field that NATO had bombed one location on Sokolica hill. This information was confirmed by municipality authorities, which stated that during the fire in July 2007 detonations occurred in the part of the forest on fire, north of Sokolica monastery. In accordance with information received from Civil Protection, Sokolica monastery, and local witnesses, NPA confirmed two NATO strikes in this community. The local population confirmed they feared to enter the area surrounding Boljetin village and Sokolica monastery. The police station in Zvečan was also informed by paragliders that they noticed unexploded submunitions from the air.

The total hazardous area is 0.143km^2. During NTS NPA estimated that at least two RBL755 cluster bombs were dropped, dispersing MK-4 submunitions. NPA estimated that 30 MK-4 submunitions remained.

View of the area contaminated with cluster munition remnants at Sokolica



Map 11: Contaminated area in Boljetin

No accidents among the local population from cluster munition remnants were registered in this community. In July 2007, two incidents occurred during the fire on Sokolica hill, one in the northern part and another in the southern part of the hill. Civil protection, fire fighters, and KFOR reported detonations while the fire was being extinguished. An assumption is that detonations are caused by unexploded submunitions. NPA also received information that one unexploded BLU-97 submunition was found in the neighbouring creek, 600 m from Sokolica monastery. NPA assumes this item was brought by local population and thrown in the creek.

The total affected population is 350 of whom 150 are considered as directly affected another 200 enter hazardous areas occasionally. Local population enter the hazardous areas for forest exploitation and berry collecting. Others visit the community for religious ceremonies in Sokolica monastery. The importance of clearance in this community is to reduce the risk of cluster munition accidents. This area is used by hunters, berry collectors, and hikers. The local elementary school is located close to hazardous area. The Sokolica monastery, an important religious and tourist destination, also neighbours the area. The monestery is located in the east from location Sokolica.

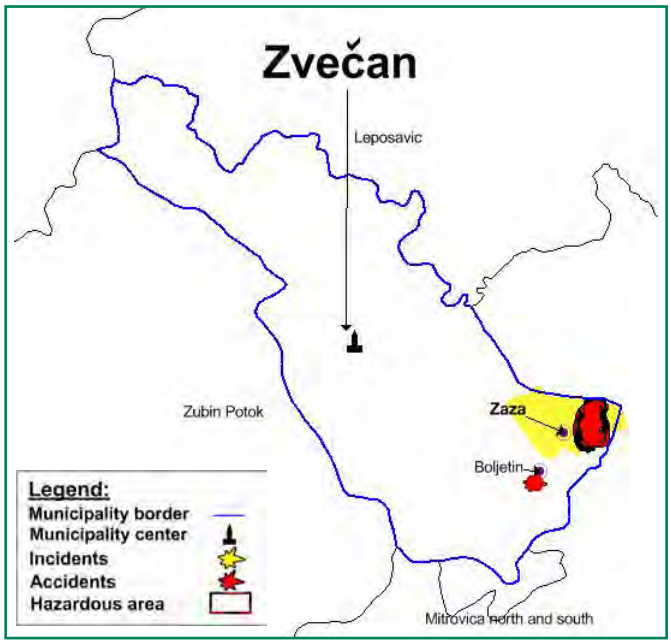
Table 17: Land release scenario for Boljetin

Operations	Released area (km²)
NTS	0.062
Technical survey	0.038
Clearance	0.043
Total released land	**0.143**

5.9. Žaža in Zvečan municipality

Žaža is situated in the south-east of the municipality. The main access road is from Zvečan town. It is an asphalt road passing through Kelmendi village. This road is the bypass road to Mitrovica town and it's frequently used by population living in this community. The area is hilly and mountainous. Most of the area is forested or pasture.

The community has a population of 308, in 35 households. Only seven people from this community are permanently employed. Most of the unemployed exploit the forest, use pastures, and conduct agricultural work as their main source of income.



