



TRAINING OF EXPERTS TO ASSESS SOILS DAMAGED DUE TO HOSTILITIES

Military impact assessment of the war in Ukraine
on the state of agriculture

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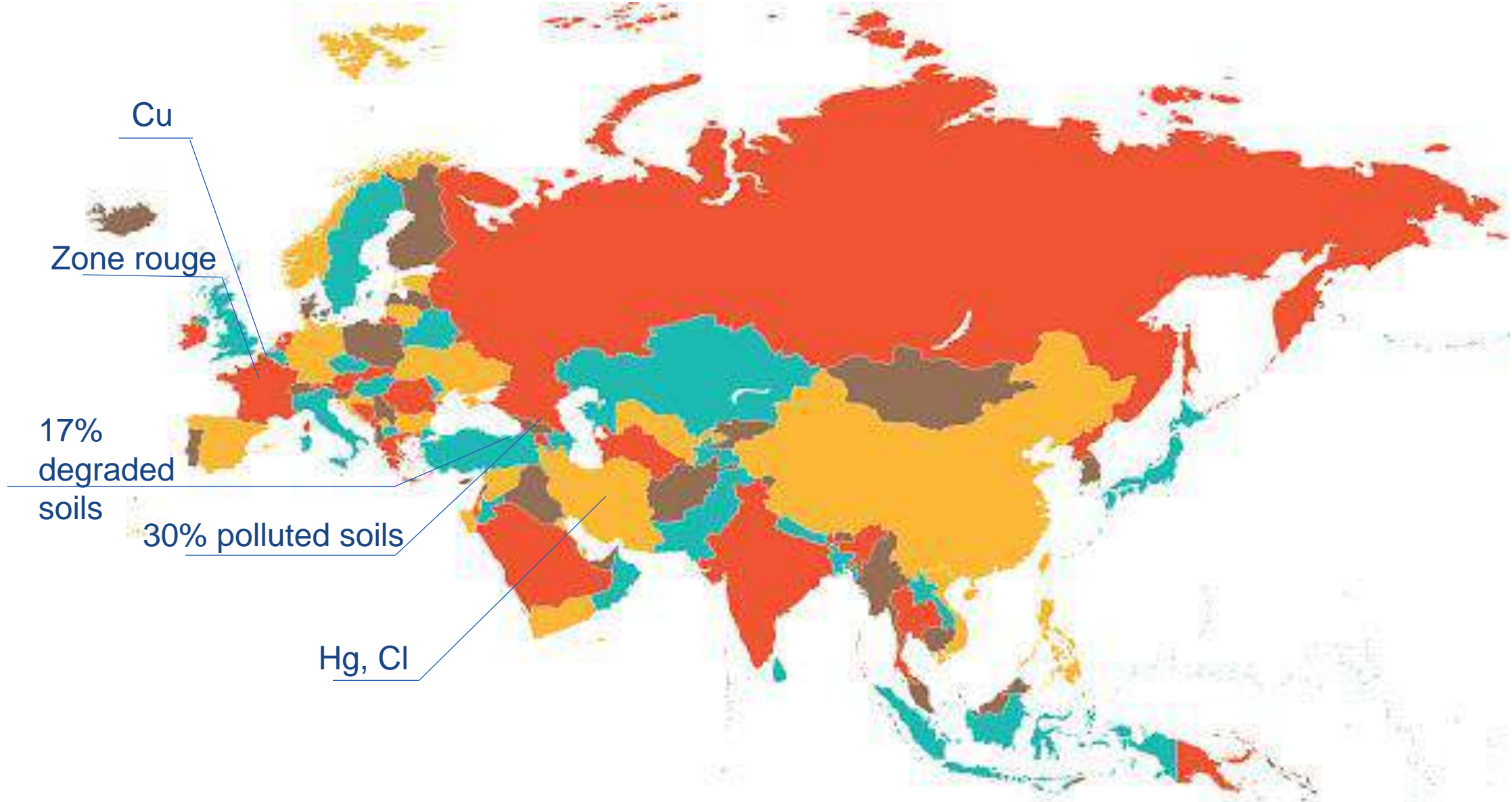
ecocide

noun [ˈiːkə(ʊ)sɪd]

unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts.

