



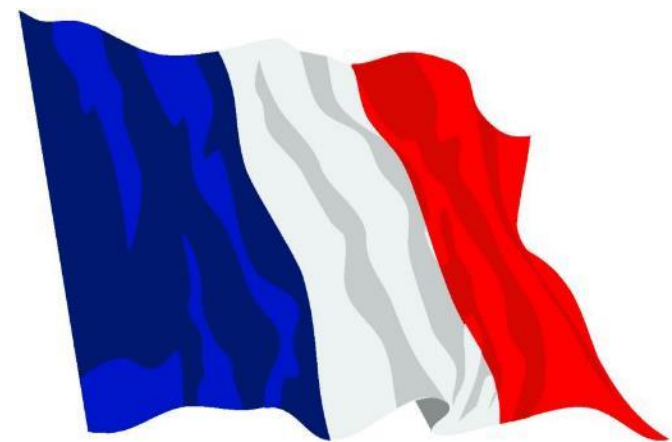
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The new IED threat

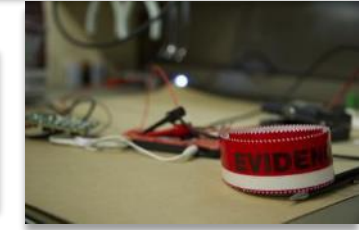
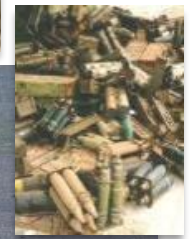
French Army expertise

Lieutenant-colonel Granger and Captain Boulas

Palais des Nations – Genève le 09/11/2023



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French Army involvement



Threat of new IEDs



How to mitigate and clear IED

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French Army involvement



Threat of New IED



How to mitigate and clear IED

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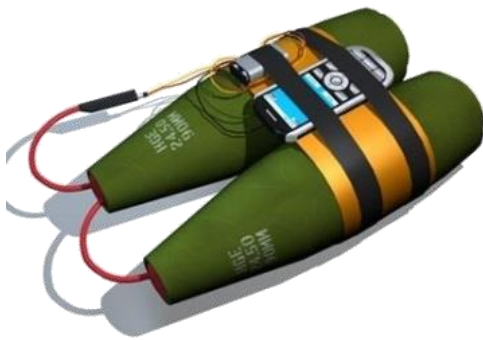


- Before FR has developed CNDH and CREG.
- Currently **Military Engineering School** (École du Génie, EG) is ensuring Humanitarian demining subjects and is following IMAS review boards.
- **PIAM within the EG is the Expertise centre of all explosive ordnance threat** and belongs the training centre for all the FR armed forces.
- UN missions : ANGOLA, CAMBODIA, LEBANON...
- Regional Humanitarian Centre Support *via* Defence Cooperation : CPADD, ERDH-L.





- In France, Humanitarian Demining is a mission of the armed forces. Civilian Security Units are more involved on ERW.
- Abroad, permanently armed forces and civilians have to face IEDs because of asymmetric conflicts but not at all.
- Nowadays IED's use is more a question of opportunity (many ERW, easy supply by internet for example...) than real TTP, excepted the willingness to strike civilian or Deminers.



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French Army involvement



Threat of new IEDs



How to mitigate and clear IED

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ÉVOLUTION DE LA MENACE EEI

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SUMMARY

- ⇒ How Improvised Explosive Devices are made and laid on the field.
- ⇒ Development of the drone / ammunition
- ⇒ Increase of minefields and large scale of booby-traps

