

# Innovations in Mine Action

22nd International Meeting of  
National Mine Action Programme Directors and  
United Nations Advisers

**Part II**



# International Mine Action Standards Update

Mr. Alan Macdonald OBE, Programme Manager, UNMAS  
and Chair of the IMAS Review Board

# Urban Operations: Some Reflections from the Field

Mr. Nick Bray, Advisor, Quality Management  
Systems and Standards, GICHD

# REMOTE BASELINE CONTAMINATION SURVEY

**A new approach piloted in Myanmar**

Presentation by Senior Community Liaison Advisor  
Sebastian Kasack @ NDM 2019, Innovations Plenary II

# REMOTE Baseline Contamination Surveys

- **Output:** Map/list of communities contaminated by explosive ordnance and of communities/areas not contaminated
- **Method:** Group interviews with IDPs, refugees - population who had to flee from their homes (only with persons from the same village/location)
- **REMOTELY** done because the communities cannot be accessed; done during ongoing conflict

# Myanmar

Baseline survey is done in all areas where MAG works – if possible in the affected villages

- Has there been armed conflict?
- Areas known to be mined?
- Mine/EW accidents happened?
- High, Low, No confidence on EO threat

Risk Education is helpful to make sure audience understand the topic.

Now: in Kachin/Shan some areas are not accessible but people are in IDP camps.

Partner WPN - Wunpawng Ninghtoi = *“The light of Kachin”*

# MAG monitoring & training of partner WPN in Lashio



Lashio, Northern Shan State,  
22 January 2018

WPN staff in front, MAG in the back

# Map

Map of MAG Myanmar operational data.

<https://magoperations.info/portal/apps/MapTools/index.html?appid=62b6d085bb634deb9bd2fe4e4f90c49d>

# MAG Myanmar - Overall operation map

Legend | Details | Share | Layers | Print

**Operation bases**

**MAG\_Operation\_Areas**

- Active
- Plan

**Hazardous Areas**

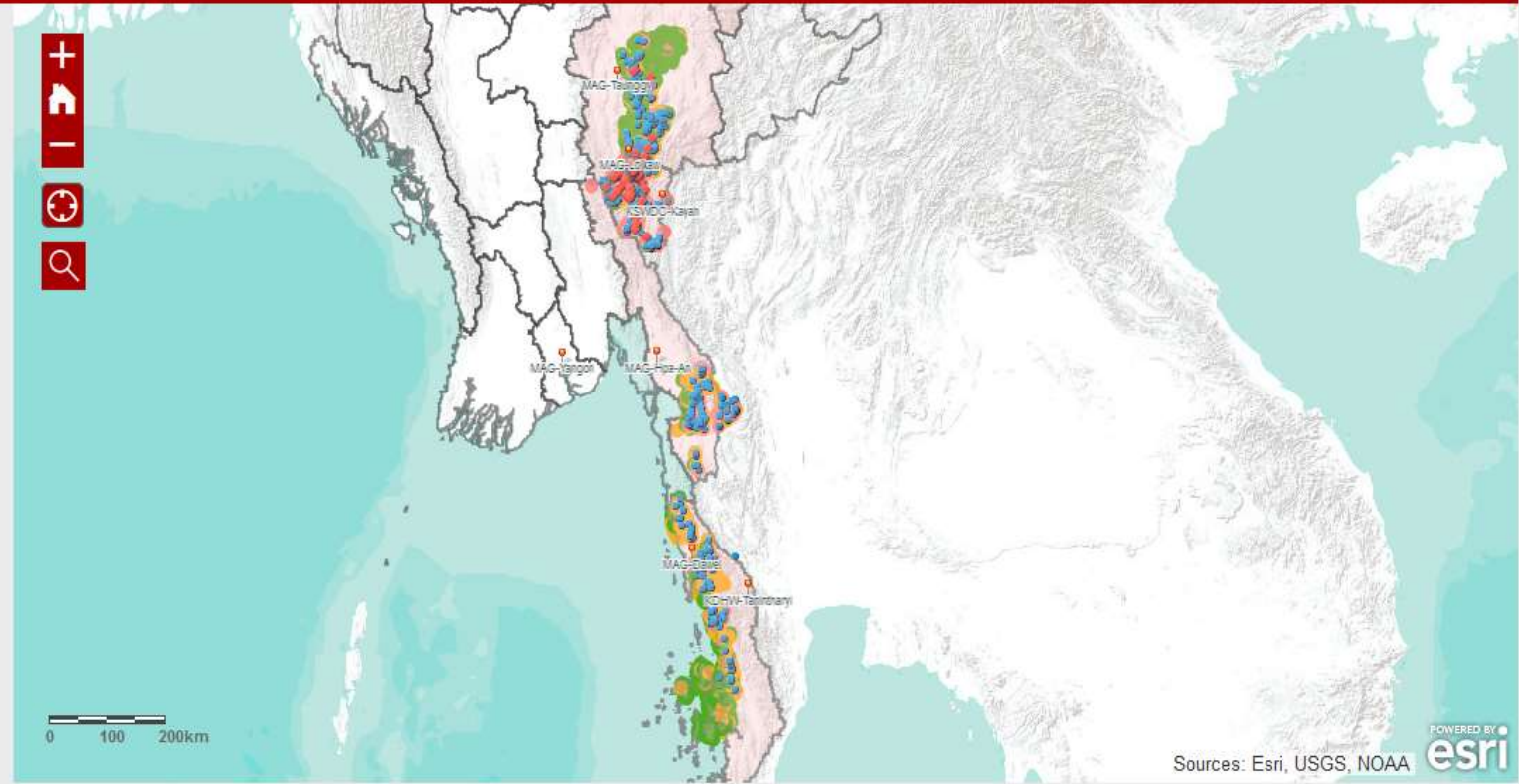
- HA Report

**MRE Sessions**

- 

**Baseline Surveys**

- Contaminated - High Confidence
- Contaminated - Low Confidence
- Not contaminated

