Mine Clearance in Forests
With a focus on: Ukraine, Kosovo, Colombia and Nagorno Karabakh
Ukraine
The Challenges of Forestry Clearance in Ukraine

1. Threat type
   - Tripwire initiated OZM 72s and grenades
   - Cluster munitions and larger UXO

2. Survey: defining the extent of contamination
   - Sporadically laid, with a few items contaminating vast areas

3. Clearance
   - Vegetation obstructs clearance
   - Additional risks: falling trees and fires
   - Environmental considerations
Greater experience in country informs survey decisions

Improved efficiency of existing clearance drills
- BAC: detector configurations and lanes for BACV
- Tripwire: 2m breaching
- Pulling drills for fallen trees

Reactive to the environmental concerns of communities

Robocut: remote controlled vegetation cutter

There is not always a quick solution, slow and methodical manual clearance remains crucial
Post Clearance Land Use and the Benefit of Clearing Forests

- Forest land makes up 22% of HALO’s surveyed hazardous areas in Ukraine

- Forest land is used for the following:
  - Firewood
  - Foraging for nuts and mushrooms
  - Access routes
  - Fishing and other recreation
Kosovo
The Challenges of Forestry Clearance in Kosovo

1) Dense vegetation:
   - blocks the way and gives false indication on general task and therefore on clearance rates

2) Root Networks:
   - Although clearance in mature forest appears easier than dense smaller vegetation, the roots network of large mature tree make excavation difficult. The roots system is usually at least as wide as the height of a tree.
1) Dense Vegetation
   - Use of imagery software to evaluate the complete task
   - Use of information from local population
   - Thorough reconnaissance of the task through safe access

2) Root Networks
   - Use of cutting tool such as hand saw to carefully removed large roots
   - Oscillation tool (In development)
Access 2%
Agriculture 29%
Infrastructure 2%
Natural Resources 62%
Residential 5%

Post Clearance Land Use

Not forested 20%
Forested 80%

Forested vs. Not Forested
Case study

Enver Suma and his family live in Dimce village.

Their six hectares of mined land has gone unused for 20 years.

Once cleared he will be able to plant and cut wood sustainably, which will be used to heat his home.

“It is frustrating to leave the land unused – but it is not worth risking our lives for.” - Enver
Colombia
The Challenges of Forestry Clearance in Colombia

1) Compost Layer
2) Steep Slopes
3) Environmental Regulations
Techniques and Processes for Overcoming the Challenges

- Manual removal of compost layer
- Rotary reciprocating saw for removal of compost layer
- Scaffoldings, ropes and harnesses
- Environmental management policy and reforestation
Nagorno Karabakh
The Challenges of Forestry Clearance in Nagorno Karabakh

1. Limitations in clearance methods
2. Lower clearance rates
3. Access difficulties
4. Environmental constraints
Techniques and Processes for Overcoming the Challenges

1. Research development
2. Dedicated team member for handling vegetation
3. Pre-deployment works
4. Minimize environmental impact
Post Clearance Land Use and the Benefit of Clearing Forests

Benefits/use by local community

- Access/pathways
- Wood collection
- Hunting
- Foraging
SDG 15: ‘Life on Land’

- 1.6 billion people depend on forests for their livelihoods.
- 2.6 billion people depend directly on agriculture for their livelihoods.
- The value of ecosystems to human livelihoods and well-being is $US125 trillion per year.
- Mountain regions provide 60-80 percent of the earth's fresh water.
HALO and ‘Life on Land’

In 2018 HALO cleared and released:

- 22,775,372m² of grazing land (natural resources)
- 18,939,996m² of agricultural land
- **Total:** 47,497,872m²

= 5,600 acres.
  - Size of the island of Nauru in Micronesia, South Pacific, one of the most climate affected countries in the world.

= 11,700 acres.
  - An acre of rainforest contains up to 86 different species of tree, with the amphibians, birds, insects and mammals that depend on them.
Land use by category 2018

- Natural Resources: 48%
- Agriculture: 40%
- Access: 9%
- Infrastructure: 0%
- Residential: 3%
Post-clearance land use

- **Kosovo:** clearing land in national parks
- **Afghanistan:** clearing grazing land for women to make baskets and sell at local markets
- **Colombia:** clearing land for farmers to grow coffee (see left)
- **Angola:** partnering with National Geographic to clear the Okavango delta.
Tourism in Primorsky, Abkhazia

“At first we were worried. We didn’t want to go if there was any danger! But then we heard from someone who had just got back that actually, most of the explosives had been cleared away, and it was perfectly safe.”

• Explosion at the ammunitions depot in Primorsky in August 2017 led to a reduction in tourism and local source of income.
• All families in the village had at least one member involved in tourism, including sulphur springs and a horse riding stable offering tourist treks through the scenic woodland area around Primorsky.
• When the explosion happened, tourists were too frightened to visit Primorsky.
• After a year of clearance, tourism is beginning to increase once again.
• Increased public confidence and access to main tourist sights reopened, tourist numbers now similar to those before the blast.
Thank you