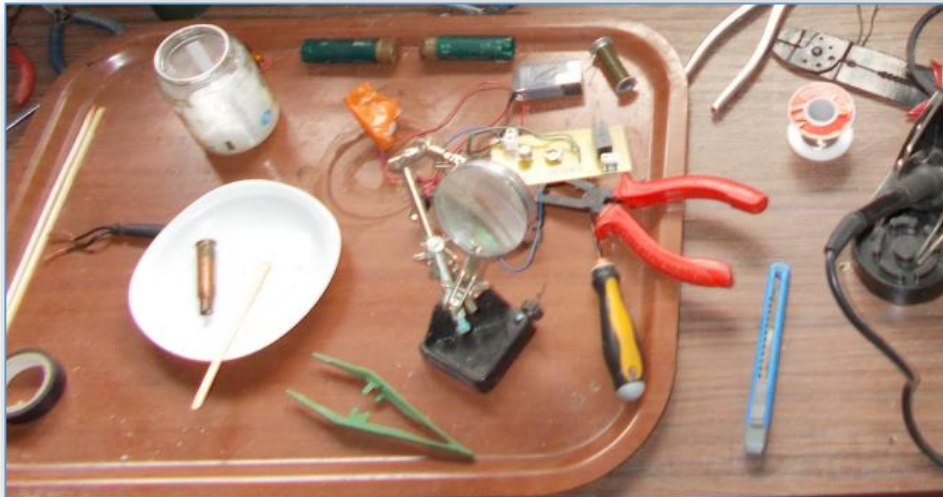
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MAKING PROCESS OF IEDS with HOMEMADE EXPLOSIVES

Rudimentary manufacture,



or
sophisticated,



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MAKING IMPROVISED EXPLOSIVE DEVICES (IEDS)

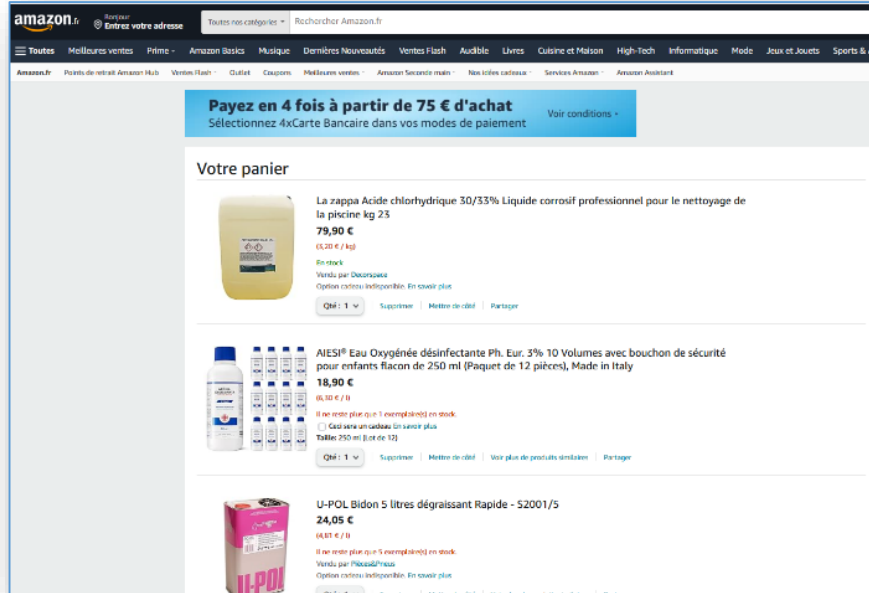
Raw materials available locally



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MAKING IMPROVISED EXPLOSIVE DEVICES (IEDs)

By Internet, hijacking and even theft



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HOMEMADE EXPLOSIVES (HME)

Based on AMMONIUM
NITRATE : **AN**



Based on HYDROGEN PEROXIDE :
Tri **A**cétone Tri **P**eroxydes « **TATP** »



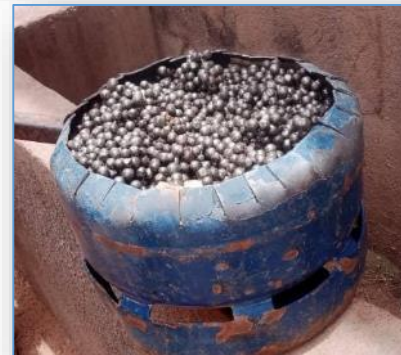
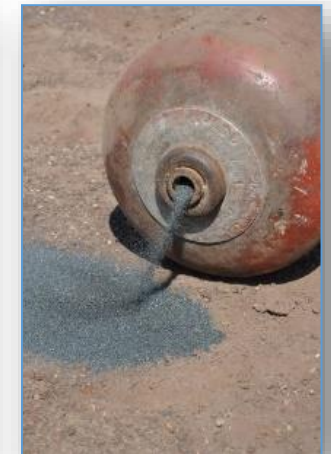
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Based on HYDROGEN PEROXIDE :
Héxa**M**éthylène Tri**P**éroxyde
Diamine « **HMTD** »