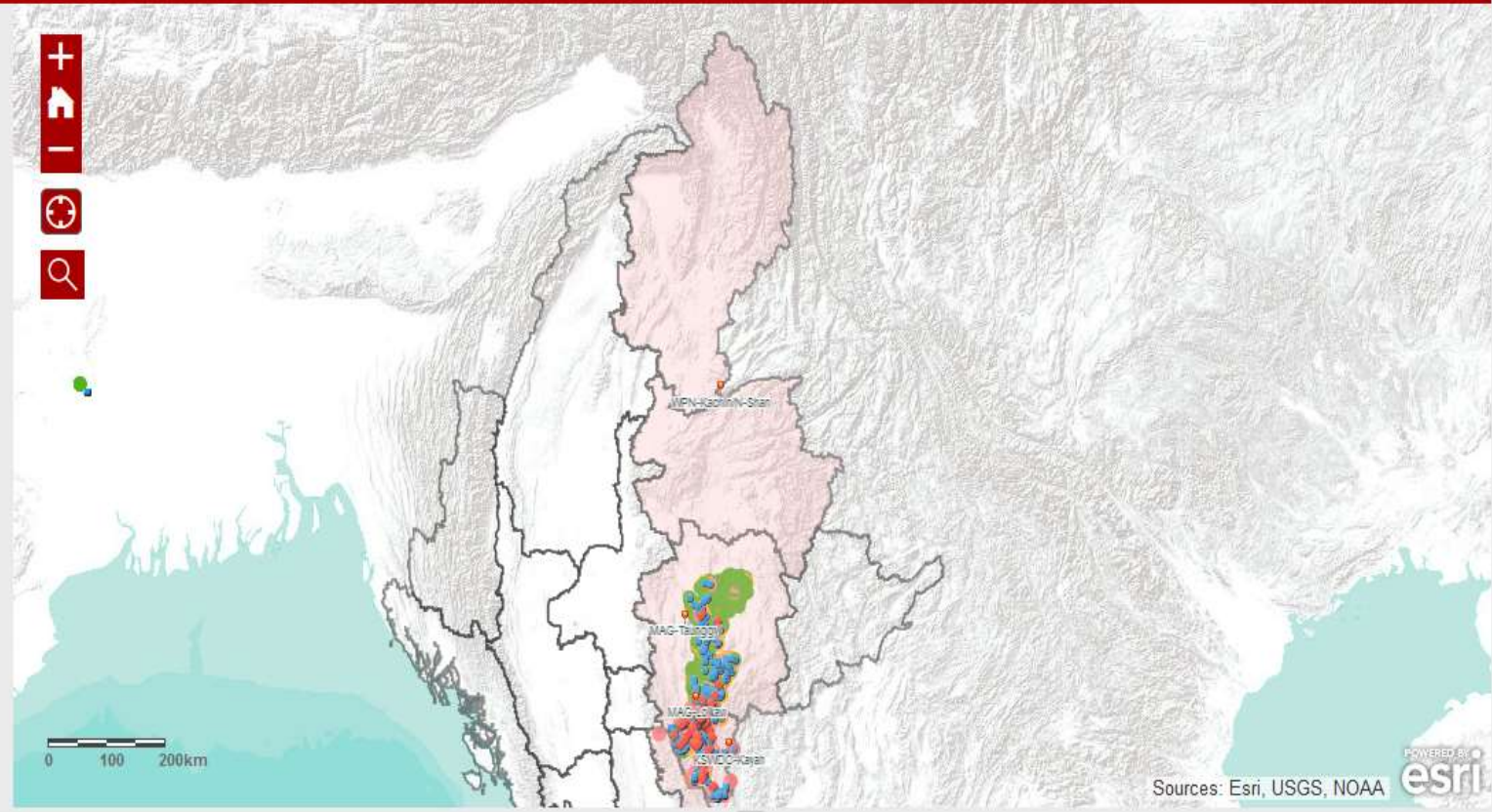


# MAG Myanmar - Overall operation map

Legend Details

Share Layers Print

- Operation bases
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- MAG\_Operation\_Areas
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- Baseline Surveys
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Operation bases