Local Community Žaža

Part of a BLU-97 submunition photographed in April 2015 in Oštra Stijena

BLU-97A/B Cluster submunitions photographed in April 2015 in Tovariště

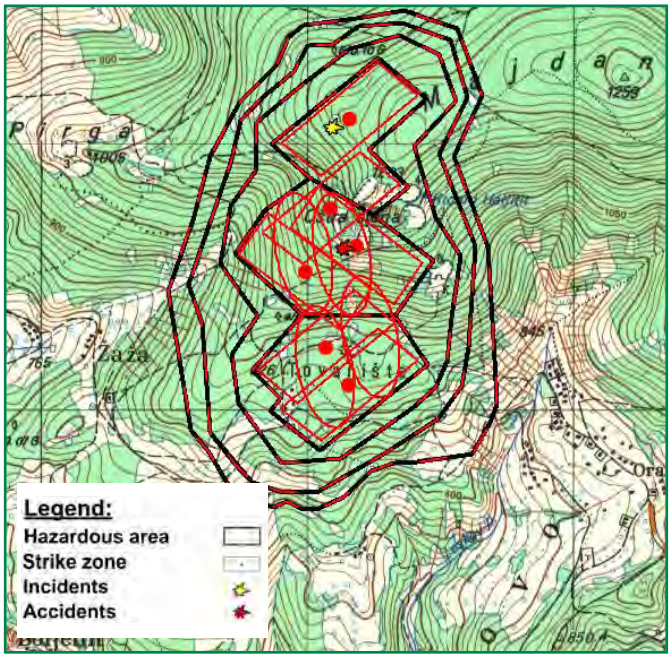
Available data suggests that NATO bombed Tovariště, Oštra Stijena, and Majdan with CBU-87/B cluster bombs, dispersing BLU-97A/B submunitions and CBU-99 cluster bombs, dispersing MK-118 MODS 0 & 1, B submunitions. This information was confirmed during NTS as cluster munition remnants were observed during field visit.

For this community, NPA received the data from KMAC on cluster removals by BACTEC in 2000. In total, BACTEC removed and destroyed 276 pieces of cluster submunitions; 195 pieces of BLU 97 A/B and 81 pieces of MK 118 MODS 0 & 1, B. Since removal had not been conducted in accordance to IMAS and ground in this area is very soft, NPA survey team expects that significant number of cluster submunition remain, especially under the ground surface.

The total hazardous area is 1.775km^2. NPA estimated that 168 BLU-97 submunitions remained.

View of the area contaminated with cluster munition remnants at Oštra Stijena

View of the area contaminated with cluster munition remnants at Tovarište.



Map 12: Contaminated area in Žaža

Two persons from Gornje Orahovo village were injured during an accident that occured in July 2007, one suffering light injuries and the other incurring serious injuries. On 15th July 2014, an incident occured in this community, caused by fire in the forrest at location Majdan. A fire caused the detonation of five cluster submunitions. Incident was reported by fire fighters involved in extinguishing.

Due to the presence of unexploded submunitions in this community, the safety of local population is threatened. The population enter hazardous areas for forest exploitation and berry collecting. Those from other communities enter hazardous areas for hunting and berry collection.

The total affected population is 280. Of this number, 180 are considered directly affected and another 100 enter hazardous areas occasionally. Further, the population from Gornje Orahovo village, south-east of the hazardous areas are also affected. They also occasionally enter hazardous areas for forest exploitation, hunting, and berry collecting.

The importance of clearance in this community is to reduce the risk of cluster munition accidents. This area is used by hunters, fruit collectors, and hikers from this and other neighbouring communities.

Table 18: Land release scenario for Žaža

Operations	Released area (km²)
NTS	0.340
Technical survey	0.603
Clearance	0.831
Total released land	**1.774**

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Annexes

1. Abbreviation and definitions

ABBREVIATION	DESCRIPTION
ERW	Explosive remnants of war
IMAS	International Mine Action Standards
ISO/IEC	International Organization for Standardization
KMAC	Kosovo Mine Action Centre
NPA	Norwegian People's Aid
HDP	Humanitarian Disarmament Programme
Glossary OECD	Glossary of Key Terms in Evaluation and Results Based Management, OECD, Development Co-operation Directorate, 2002.
SOP	Standard Operating Procedures
UN	United Nations

TERM	DEFINITION	SOURCE
accreditation	*The procedure by which a demining organization is formally recognized as competent and able to plan, manage and operationally conduct mine action activities safely, effectively and efficiently.*	IMAS 04.10
accident	*An undesired event which results in harm.*	IMAS 04.10
beneficiaries	*The individuals, groups, or organizations, whether targeted or not, that benefit, directly or indirectly, from the development intervention. Related terms: reach, target group*	Glossary OECD
clearance	*In the context of mine action, the term refers to tasks or actions to ensure the removal and/or the destruction of all mine and ERW hazards from a specified area to a specified depth*	IMAS 04.10
cluster bomb unit – CBU	*An expandable aircraft store composed of a dispenser and submunitions. A bomb containing and dispensing submunitions which may be mines (anti-personnel or anti-tank), penetration (runway cratering) bomblets, fragmentation bomblets, etc.*	IMAS 04.10