How IED are laid on the field

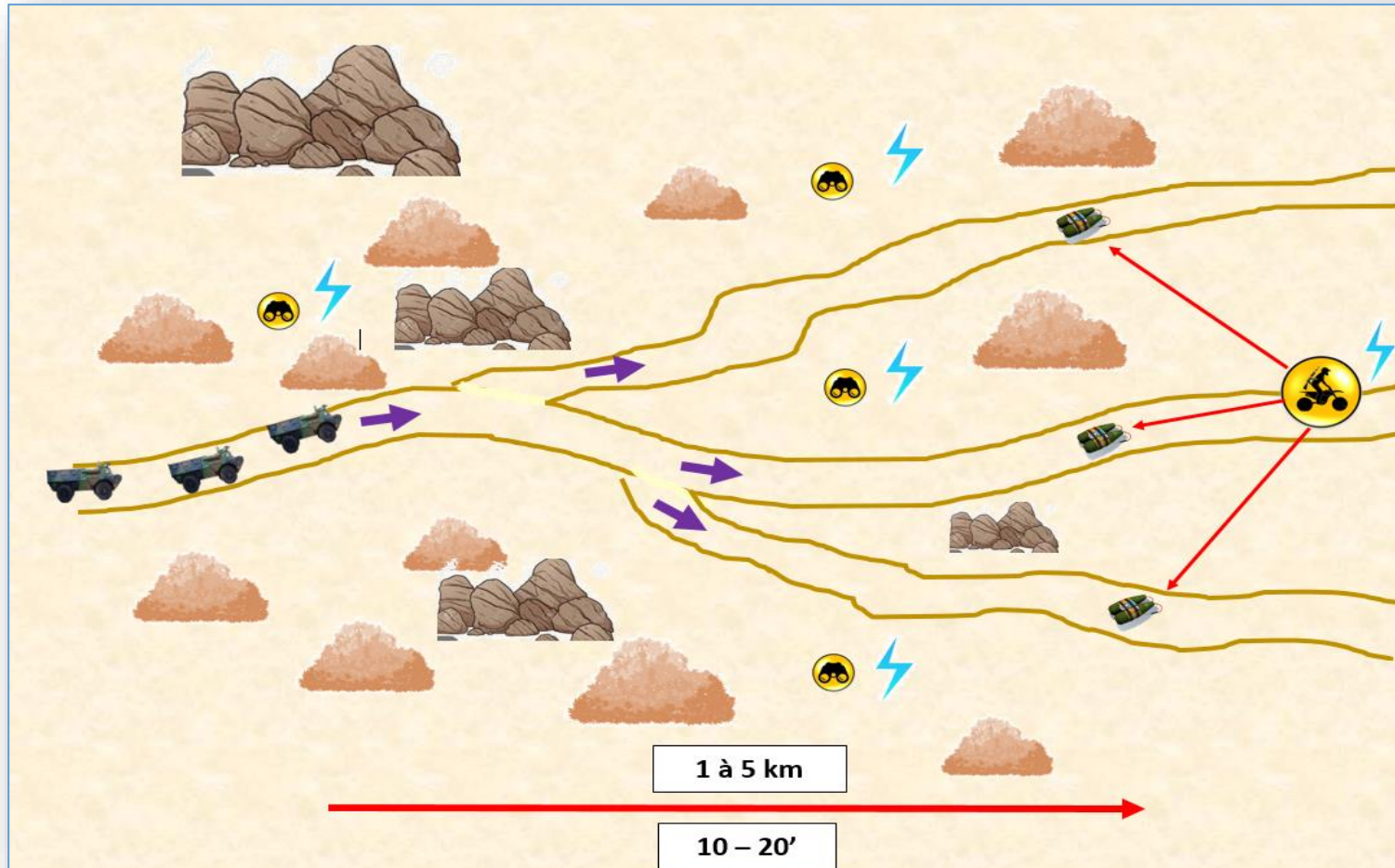
- Easy to make: rudimentary and home-made weapons ;
- Easy to transport: motorbikes / light vehicles / pick-ups ;
- Easy to set up: mastery of the terrain & freedom of movement (desilhouetting) ;
- Cost/effectiveness ratio : poor man's weapon with high destructive power.