MAG\_Operation\_Areas

Active

Plan

Hazardous Areas

HA Report

MRE Sessions

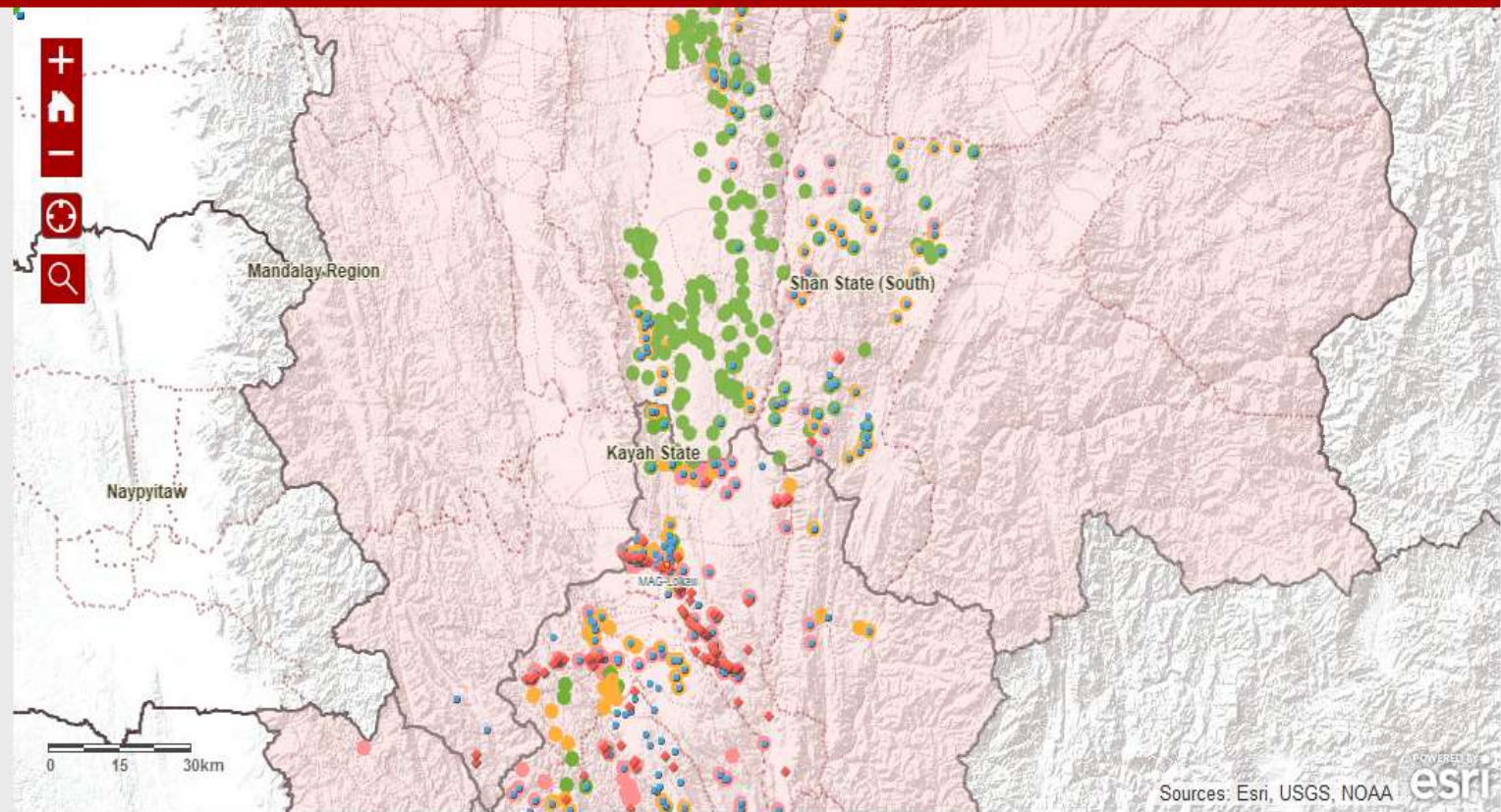



Baseline Surveys

Contaminated - High Confidence

Contaminated - Low Confidence

Not contaminated



Sources: Esri, USGS, NOAA 

# Remote Survey Results

- **High Confidence of Contamination** – where credible and reliable informants speak of direct evidence of contamination (i.e. we are *pretty sure* that there is something there);
- **Low Confidence of Contamination** – where evidence of contamination is still discussed, though it may be of an indirect nature, or where the claims may be less credible (i.e. we *think* that there may be something there); and
- **No Evidence of Contamination** – where no evidence of contamination – direct or indirect – is discussed by the informants.

Results reported thus far as are as follows...

	Evidence of Contamination			Total
	High Confidence	Low Confidence	No Evidence	
Kachin	46	17	14	77
Northern Shan	11	4	2	17
<b>Total</b>	<b>57 (61%)</b>	<b>21 (22%)</b>	<b>16 (17%)</b>	<b>94</b>

**83%** have reported some type of evidence suggesting the presence of contamination.

Some communities have reported as many as 20 or 30 incidents within the history of their village!

# Why remote survey is useful

- ✓ Obtain data we could otherwise not obtain *and fast*: one survey lasts about 30 minutes
- ✓ Gather information to plan RE
- ✓ Plan post-conflict NTS/ Land release to assist safe returns
  - ✓ Respondents to the 94 surveys have reported the presence of at least 75 HAs within these villages.
- ✓ 41% have reported that there have been accidents in or victims from their village
  - ✓ Data can also be used for Victim Assistance.

# Lessons learned

- 1 IDP camp can be host to as many as 10 different communities
- Individual villages can be spread across multiple different IDP camps
- By assessing villagers from the same community housed in different camps, we can triangulate and perform quality management on our data
- Collect geolocation of villages from third party sources, internet – can be a difficulty

# Conclusion

- Remote baseline contamination survey method works [Big thanks to SV, SIDA and DFID who helped fund this pilot project]
- MAG will use same approach now in Nigeria's Northeast (UNMAS funded project)
- Good method to obtain initial information on contamination, accidents, etc.
- The survey is not trying to pinpoint a specific location or to draw polygons remotely

Thank you for your attention.

Any further information, please contact  
[Sebastian.Kasack@maginternational.org](mailto:Sebastian.Kasack@maginternational.org)



# MMD MINERAL SIZING (EUROPE) LTD.

A MEMBER OF THE MMD GROUP OF COMPANIES

## Special Applications of MMD Sizers

### The HALO Trust

22<sup>nd</sup> International Meeting of Mine Action Programme Directors and  
UN Advisors

# MMD WORLDWIDE FACILITIES



- Sales, Service & Manufacturing
- Sales & Service
- Service & Manufacturing
- Service
- Sales Representative Office

# CORE PRODUCTS



SIZERS

FEEDERS



IPSC



# SIZER TECHNOLOGY PRINCIPLES



## THE 3 STAGE BREAKING ACTION



The **3 stage breaking action** ensures a controlled, three dimensional product is consistently produced.