TERM	DEFINITION	SOURCE
cluster munition	*Means a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions. It does not mean the following:* *a) A munition or submunition designed to dispense flares, smoke, pyrotechnics or chaff; or a munition designed exclusively for an air defence role;* *b) A munition or submunition designed to produce electrical or electronic effects;* *c) A munition that, in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions, has all of the following characteristics:* *- each munition contains fewer than ten explosive submunitions;* *- each explosive submunition weighs more than four kilograms;* *- each explosive submunition is designed to detect and engage a* *- single target object;* *- each explosive submunition is equipped with an electronic self-destruction mechanism* *- each explosive submunition is equipped with an electronic self-deactivating feature;*	CCM
cluster munition remnants	*Means failed cluster munitions, abandoned cluster munitions, unexploded submunitions and unexploded bomblets;*	CCM
consequence	*The outcome of an event affecting objectives. An event can lead to a range of consequences. A consequence can be certain or uncertain and can have positive or negative effects on objectives.*	ISO 31000
contaminated area	*In the context of mine action, the term refers to an area known or suspected to contain mines and, or ERW.*	IMAS 04.10
dispenser	*Means a container that is designed to disperse or release explosive bomblets and which is affixed to an aircraft at the time of dispersal or release;*	CCM
event	*Occurrence or change of a particular set of circumstances*	ISO 31000
	Occurrence of a particular interval of time.	ISO 73
explosive remnants of war	*Unexploded ordnance (UXO) and abandoned explosive ordnance.*	Protocol 5 CCW
explosive submunition	*Means a conventional munition that in order to perform its task is dispersed or released by a cluster munition and is designed to function by detonating an explosive charge prior to, on or after impact;*	CCM
harm	*Physical injury or damage to the health of people, or damage to property or the environment.*	ISO 51
harmful event	*Occurrence in which a hazardous situation results in harm.*	ISO 51

TERM	DEFINITION	SOURCE
hazard assessment	*Embrace process of hazard identification and estimation of hazard level.*	ISO 51
hazardous situation	*Circumstance in which people, property or the environment are exposed to one or more hazards.*	ISO 51
incident	*An event that gives rise to an accident or has the potential to lead to an accident.* *Mine incident:* *An incident away from the demining workplace involving a mine or UXO*	IMAS 04.10
intended use	*Use of a product, process or service in accordance with information provided by the supplier.*	ISO 51
land release	*In the context of mine action, the term describes the process of applying all reasonable effort to identify, define, and remove all presence and suspicion of mines/ERW through non-technical survey, technical survey and/or clearance. The criteria for "all reasonable effort" shall be defined by the NMAA.*	IMAS 04.10
likelihood	*Chance of something happening*	ISO 31000
marking	*Emplacement of a measure or combination of measures to identify the position of a hazard or the boundary of a hazardous area. This may include the use of signs, paint marks etc., or the erection of physical barriers.*	IMAS 04.10
mine	*A munition designed to be placed under, on or near the ground or other surface area and to be exploded by the presence, proximity or contact of a person or a vehicle.*	IMAS 04.10.
mine action	*Mine action compromises five complementary groups of activities:* *a) Mine risk education,* *b) Humanitarian demining, comprising:* *- Mine clearance,* *- Survey,* *- Mapping,* *- Marking.* *c) Landmine victims assistance; rehabilitation and reintegration,* *d) Stockpile destruction,* *e) Advocacy against the use of anti-personnel mines.*	IMAS 04.10
monitoring	*Continual checking, supervising, critically observing or determining the status in order to identify change from the performance required or expected.*	ISO 31000
non-technical survey	*Refers to the collection and analysis of data, without the use of technical interventions, about the presence, type, distribution and surrounding environment of mine/ERW contamination, in order to define better where mine/ERW contamination is present, and where it is not, and to support land release prioritisation and decision-making processes through the provision of evidence.*	IMAS 04.10.

TERM	DEFINITION	SOURCE
risk	*Combination of the probability of an event and its consequence.*	ISO 73
	Effect of uncertainty on objectives	ISI 31000
risk assessment	*Overall process comprising a risk analysis and risk evaluation.*	ISO 51
	Overall process of risk identification, risk analysis and risk evaluation	
safety	*Freedom from unacceptable risk.*	ISO 51
stakeholders	*Any individual, group or organization that can affect, be affected by, or perceive itself to be affected by a risk.*	ISO 73:2002
technical survey	*Refers to the collection and analysis of data, using appropriate technical interventions, about the presence, type, distribution and surrounding environment of mine/ERW contamination, in order to define better where mine/ERW contamination is present, and where it is not, and to support land release prioritisation and decision making processes through the provision of evidence.*	IMAS 04.10
unexploded submunition	*Means an explosive submunition that has been dispersed or released by, or otherwise separated from, a cluster munition and has failed to explode as intended.*	CCM
victim (cluster munition victims)	*An individual who has suffered harm as a result of an accident and/or dependents of a casualty.*	IMAS 04.10

2. Methodological Framework

Necessary preparations for the survey included a number of material, organisational, and professional activities that can be categorized into the following tasks: (1) preparation of Standard Operating Procedures for Non-technical Survey of Areas Contaminated with Cluster Munition Remnants in Kosovo and their harmonisation with KMAC; (2) additional operational training for survey teams in accordance with the new Standard Operating Procedures; (3) material preparation of the team for the field work; and (4) collection and processing of the available data and preparation of the database for non-technical survey.

2.1. Land Release Concept

Land release is a mine action process that integrates non-technical survey, technical survey, and clearance into a single, inter-related process. NPA conducts its land release process in accordance with the provisions of the Convention on Cluster Munitions. It is based on the results of a general comprehensive assessment (or "baseline") of contamination by cluster munition remnants, and performed according to the rules for determining priorities, and the tasks developed and initiated by the authorised national bodies.