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How IED are laid on the field

AGILITY AND FORWARD THINKING: planting the IED in conjunction with a network of "sonnets" and following the movements of the force



Dormant IEDs* :

- explosive load set up in advance ;
- trigger system or energy source placed at the last moment.

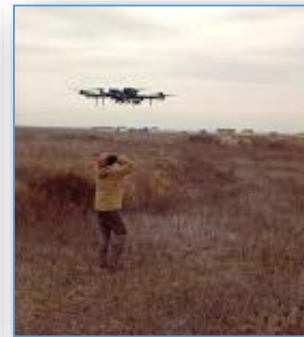
*IED Lexicon 5th Edition_2017_v5

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Development of the combination DRONE/AMMUNITION threat

MODERNISATION OF WEAPONS AND AMMUNITION :

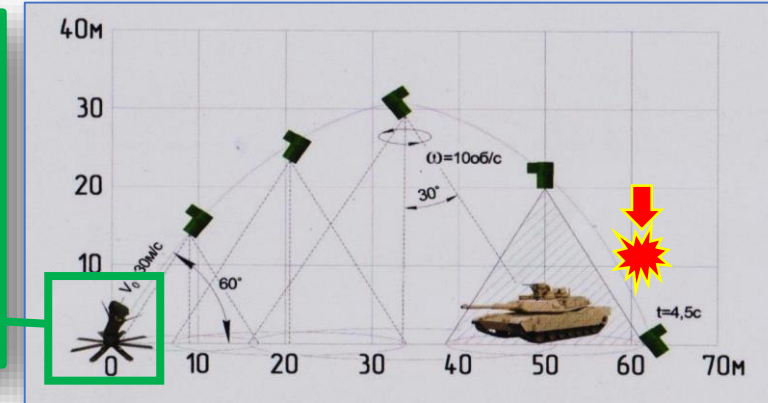
- Drones loaded with explosives, carrying and dropping munitions, naval, combat support (adjusting artillery fire) ;
- Large-scale 3D printing of improvised ammunitions.



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Development of MINES and BOOBY TRAPS

The emergence of new, highly dangerous munitions: POM 3 mines, PTKM-1R, thermobaric munitions, munitions equipped with seismic sensors, ballistic missiles, etc.



How the thermobaric system works :

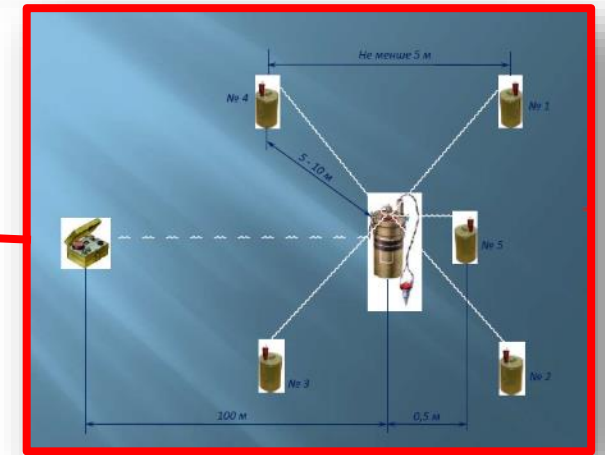
An initial (limited) explosion occurs, spreading a cloud of flammable material in the form of liquid or metallic particles over a wide area. **A second explosion** ignites the cloud of particles. A gigantic tremor occurs, and a fireball reaches a very high temperature. All the oxygen is sucked out.

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Development of MINES and BOOBY TRAPS



DANGER MINES!
DANGER MINES!
DANGER MINES!