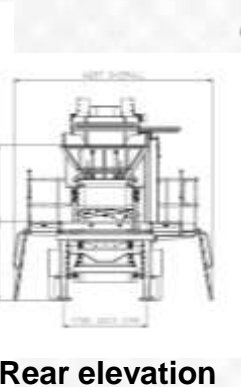
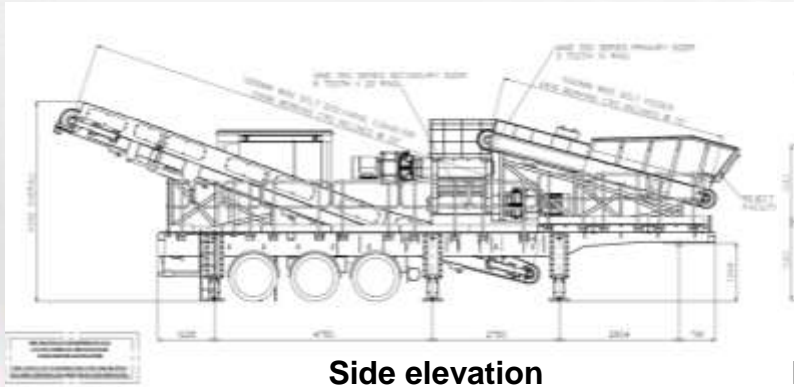
# THE HALO TRUST PARTNERSHIP



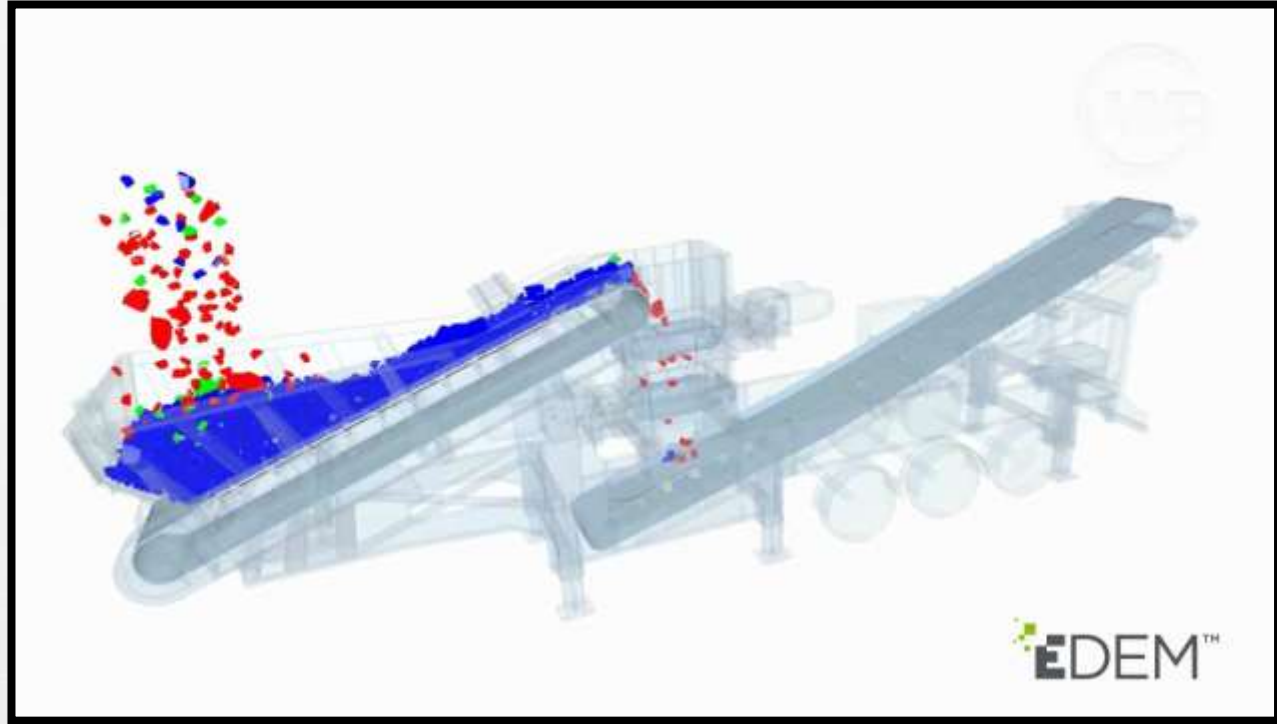
An unlikely partnership between The HALO Trust and MMD was first formed in 2012.



