

To clear... or not to clear...



© GICHD

How much is actually contaminated?



- 15 countries
- 290 km²
- 6 million items of ordnance
- %?

© GICHD



Risk Management

Risk = the likelihood of a specified hazard being realised and the consequences of the event

© GICHD

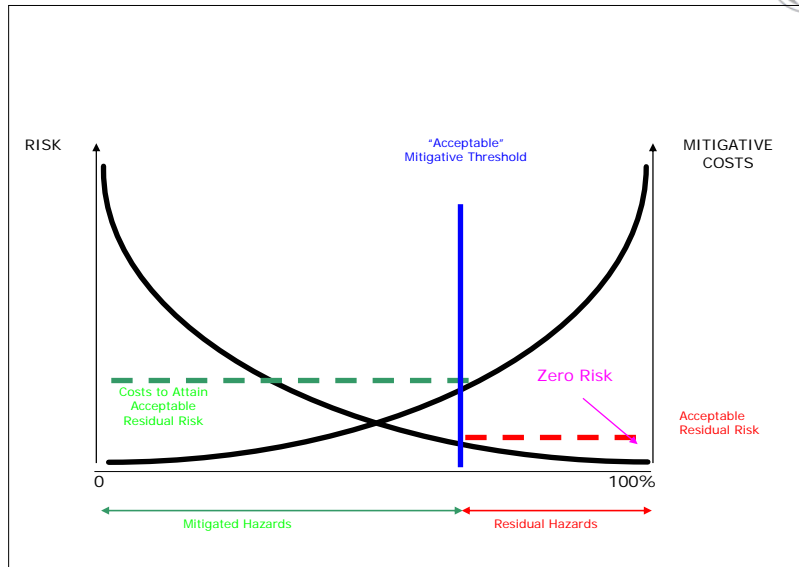


- **“You want a valve that doesn’t leak and you try everything possible to develop one. But the real world provides you with a leaky valve. You just have to determine how much leaking you can tolerate”**

Arthur Rudolph, Saturn V developer

© GICHD

Risk vs. cost



© GICHD

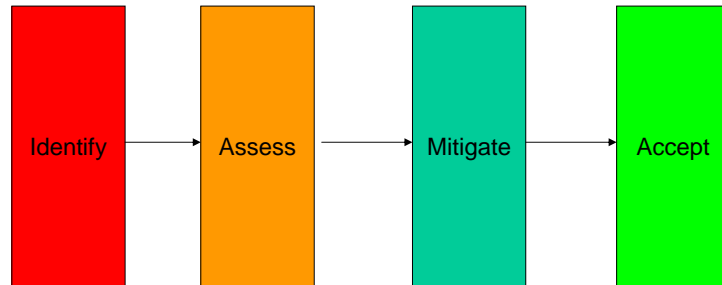
What is risk management?



- "A systematic process to:
 - identify/quantify risk (survey)
 - mitigate risk (clearance/technical survey) to;
 - define tolerable levels (end user acceptance)

© GICHD

Stages of the process



© GICHD

To protect?



© GICHD

Or not to protect?



© GICHD

Risk Management



- "Procedures designed to allow an organisation (or a state? Or a programme?) to foresee, evaluate and control risk in a sustainable and reasonable manner"
- Strategic level
- Operational level

© GICHD

Strategic level



- Developing national plan for resources utilisation to best effect
- Focussing resources in areas where they will have most effect
- Acceptance of tolerable risk level
- Mandate for land release

© GICHD

Operational level



- Prioritising resources
- Reducing risk (= casualties) to *larger* parts of population
- Releasing land that poses less risk to the population