DIRECTIONAL AND BOUNCING
ANTI-PERSONNEL MINES

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SISMIC SENSOR GENERATOR

Development of MINES and BOOBY TRAPS

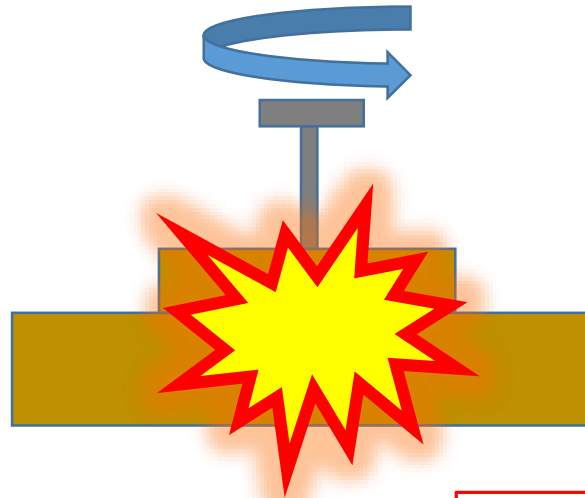
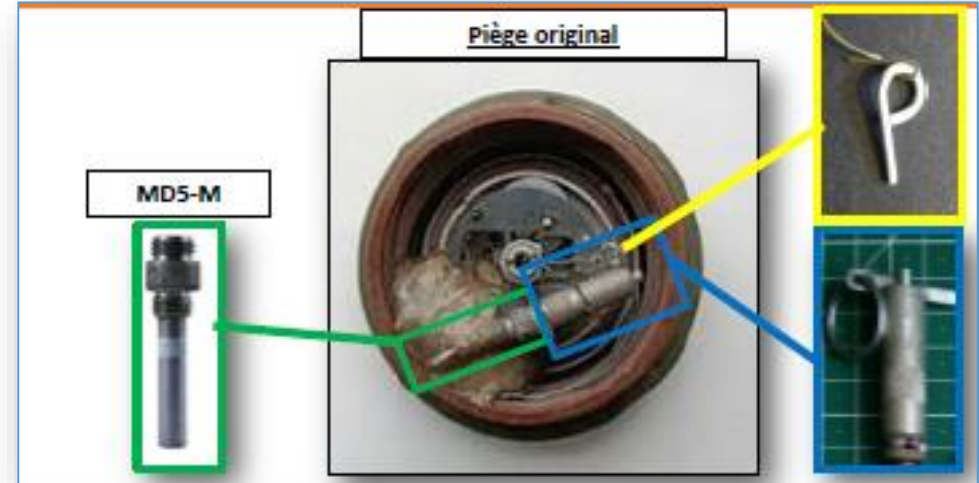
Increased landmines density



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Development of MINES and BOOBY TRAPS

ANTI-NEUTRALISATION ANTI-TANK MINE – « Deminer killer »