# DESIGN DEVELOPMENT

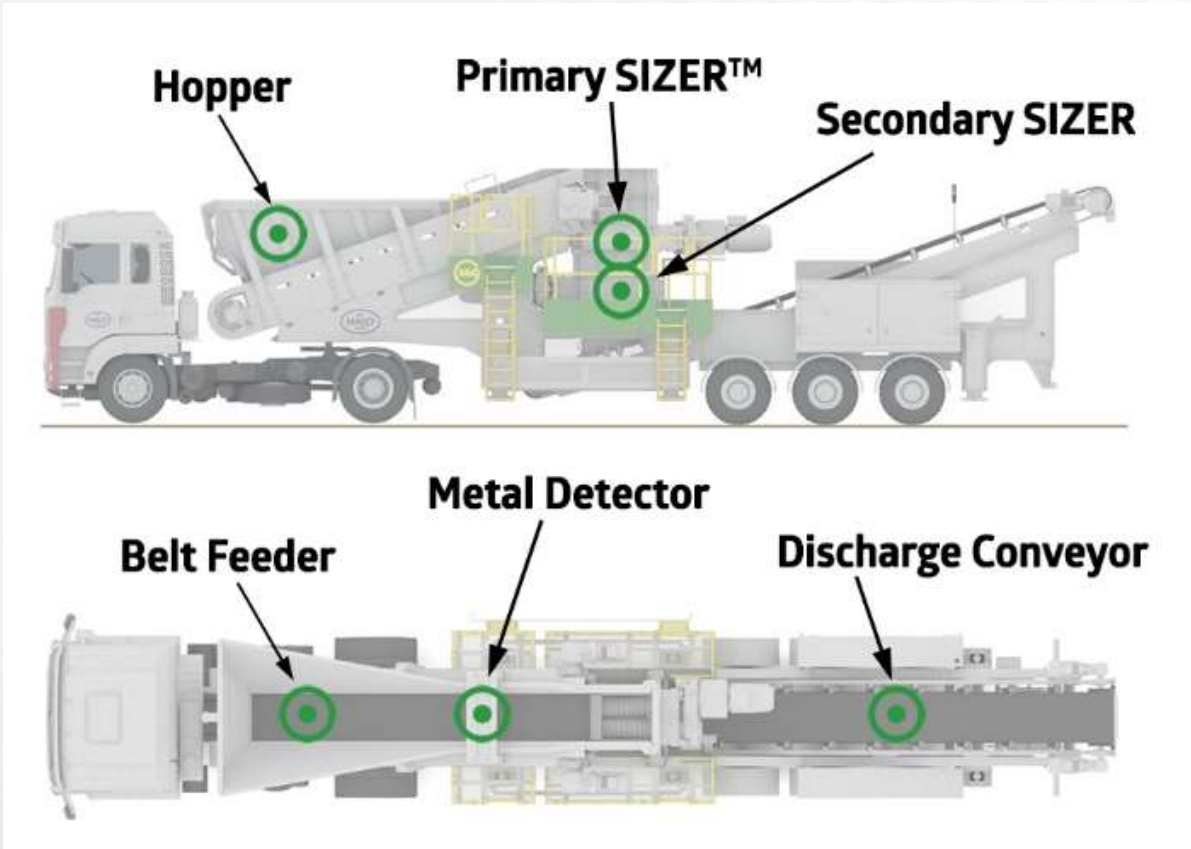


# SIMULATION SOFTWARE



MMD operate eDEM, Ansys & Arena discrete element modelling / simulation packages.

# UNIT DESIGN





# ZIMBABWE Q1 - 2019



HALO predict the rig will destroy 100,000 landmines by 2025

Questions?



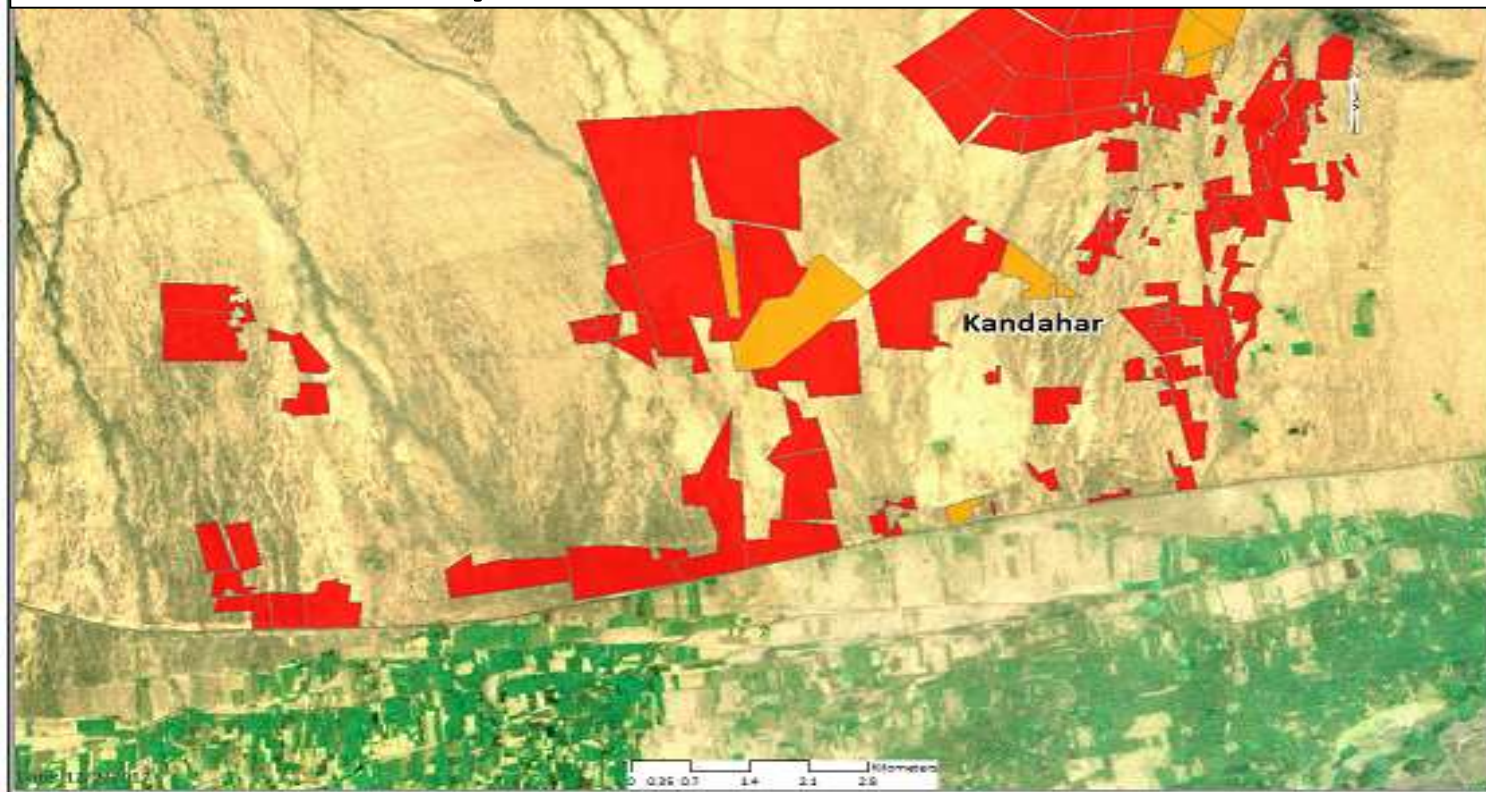
State Ministry for Disaster Management and Humanitarian Affairs  
Directorate of Mine Action Coordination (DMAC)