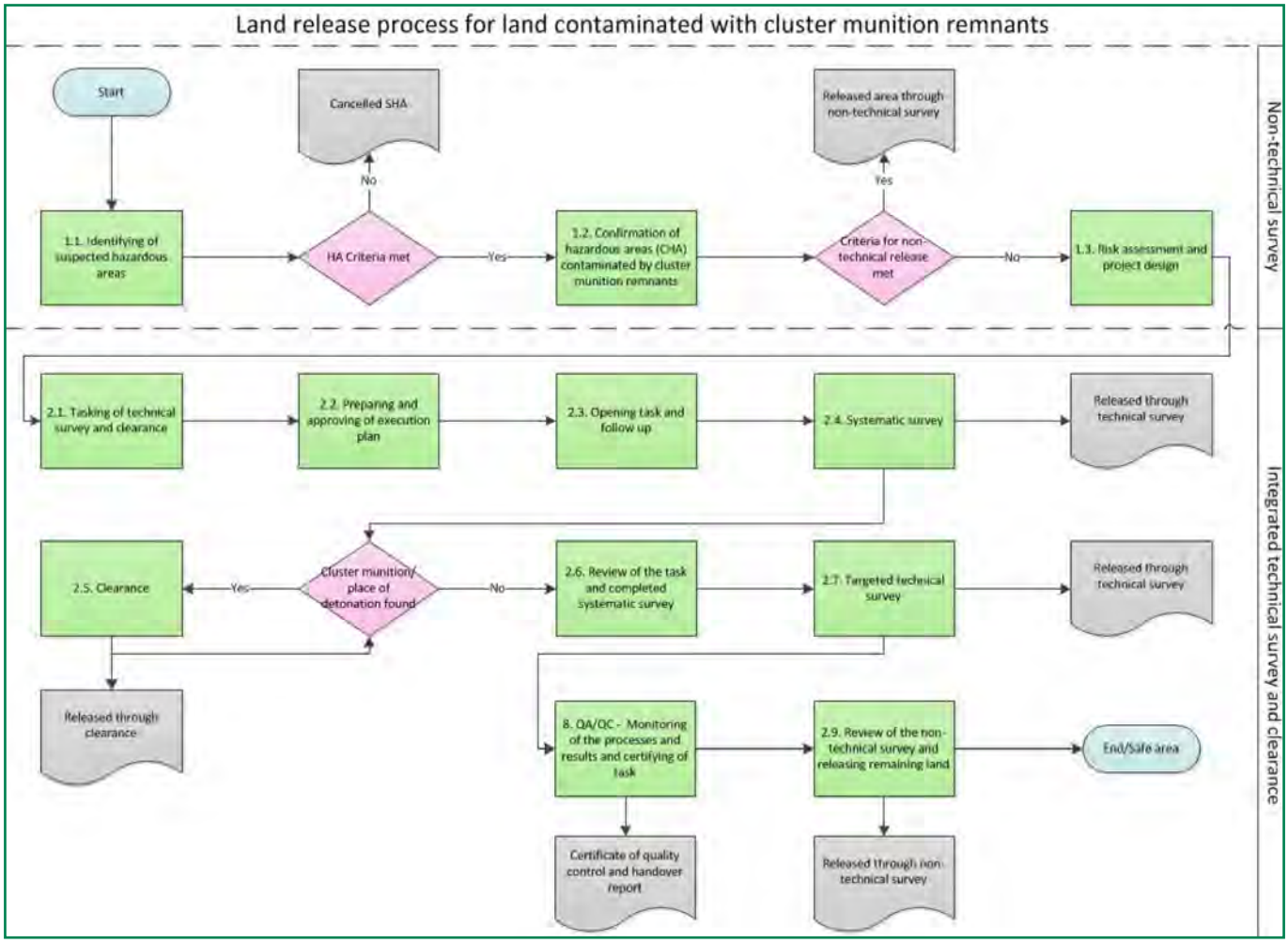

Figure 1: Land release process for land contaminated with cluster munition remnants

The purpose of the land release is to: identify and better define and assess the hazard and impact of cluster munition remnants on the environment through non-technical survey; estimate the priority level; enable more efficient planning; determine the optimum operational conditions; organise and implement technical survey and clearance; and release the land and hand it over to the citizens for their safe and productive use.

The process of releasing cluster munition-contaminated land involves two inter-connected stepped activities: (1) NTS of the areas where cluster munitions were deployed, and (2) an integrated process of technical survey and clearance of confirmed contaminated areas. Both of these processes are described with different sub-processes and process steps.