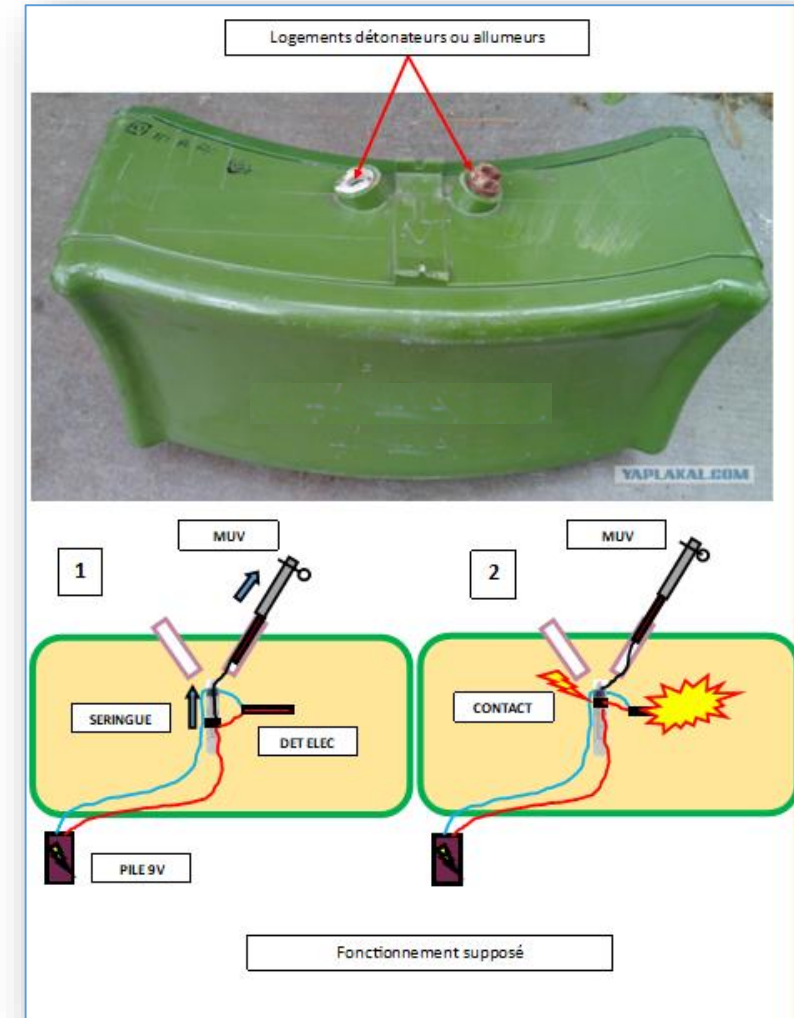


More examples...

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Development of MINES and BOOBY TRAPS

ANTI-NEUTRALISATION ANTI-PERSONNEL MINES – « Deminer killer »



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Development of MINES and BOOBY TRAPS

Common OBJECTS, BOOBY TRAPPED TOYS !



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Development of MINES and BOOBY TRAPS

AMMUNITION TRAPPING



MS-3 ANTI ANTI-LIFT



ML-7 ANTI-LIFT



HAND GRENADE DELAY TRAPPING

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Development of MINES and BOOBY TRAPS

VARIOUS TRAPS WITH GRENADES



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French Army involvement



Threat of new IEDs



How to mitigate and clear IED

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- **Common settlements on counter IED objectives**
 - Life preservation (Deminer and civilians)
 - Infrastructure and goods preservation (urban area difficulty)
 - Goal : return to a normal situation as soon as possible for civilians
- **Similar TTP's for IEDD operator**
 - General threat overview
 - Witness questioning and local threat assessment
 - IEDD operator intervention (Destruct on Place or RSP and neutralisation)
 - Information gathering for exploitation (CITHARE database)

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- **UN Standards and FRENCH skills are quite different**
 - UN IEDD skills are divided in 4 levels (1, 2, 3 and 3+)
 - FR IEDD is only 1 level, able to treat all kind of IED
 - Troops can make the reconnaissance
 - Only IEDD operators intervene on IED (a two operators team)
- **FR and many Nato countries are following a global C-IED Strategy**
 - Attack the Networks (disrupt supply chain)
 - Defeat the Device (DoP, RSP, Neutralization)
 - Prepare the "Force" (awareness and general TTP's adapt)
- **Civilian awareness and threat assessment is a key point**

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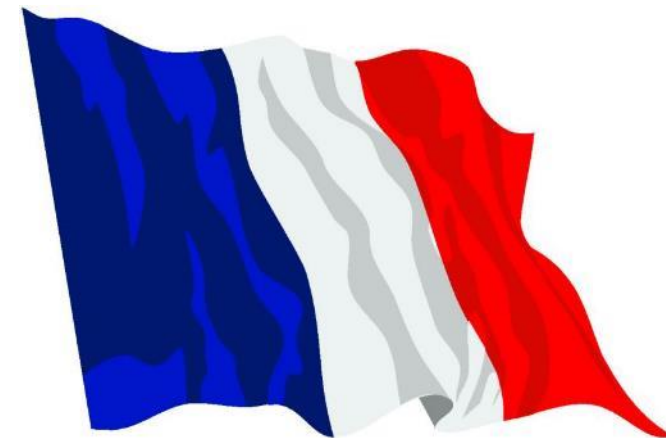
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