# Innovative Mechanical Method for Clearance of Anti-Vehicle Minefields



# Scope of AV mine contamination

**OVER 300 Sq km AV mine contaminated areas**



# The Nature of AV Mine Contamination

Majority of AV mines in Afghanistan are:

- low metal content
- randomly laid without recording
- indiscriminately used
- Deeply laid compared to AP mines
- Lethal with multiple casualties when detonated



# Mechanical Ripping and Follow up Operations in AV MFs

## Before:

- FEL ripping operations
- Time consuming follow up by manual deminer (raking/detector)
- Average monthly productivity was 45,000 sqm



# Trial on FEL Ripping followed by mechanical cultivator (2018)

## Objectives:

- To find out evidence-based monthly productivity rate of FEL machines ripping operations followed by mechanical cultivator in hard and medium ground.
- To provide recommendations to MAPA for further improvement and operations efficiency of clearance operations in AV mine contaminated areas



Different Training AV Mine targets



FEL with Ripper Attachment



FEL with Cultivator Attachment

# Team Involved in FEL Machines Trial

- 31 Technical Representatives from DMAC, UNMAS & IPs



# Findings

The trial confirmed that the method is very efficient with good quality output for clearance of AV mine contaminated areas.

All the training mines targets found without any miss.

## Average monthly productivity:

S.#	Ground Type	Monthly productivity in Hard and Medium Ground Surface	Agreed Average	Remarks
1	Medium	133,200 sqm/month	90, 000 sqm/month	The trial resulted on increasing the monthly productivity from 45,000 sqm to 90,000 sqm
2	Hard	87,600 sqm/month		

**This will save millions of dollars in clearance of remaining recorded AV mine contaminated areas in Afghanistan**

# Contacts

+93 708 606060

info@macca.org.af

**Websites:**

**Facebook:**

MineAction.Afghanistan

[www.dmac.gov.af](http://www.dmac.gov.af)

DMAC.Afghanistan





**UNMAS**

Use of solar risk education talking device (RETD) in Darfur  
KAP Survey Result

February 2019

## Risk Education Talking Device (RETD)

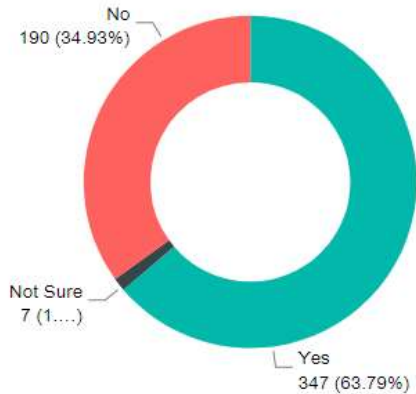
- Solar-powered audio talking and recording device
- It has the ability to play multiple pre-recorded Mine & Explosive Remnants of War awareness materials
- RETD is part of UNMAS 2017 SG Award Winning Projects in the fields of innovation and creativity



- Suitable for use when engaging with vulnerable, non-literate and hard-to-reach areas
- 15 Aug – 18 Nov 2018, RETD Survey was held in 4 States of Darfur reaching 544 target groups

- Conducted in 4 states, 8 Localities of Darfur for 12 weeks period in 34 villages
- A total of 544 people of different subgroups were interviewed

### ERW Awareness Level (Total)



### Gender by Location

Male Female Total



- Of interviewed 64% were aware of danger posed by ERW
- Of the individuals surveyed a total of 61.9% (337) were male and 38.1% (207) were female
- Of the locations surveyed 75% (408) of Rural areas and 25 % (136) were Urban settings



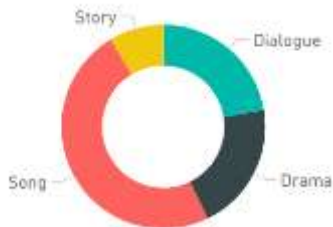
## Suitability



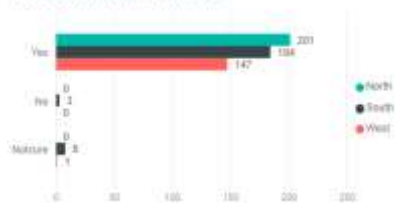
## Findings:

- 96% (525) respondents confirmed that RETD is suitable as follow up to face-to face interactions
- 98% (532) mentioned that RETD is effective awareness raising tool
- 98% agreed that repeated use of the RETD will lessen risk taking behavior
- Song was chosen as the most liked means of RE message delivery with 61% of 11-18 years old and 52% of 5-10 years old
- Dialogue (22%) & Drama (20%) mostly preferred by the 45 years and above age group
- 5.4% indicated Storytelling which was also mostly signposted by children.