2.2. Standard Operating Procedures

Standard Operating Procedures (SOPs) for non-technical survey of land contaminated with cluster munition remnants are developed in such a way as to ensure the necessary conditions for national and operational planning of the activities. Their goal is to eliminate the risk from cluster munition remnants in Kosovo, including determining priorities and preparation of project documentation for technical survey and clearance of contaminated areas. The SOPs were developed by drawing on procedures successfully implemented by NPA in the projects of non-technical survey of areas contaminated with cluster munition remnants in other countries of South-east Europe. The knowledge and experience acquired by the NPA teams in those countries was applied in Kosovo as well.

Non-technical survey of areas affected with cluster munition is the process of identifying suspected areas, hazard assessment, size, shape and characteristics of identified dangerous areas, from the micro-location level to a general assessment at the level of the whole country. This assessment is based on collecting and processing data and identification of hazards of cluster munition remnants without using technical methods for their clearance.

Process of non-technical survey of areas affected with cluster munition remnants is composed of three sub-processes: (1) Identification of suspected areas and assessment of hazardous areas contaminated with cluster munition remnants; (2) Confirmation of hazardous areas contaminated with cluster munition remnants; and (3) Risk assessment and designing of tasks.

2.3. Identification of Suspected Areas and Estimation of Hazardous Areas Contaminated with Cluster Munition Remnants

Identification of suspected areas and assessment of hazardous areas contaminated with cluster munition remnants is a sub-process for assessment of the level of hazard from local communities up to comprehensive hazard assessment for the affected country.

Borders, size, and other characteristics of suspected areas are defined at the level of local

community which are later used for the preparation and organisation of field activities of non-technical survey. Also, these data, statistically analysed and presented by higher administrative areas, are used as supplement for general assessment of mine action.

2.4. Confirmation of Cluster Munition-Contaminated Areas and Detailed Measurements

Confirmationof hazardous area contaminated with cluster munition remnants and detailed measurements are a sub-process of non-technical survey in which collection and processing of missing data is performed in order to confirm hazard of cluster munition remnants and take detailed measurements of hazardous area parameters This sub-process is composed of six process steps: (1) analysis of missing data, (2) preparation for team work, (3) data collection in the field and assessment of their quality, (4) topographic measurement of hazardous areas, (5) correction of the “action zone”, and (6 release of land from hazardous area.

The analysis of missing data shows to what extent the survey teams need to be engaged in the field. The purpose of data collection in the field and assessment of its quality is to confirm or update data that was obtained during preparatory activities for the survey, as well as to obtain additional data necessary for an accurate quality assessment of risk from cluster munition remnants and other UXO. The topographic measurements determine the credibility of previously collected data and map them into the topographic map; it checks the positioning of the data collected during the survey and all turning points of the borders of the mapped hazardous area. The data collected in the field and the results of the measurements of the suspected area are then compared with data already available and with the previously reconstructed features of the cluster munition strike zones. Land release can be implemented through non-technical survey or re-survey, either for the purpose of correcting of features of the strike zones, or to return part of the land for use by the civilian population. The borders of the area being released are determined based on the criteria for land release through non-technical survey.

2.5. Assessment of Risk from Unexploded Cluster Munitions and Design of Tasks for Technical Survey and Clearance

Risk assessment from unexploded submunitions and the design of tasks for technical survey and clearance is the third sub-process of non-technical survey in which the size of the problem (risk magnitude), priorities, and plans for technical survey and clearance of a specific confirmed cluster munition-contaminated area are assessed. This sub-process comprises four procedural steps: (1) identification and assessment of the affected population groups; (2) risk assessment and determining of priorities; (3) assessment of operational conditions for non-technical survey and clearance; and (4) preparation of a report on non-technical survey as well as designing the task for technical survey and clearance.

Together with the representatives of the local community and other stakeholders, the survey teams determine the vulnerable population groups. The priorities are determined according to cases where there exist insufficient available resources to release all the land and therefore land release is planned in stages leaving the area with lowest vulnerability for population as the last priority. The assessment of operational conditions for technical survey and clearance begins with field activities and ends with the analysis of the collected data and development of the report on non-technical survey. The content of the report on non-technical survey is configured in such a way as to include all the elements necessary for the design of the task for clearance and technical survey of a hazardous area. The reports on non-technical survey can be used to: prepare documents for the priority setting; short-term and long-term planning; inform the public and the donors on progress made; prepare tender documentation for technical survey and clearance, and prepare project proposals to donors or donor agents.

Non-technical survey of the areas contaminated with cluster munition remnants is a process-oriented activity which begins with a request from beneficiaries – individuals and groups at risk, and the potential users of the confirmed or suspected contaminated land. Non-technical survey results represent an entry point into the process of dealing with the risk through the activities of technical survey and clearance, as well as civilian protection measures such as the marking of contaminated areas and risk education for affected population.

