



# Lao National Unexploded Ordnance Program (UXO Lao) Survey Operations



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# Unexploded Ordnance in Lao PDR



- During the Second Indochina War (1964 – 1973) more than two million tons of explosive ordnance were dropped on Laos, making it, per capita, the most heavily-bombed country in the world.
- 270 million cluster sub-munitions or bombies were dropped on the territory of Lao PDR. It is estimated that up to 30 percent of these failed to explode.
- Today, much of the country is still contaminated with cluster sub-munitions and other unexploded ordnance (UXO). These kill and injure dozens of people a year, and their presence negatively affects socio-economic development, preventing access to agricultural land and increasing the costs, through land clearance, of all development projects.



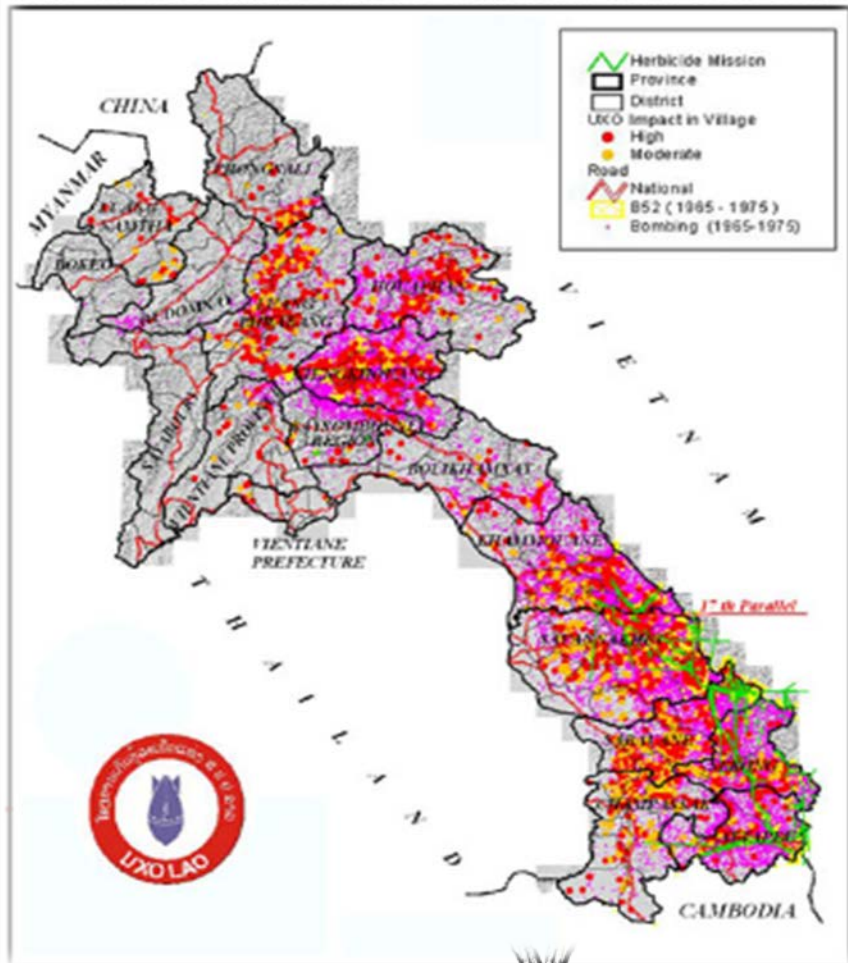
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# UXO Impact in Lao PDR