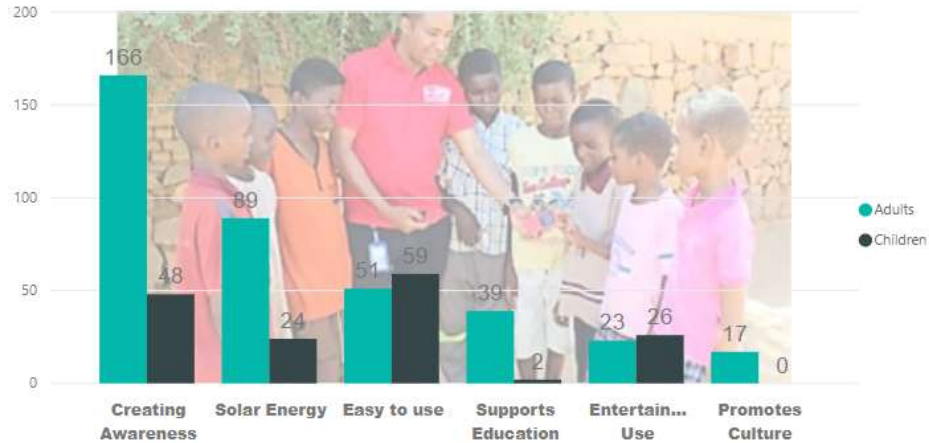
## Mode of RE delivery most they liked



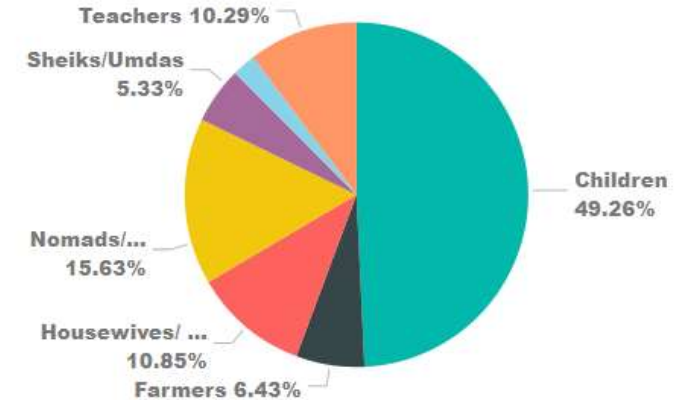
## Effectiveness of RETD



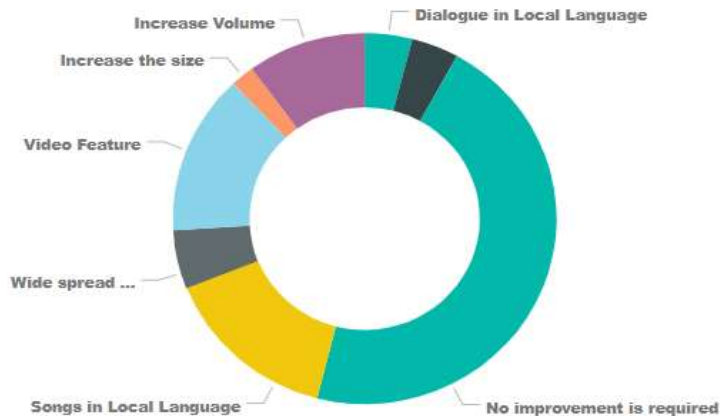
## Reason why RETD is Liked?



## Who will benefit most?

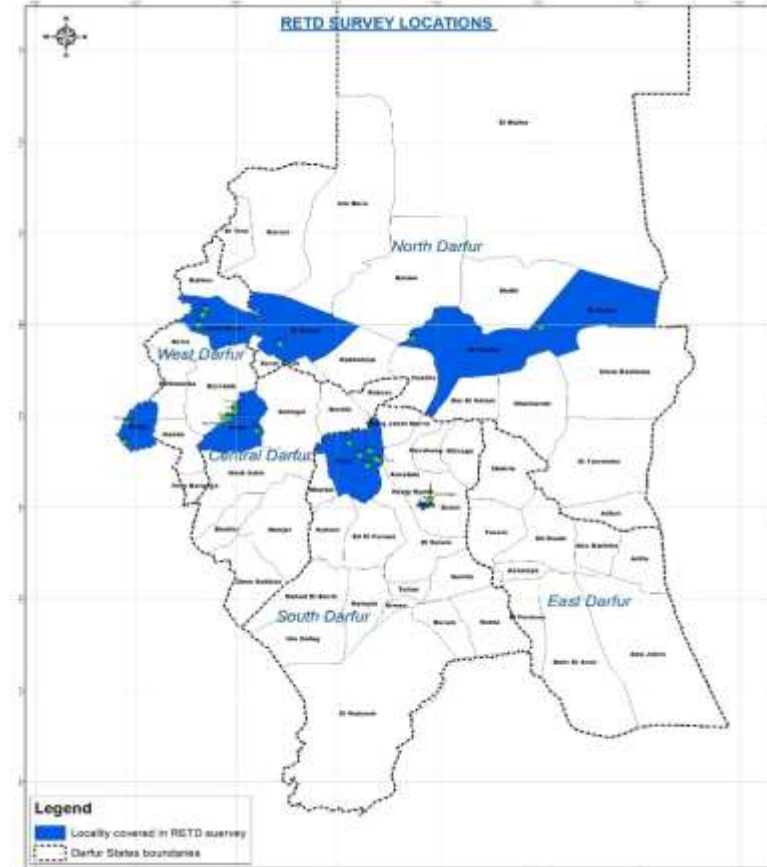


## Suggestion for Improvement



- Significant proportion stated RETD is liked for it's value of being able to create awareness
- Children were selected as the most beneficial group of the RETD, followed by Nomads/Herders
- 46% said no improvements, significant proportion asked for use of local language, and addition of video features
- Majority of farmers and Nomads asked for extensive use of local language & wider distribution

- RETD is acceptable in its current specification to be used as a RE tool
- Specific RE mediums should be analyzed and applied to attain the preferences and habits of different age groups
- An exposure to the message and repetition are key to audience recall (message retention)
- Use of local languages ensures message delivery
- Plan for wider distribution in JMTF (hard to reach areas and as follow up of face to face interaction in other parts of Darfur, Sudan and other UNMAS Programmes)





## RETD KAP Survey Results – UNMAS DARFUR

# Thank you

For further information contact - Abel Tesfai: [tesfai@un.org](mailto:tesfai@un.org)

On line reference materials about RETD:

<https://www.youtube.com/watch?v=NBDhhxXPOfg>

<https://unamid.unmissions.org/media>

For Manufacturer

[brian.gill@staysafetechnologiesuk.org](mailto:brian.gill@staysafetechnologiesuk.org)



**UNMAS**

**Palestine**

Conflict Preparedness and Protection  
Bridget Forster – Programme Manager



## UNMAS-NPA Cooperation on CPP in the Gaza Strip

- Safety and protection messages before, during and after conflict
- Basic fire safety
- Basic lifesaving messages
- Basic ERW awareness