2.6. Management of Resources for Non-technical Survey

NPA HDP Bosnia and Herzegovina provided one non-technical survey team to conduct survey in Northern Kosovo. The team consisted of a non-technical survey team leader and a non-technical surveyor. Both members of the non-technical survey team were previously involved in non-technical survey of cluster munition-contaminated areas in Bosnia and Herzegovina, Serbia, and Montenegro where they acquired the necessary knowledge, skills, expertise and experience. Responsibility for the planning, organisation, and management of resources for non-technical survey was with the Project Manager provided from NPA HDP Bosnia and Herzegovina. Internal quality monitoring of NPA non-technical survey in Northern Kosovo was conducted by Regional Director NPA for South East Europe.

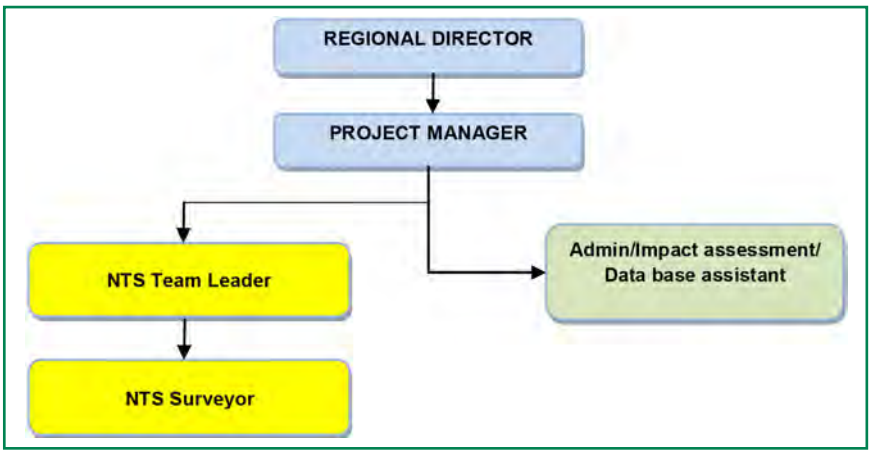

Figure 2: Non-technical survey organisational scheme

2.7. Data Collection

The data collection in the field started in December 2014, following NPA's receipt of KMAC accreditation for non-technical survey in Kosovo. The field data gathering was conducted in two phases. The first phase in December 2014 was carried out with funds provided through NPA, and the second phase in end April–August 2015 with funds provided though the Royal Norwegian Embassy in Prishtina. The data gathering was carried out through questionnaire developed by NPA (see the sample Questionnaire in Annex3 "Questionnaire for Assessment of Contamination with Cluster Munition Remnants"). Questionnaires were submitted to different parties in four municipalities in Northern Kosovo, i.e. local representatives, police stations, civil protection, as well as to local population living in cluster munition-affected communities. The questionnaires provided valuable data for reconstruction of the cluster munition strike zones as well as data on other UXO, casualties, and stakeholders contacted by the survey teams during their visits to the reported locations. All reported locations were inspected by the survey teams during their visits and the credibility of information was verified. The data obtained through questionnaires was processed, geo-coded, and mapped. Systematic collection and processing of data obtained through various available sources represents the core activity of non-technical survey. It enables accurate estimate of the hazard from cluster munition remnants in the shortest time possible.

Table 19: Structure of geocoded data

Data type	No. of records	No. of attributes	No. of data entries
KFOR Police FSK removal	27	15	420
Accidents	2	14	28
Incidents	9	15	135
Identified ERW	21	11	231
Survey of ERW-suspected area	33	13	429
Cleared area	4	19	76
Evidence point	196	12	2,364
Populated place	9	11	99
Strike zone	30	15	450
Confirmed hazardous areas	6	15	90
Hazardous area	41	10	410
Total	**378**	**150**	**4,732**

3. Questionnaire for Assessment of Contamination with Cluster Munition Remnants

QUESTIONNAIRE

FOR ASSESSMENT OF CONTAMINATION WITH CLUSTER MUNITION REMNANTS

MUNICIPALITY	

IMPORTANT NOTICE:

Please read the whole questionnaire before filling it out, especially the notes given with the questions!

1st question: PLEASE STATE ON WHICH LOCATIONS ON THE MUNICIPAL TERRITORY CLUSTER MUNITION WAS ACTIVE AND WITH WHICH TYPE?

NOTE: Give the rectangular coordinates which approximately represent the center of contaminated location or a location which is not being used because it is suspected to contain unexploded submunitions of other remnants as an after cluster munition bombing. If these are more locations than anticipated rows in the questionnaire please make additional copies of this page. Once more, we stress the importance of writing down rectangular, NOT geographic coordinates. Beside the location, please give the name of the nearest populated site. Please give as precise as possible estimate of the suspected surface are not being used due to potential hazard.