MAP OF UXO IMPACT AND BOMBING DATA 1965-1975



## ❖ Lao PDR Country Structure:

- ✓ 18 Provinces
- ✓ 143 Districts
- ✓ 8,643 Villages

## ❖ UXO Contamination:

- ✓ 17 Provinces
- ✓ 110 Districts
- ✓ 3,860 Villages

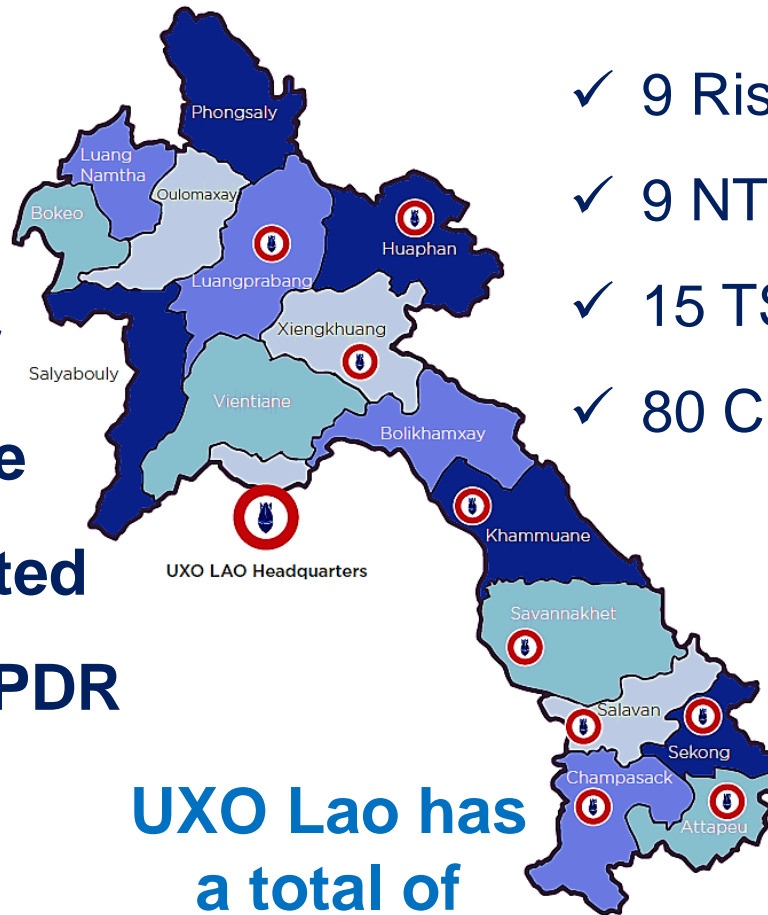
## ❖ CM Contamination Only:

- ✓ 15 Provinces
- ✓ 83 Districts
- ✓ 2,442 Villages



# UXO Lao's Operations

**UXO Lao is the National Operator working in 9 of the most UXO impacted provinces in Lao PDR since 1996**



- ✓ 9 Risk Education Teams
- ✓ 9 NTS Teams
- ✓ 15 TS Teams
- ✓ 80 Clearance Teams

**UXO Lao has a total of 1,359 Staff**





# UXO Lao Survey Operations



- ❖ Pre 2014 UXO Lao carried out general survey on areas for clearance and UXOs for roving tasks
- ❖ Survey focused on requests for clearance of land boundaries and UXO reports from villagers
- ❖ Number of UXOs per hectare was quite low
- ❖ 2014 UXO Lao changed to evidence based survey for CM

→ *CM Evidence Based Survey Operations*





# CM Evidence Based Survey Operations



- ❖ Pioneered by NPA
- ❖ Accepted by Lao UXO sector as good practice
- ❖ National Survey Procedures developed with participation from all stakeholders
- ❖ National Procedures approved by NRA in January 2015
- ❖ Until formally changed and approved the National Survey Procedures are the standard to be used by all survey organisations







# UXO Lao Technical Survey (1)



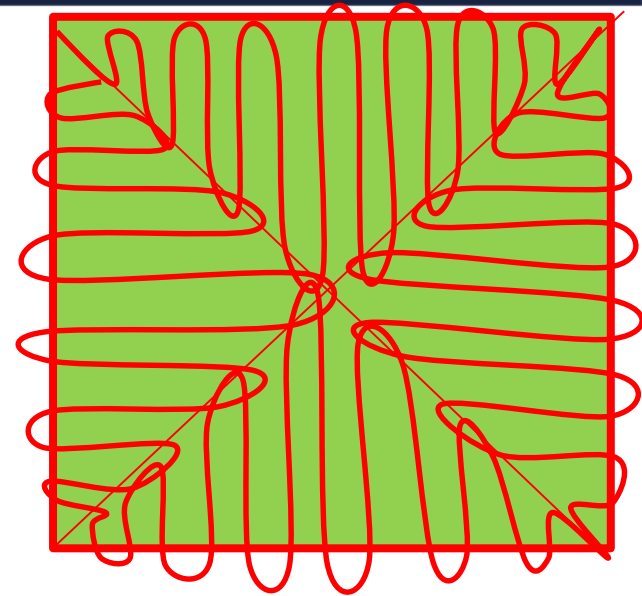
- ❖ Started in July 2014 before NTS capacity established
- ❖ Initially 1 team in each province
- ❖ Currently 15 x 11 person teams
- ❖ Team Leader (EOD 3), Sect Comd (EOD 2), 8 x EOD 1s, 1 x Medic. At least 2 drivers in a team
- ❖ 1 Landcruiser vehicle
- ❖ Detectors, radios, GPSs, computer, medical equipment, demolition equipment and explosives – fully equipped