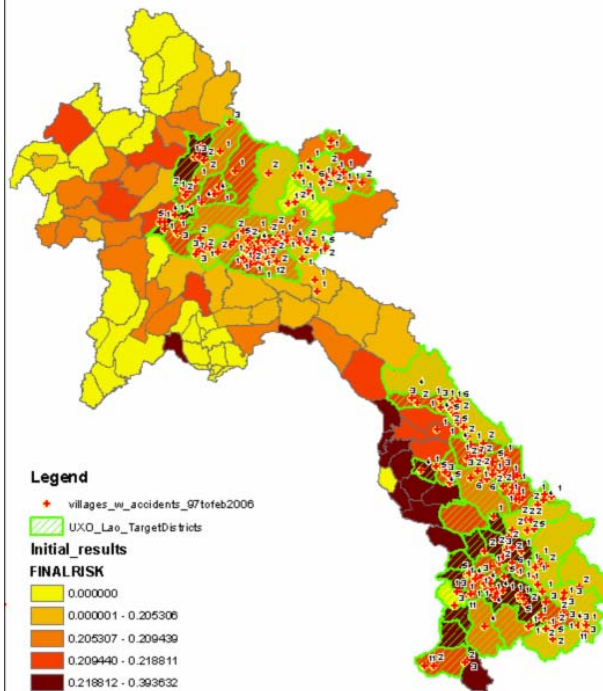
© GICHD

Strategic perspective



- National planning
- Analysis of extant data
 - Minelaying/Bombing records (if exist)
 - Accident reports
 - Community perspectives
 - Population density
 - Land use
 - Etc...

© GICHD



© GICHD

Operational perspective



- Tool to define risk levels
- Data gathered as part of standard survey practice
- Simple recommendations from outputs for further action

© GICHD

Field questions		Present situation
QUESTION 1:	a) Did you see/hear of UXO presence on site? b) If "maybe" by whom? c) If "yes" or "maybe" what type of UXO; if "no" what type of suspected UXO? d) How far is the item from the community?	Yes Family members, neighbour Land Service Ammunition 1km to 1,5km
QUESTION 2:	a) Was there ever an accident on site? b) If "maybe" by whom? c) If "yes" or "maybe" what type of UXO; if "no" what type of suspected UXO?	No Family members, neighbour General Purpose Bombs
QUESTION 3:	What has the land been used for? <i>(NB: carefully reply to this question if sampling is performed)</i>	hospital
Office questions		
QUESTION 4:	Does bombing data indicate targets in a 2km radius from site? <i>(NB: requires judgement based on bombing maps (dot analysis only))</i>	Yes
QUESTION 5:	a) Was the bombing heavy? b) What type of ordnance is predominantly recorded as dropped in the area?	Yes Land Service Ammunition

Your site risk vs action program

Action Program	Scale values	Your result
Clearing (Red)	High	None
Sampling (Yellow)	Medium	None
Cancel (Green)	Low	Low

Site Risk

Expresses the likelihood of UXO(s) potentially on site detonating, combined with a numeric estimate of potential victims.

The plot to the left proposes action programmes as a function of the site risk.

*NB: small risks may not be visible
NB: if your result is very near to an action program limit judgement should be used to come to a final decision.*



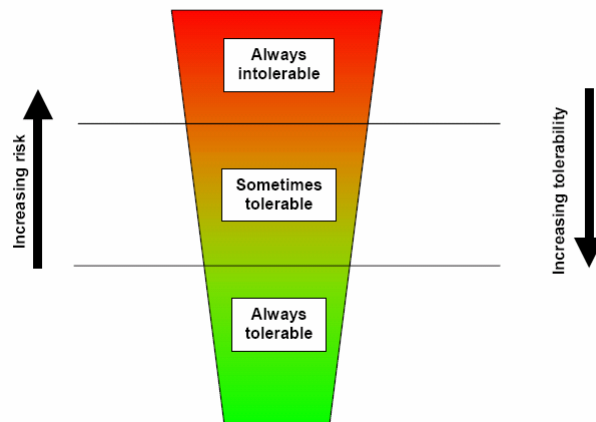
Red – “the operator shall undertake full clearance of the area surveyed

Green – “the operator MAY release the area surveyed

Yellow – “the operator SHALL undertake a process of further investigation

© GICHD

What is tolerable?



© GICHD

Benefits



- National standardised levels of acceptable risk
- National acceptance of that risk
- National acceptance of liability
- And many more...

© GICHD

Risk Management



1. Support implementation of the AP Mine Ban Convention (helps define “known mined areas”)
2. Does not imply reduced tolerability towards mine clearance (reduced quality)
3. Clarify liability in case of accidents – part operator, part host country
4. Will likely reduce risk to wider population groups compared with traditional approaches

© GICHD

100% clearance?



- **Alistair Craib – October 1998**
- **Steve Brown – Spring 1999**
- **NOT suggesting we leave mines behind or compromise the quality of clearance...**
- **But more use of mechanical equipment for area reduction**

© GICHD