No.:	LOCATION NAME; NEAREST SETTLEMENT	COORDINATES		ESTIMATED AREA WHICH IS NOT USED DUE TO HAZARD (in hectares)	WHAT WAS THE FORMER USE OF THE LAND?
		RECTANGULAR COORDINATES North	RECTANGULAR COORDINATES East		
		X □□□□□□□	Y □□□□□□□		
		X □□□□□□□	Y □□□□□□□		
		X □□□□□□□	Y □□□□□□□		
		X □□□□□□□	Y □□□□□□□		
		X □□□□□□□	Y □□□□□□□		
		X □□□□□□□	Y □□□□□□□		
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		X □□□□□□□	Y □□□□□□□		

2nd QUESTION: ARE THERE ANY DAMAGED BUILDINGS OR BUILDINGS THAT ARE NOT USED DUE TO CLUSTER MUNITION BOMBING? WHAT SORTS OF BUILDINGS ARE THEY AND HOW MANY ARE THERE?

NOTE: if more than one object occurs on a single location please repeat name of the location in the new row. Type of building includes: household buildings (house, stable, garage etc.), industrial buildings, (workshops, factories, water supply system etc.), communication buildings (bridges, railroads, etc), educational buildings (schools, kindergartens etc.), health facilities (clinics, hospitals etc) and other buildings.

No. of location from 1st question	WHAT WAS THE PREVIOUS PURPOSE OF THIS LAND?	TYPE AND NAME OF THE BUILDING

3rd question: WERE THERE ANY ACCIDENTS/INCIDENTS? WHEN AND WHAT WERE CONCEQUNCES?

NOTE: In the consequences field, be sure to write the number of people injured by given classification. If dealing with an incident without consequences, then please mark the appropriate column with an X.

No. of location from 1st question	ACCIDENT/INCIDENT COORDINATES	ORDNANCE	CONSEQUENCE				YEAR
			HUMAN DEATH	HUMAN INJURIES	ANIMAL DEATHS	NO CONSEQUENCE	
	X ☐☐☐☐☐☐☐ Y ☐☐☐☐☐☐☐		☐☐	☐☐	☐☐	☐	
	X ☐☐☐☐☐☐☐ Y ☐☐☐☐☐☐☐		☐☐	☐☐	☐☐	☐	
	X ☐☐☐☐☐☐☐ Y ☐☐☐☐☐☐☐		☐☐	☐☐	☐☐	☐	
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IMPORTANT NOTE!

IF YOU HAVE ANY ADDITIONAL INFORMATION, DRAWINGS OF CONTAMINATED LOCATIONS, REPORTS ON CASUALTIES, REPORTS ON REMOVAL OF DISCOVERED UNEXPLODED SUBMUNITIONS OR OTHER INFORMATION USEFUL FOR ASSESTMENT OF CONTAMINATION, PLEASE SUBMIT THE COPIES OF THE DAME WITH THIS QUESTIONAIRE.

ATTACHMENTS:

PERSON IN CHARGE FOR FUTURE CONTACTS RELATED TO CLEARANCE/REMOVAL OF UNEXPLODED SUBMUNIITONS FROM STATED LOCATION

LAST AND FIRST NAME OF PERSON IN CHARGE	ORGANIZATION	TITLE	ADDRESS	PHONE/ FAX	E-MAIL

4. Priorities for technical survey/clearance of areas contaminated with cluster munition remnants

4.1. Determination of hazard level

Determination of hazard level for a hazardous area is based on consequences of accidents/ incidents and probability of unexploded submunition presence.

Consequences of accidents/incidents: consequences of accidents/incidents caused by cluster munition remnants are classified by the following scale:

1. Accidents with consequences such as death or injury to one or more persons.

2. Incident with death or injury to animals.

3. Incidents with no consequences for people or animals.

4. No incidents.

Probability of unexploded submunition presence in the hazardous area is determined according to the following scale and specified cumulative criteria:

1. Almost certain existence of unexploded submunitions. Criteria to be met:

1.1. information exists that the area is inside a cluster munition footprint, the terrain is not being used or

1.2. during the usage the cluster munition or other remnants which indicate a cluster strike has been found.

2. High probability of existence of unexploded submunitions. Criteria to be met:

2.1. information exists that the area is inside a cluster munition footprint, the terrain is not being used, some activities on partial clearance of unexploded submunitions have been performed, but without application of international standards and/or national standards.

3. Low probability of existence of unexploded submunition.Criteria to be met:

3.1. the terrain is adjacent to the zone of cluster munition footprint and the area is not being used or

3.2. information exists that the area is inside a cluster munition footprint, the terrain is being used, some activities on partial clearance of unexploded submunitions have been performed but without application of international standards and/or national standards.

4. Improbable existence of unexploded submunition. Criteria to be met:

4.1. the area is not being used because of suspicion of being hazardous due to unexploded submunitions.

Matrix for determining the hazard level is obtained by combining the scale of consequences of accidents/incidents caused by unexploded submunitions and the scale of probability of existence of unexploded submunitions in the hazardous area. Levels inside the matrix are classified as: extremely high hazard (EH), very high hazard (VH), high hazard (H), moderate hazard (M), and low hazard (L).