# UXO Lao Technical Survey (2)

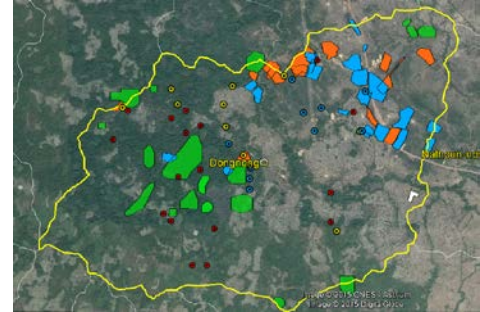
- ❖ TS follows National Survey Procedures
- ❖ From July 2014 to April 2017:
  - ✓ 16,445ha of CHA created
  - ✓ 43,837 UXOs destroyed – 33,834 CMs
- ❖ UXO Lao confident with current TS procedures



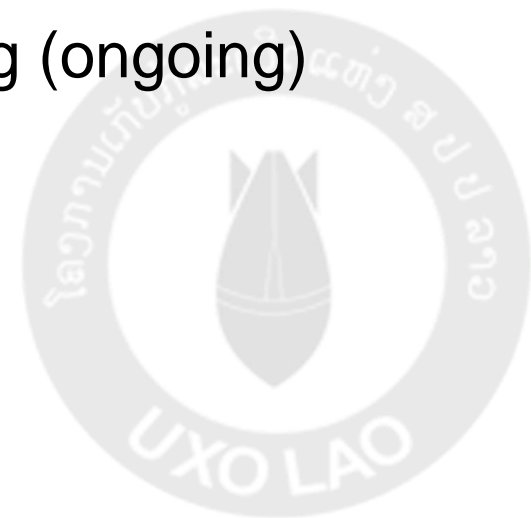




# UXO Lao Technical Survey Issues



- ❖ Initial TS not good quality – fixed by re-training and personnel changes
- ❖ Resistance to change from clearance of land boundaries
- ❖ Some incomplete CHAs still need correcting (ongoing)
- ❖ Not all CHAs on IMSMA (ongoing)

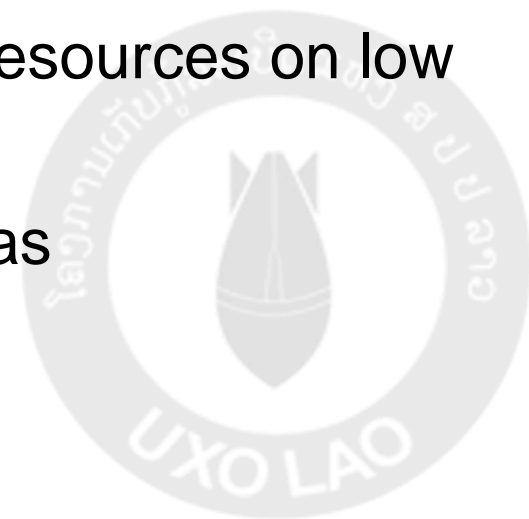




# UXO Lao Technical Survey Challenges



- ❖ UXO Lao is expected to support emerging priorities. Need reactive TS capacity
- ❖ Daily demolitions of CMs in-situ. Time consuming and costly
- ❖ Village by village approach requires using resources on low priority land
- ❖ Different understanding of inaccessible areas
- ❖ Vegetation clearance