# The PRIMETECH 300 D:Mine



# PRIMETECH – Ground Preparation, Not Clearance

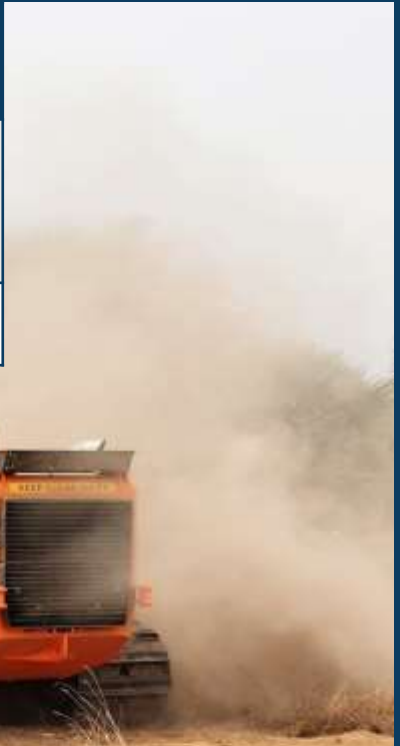


Area Tilled and excavated (sqm)	(Suspected AP) Initiations	Teeth damaged	Teeth replaced
254,410	153	36	20

- Average depth tilling once = 20cm
- Average depth tilling twice = 25cm
- Requires follow up asset to process the mulched soil.
- Cost of one tooth : **\$109.00**

# Gains in Productivity

	Before PrimeTech	After PrimeTech with Bund system
Av. Area Cleared (sqm) per day per mechanical team	132	163
<b>Ave 23% Increase in mechanical clearance efficiency</b>		



Ground is broken up and easier to excavate

Vegetation is finely mulched

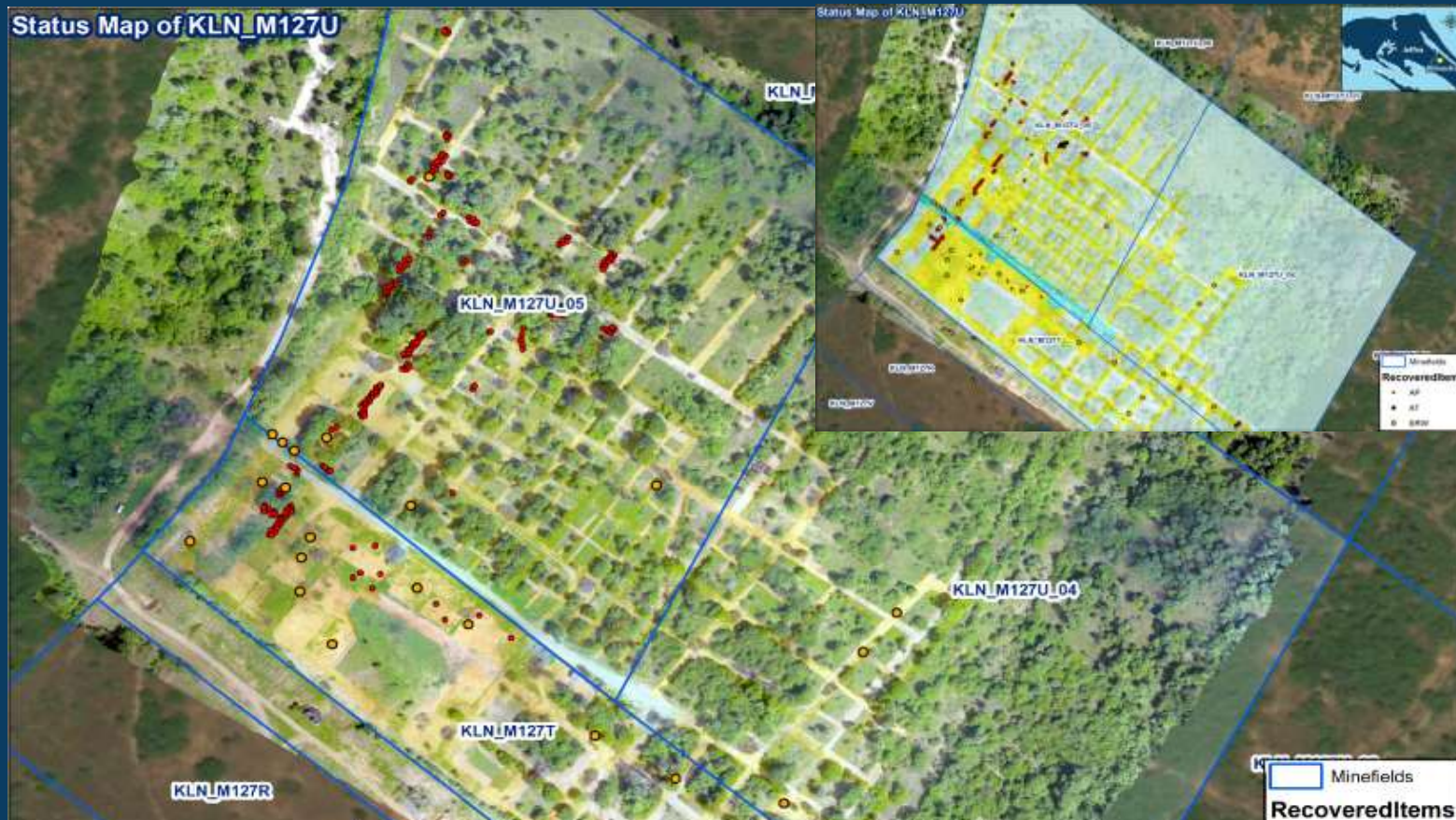
Soil can be easily processed

Less strain on the follow up machine

PRIMETECH on a P4 mineline.



# Reduction and Verification



Questions?