Table 20: Structure of geocoded data

Matrix for determining of the level of hazard		Consequences of accidents/incidents to date			
		Death or injuries to people	Death and injuries to animals	Without consequences	Without incidents
Probability of existence of unexploded cluster submunitions	Almost certain	EH	EH	VH	H
	High probability	VH	H	M	M
	Low probability	M	M	L	L
	Improbable				L

4.2. Environmental impact of hazard

Environmental impact of hazard is determined by comparing unfavourable conditions and possibilities. Unfavourable conditions are expressed by the level of the population's endangerment while potential possibilities are expressed through prospective benefits from risk removal.

Table 21: Matrix for determining the environmental impact

Matrix of environmental impact		Population endangerment level		
		High	Moderate	Low
Possible benefit level	1. Category	EH	VH	H
	2. Category	H	M	M
	3. Category	M	M	L

The level of a population's endangerment. This level with regard to the determined hazardous area is classified according to the following scale:

1. High level. Criteria for this level are: population is in the direct vicinity of the hazardous area on an everyday basis, or there have been several entries into the hazardous area, or confirmed information exists that children walk around in the direct vicinity of the hazardous area.

2. Moderate level. Criteria for this level are: population is occasionally in the vicinity of a hazardous area but no confirmed information exists on entries into the hazardous area.

3. Low level. Criteria for this level are: no information on population presence in the vicinity of the hazardous area; or this happens very rarely.

The level of potential benefits. Possible benefits from risk removal are determined by the community itself based on criteria determined by the authorities in charge. Usually, criteria are grouped into three categories according to their importance, (where the first group is the one of the greatest importance). Combination of these two scales composes a matrix of the impact on the environment. Environmental risk impact inside the matrix is classified as extremely high impact (EH), very high impact (VH), high impact (H), moderate impact (M), and low impact (L).

4.3. Priority level

In setting clearance priorities, both the nature of the risk along with the risk expressed through the hazard from unexploded submunitions and their environmental impact are taken as the starting point. The matrix for setting priorities for the treatment of areas is constructed by combining the hazard level scale and the scale of the environmental impact. Clearance priority is determined for each risk location.

Table 22: Matrix of priorities for technical survey/clearance

Priority level – level of risk		Consequences of accidents/incidents to date				
		EH	VH	H	M	L
Environmental impact level	EH	1	2	3	4	5
	VH	2	3	4	5	6
	H	3	4	5	6	7
	M	4	5	6	7	8
	L	5	6	7	8	9

NOTE: Classification for determining the hazard level, environmental impact level, and the number and structure of priorities within the given matrix are given as an example. They must be adjusted to the conditions present in each country to ensure better efficiency of the undertaken activities.

5. Quality Management

The results of the risk treatment and degree of satisfaction of direct or indirect users of the land depend on the quality management of the non-technical survey process, its final results, and priority setting.

The quality management in the process of non-technical survey of the cluster munition-contaminated areas included: analysis, assessment, and improvement of Standard Operating Procedures during the survey, and internal and external quality monitoring.

The SOPs for non-technical survey of land contaminated with cluster munition remnants in Kosovo stipulated that internal quality monitoring was to be performed by NPA. External quality monitoring was performed by KMAC.

Internal quality monitoring carried out by NPA included: preventive measures for quality assurance, quality control of input data, quality control of the procedures described by the Standard Operating Procedures, quality assurance of the results and correcting of potential deviations. These are described further below:

1. Preventive measures of quality assurance included: planning of processes; development of Standard Operating Procedures; selection of staff for teams; organizing of training and testing of management personnel and teams on basic knowledge, skills and processes of non-technical survey of cluster munition- contaminated areas; provision of equipment for unhindered implementation of the non-technical survey; and familiarity with safety measures and access to data. Implementation of these measures for the most part accommodated the specific conditions in Kosovo.

2. Quality control included control (of reliability) of input data by the Project Manager and non-technical survey team, and control of output data by the Regional Director NPA for South East Europe who inspected whether all the data was mapped in accordance with the Standard Operating Procedures. All detected errors were immediately corrected.

3. Activities of the Regional Director NPA for South East Europe and the Project Manager from NPA HDP Bosnia and Herzegovina were directed towards implementation of the planned project objectives and project tasks.

4. The Project Manager was involved in daily supervision of the work and control of documents of the survey team in order to ensure harmonious control of all procedures that comprise the process of identification of cluster munitions contaminated areas.

The final quality monitoring was performed by the Regional Director NPA for South East Europe. The final quality monitoring included the control of the results through metering of hazardous area parameters in the field in order to determine the level of accuracy of the obtained results. The general opinion of the final quality control is that the documents and data were processed and entered into the database in accordance with the Standard Operating Procedures. In the process of inspection of the features of the cluster munition strike zones and the hazardous areas there were neither deviation from the Standard Operating Procedures nor any other irregularity detected.

Quality monitoring of non-technical survey in Žaža, Zvečan municipality

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