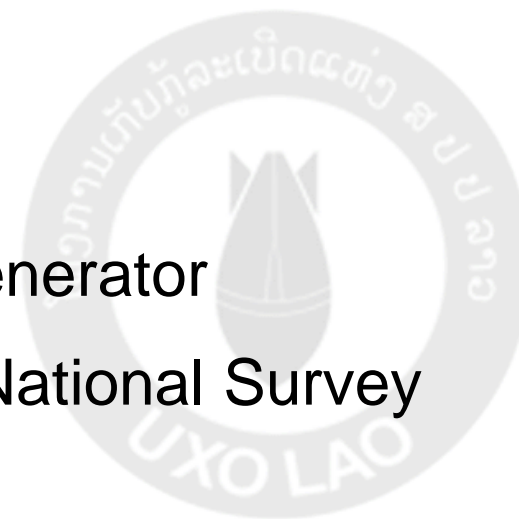




# UXO Lao Non Technical Survey



- ❖ Started in August 2016
- ❖ Teams made up from previous general survey teams (all EOD qualified). 1 team in each province (9 teams)
- ❖ Sect Comd (EOD 2), 3 x EOD 1s
- ❖ Vehicles to suit provincial requirements
- ❖ Radios, GPSs, computer, LCD projector, generator
- ❖ Follows UXO Lao Survey SOPs based on National Survey Procedures





# UXO Lao Non Technical Survey Process



- ❖ Involves IMSMA historical data analysis and village visits
- ❖ Data analysis identifies IMSMA tasks with CMs that are already evidence points (EPs) for TS, cannot be EPs, or need more field investigation during the village visit
- ❖ Village visits find new CM EPs and carry out investigation of tasks identified during data analysis
- ❖ From August 2016 to April 2017 UXO Lao NTS teams have NTS'd 101 villages in 9 provinces







# UXO Lao Non Technical Survey Challenges



- ❖ Limited computer skills of teams. Need for computer training
- ❖ Data analysis very difficult. Needs specialised staff
- ❖ Data errors on IMSMA
- ❖ Need to rely on another team to carry out UXO disposal
- ❖ Training required for EOD 4s to carry out field monitoring
- ❖ More training needed on data analysis (this year)
- ❖ Villagers not motivated or not available during visits





# Survey Good Practices – NTS (1)



- ❖ Good NTS is critical to good survey. To ensure good NTS:
  - ✓ Have no time limit on NTS
  - ✓ Work around villagers' routines
  - ✓ Work in multiple villages at one time
  - ✓ Maximise exposure to villagers - stay in village if possible
  - ✓ Maximise villager participation
  - ✓ Have gender balance and appropriate language skill in NTS team





# Survey Good Practices – NTS (2)



## ❖ Good NTS continued:

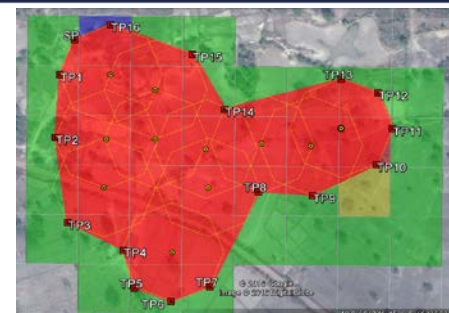
- ✓ Combine NTS with RE as needed
- ✓ Commence UXO disposal during NTS visit
- ✓ Involve staff with experience/connections in the area
- ✓ Don't ignore historical CM clearance. It's all evidence

There is no NTS approach or standard programme that fits all situations. Need to assess what approaches/tools work best for a particular community/target group





# Survey Good Practices - TS



- ❖ Use team structures that ensure efficiency, effectiveness and safety
- ❖ Focus on finding CMs to confirm contamination
- ❖ Use box skipping when possible
- ❖ Include fade out distances when establishing CHAs
- ❖ Follow established and approved practices i.e. Lao National Survey Procedures







# UXO Lao Involvement in National Survey (1)



- ❖ UXO Lao can contribute significantly to the National Survey because it has:
  - ✓ A large number of trained and experienced staff
  - ✓ Extensive historical knowledge of UXO work in Laos
  - ✓ Excellent technical EOD skills and experience
  - ✓ Good access to authorities at National and local levels





# UXO Lao Involvement in National Survey (2)

❖ UXO Lao also has:

- ✓ The best knowledge of the various working environments in terms of contamination, geography/soil conditions, communities/culture/language
- ✓ Effective IM systems in place that meet all current requirements for planning, monitoring and reporting





# UXO Lao Survey Operations

Thank You for your Attention

Any Questions?



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