Source: STOP ECOCIDE FOUNDATION, INDEPENDENT EXPERT PANEL FOR THE LEGAL DEFINITION OF ECOCIDE: COMMENTARY AND CORE TEXT 2 (2021).







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Ukraine is the **first exporter** of sunflower oil (more than 50% of world exports), the **third exporter** of corn (11.5%), barley (11.5%), rapeseed (10%), the **fifth exporter** of wheat (8.5%).

400 million people
worldwide rely on Ukraine
for their food supply

According to the United Nations World Food Programme (WFP)





THE FACT SHEET OF UKRAINIAN AGRICULTURE PRODUCTION (*January 2022*)

- More than 55% of Ukraine's land area is arable land.
- Before the war agricultural sector contributed up to 12% of GDP and up to 20% of GDP with the processing food industry.
- Agriculture provided employment for 14% of Ukraine's population.
- Agricultural products were Ukraine's most important export. In 2021 they totalled \$27.8 billion, accounting for 41 % of the country's \$68 billion in overall exports.



From February 24 more than 190 000 explosives have been neutralized in the territory of Ukraine. The area of about 176 000 square kilometers still need demining.

➤ 1,5 Greece



➤ 2 Austria



➤ 3 Croatia



➤ 4 Switzerland



According to the State Emergency Service of Ukraine

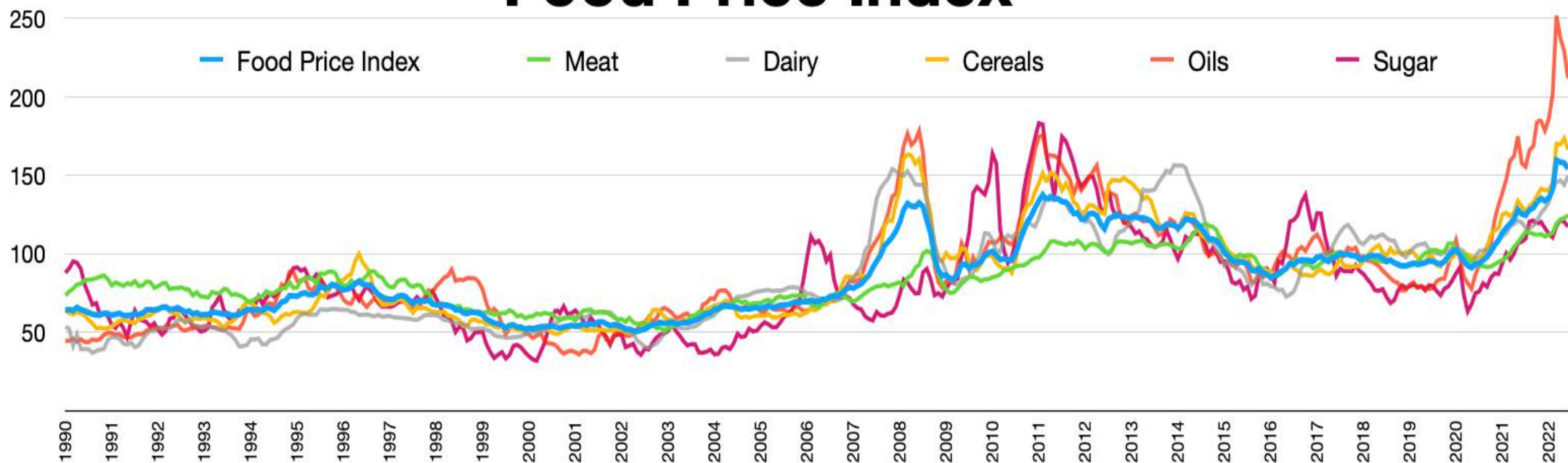


- Mine pollution
- Pollution caused by burning and spilling of petroleum products
- Pollution from emissions of substances deposited on the ground
- Pollution by military waste, and other hazardous substances as a result of military actions





Food Price Index



SUGAR	+21.8%
MEAT	+21.9%
DAIRY	+47.1%
CEREALS	+69.5%
OILS	+137.5%
FOOD PRICE INDEX	+58.5%

Price increase above 2014-16 average as of Apr. 2022.

Source: <https://www.fao.org/worldfoodsituation/foodpricesindex/en/>



- Ukraine can't wait until the war is ended, and foundations for land restoration must be put in place today by interaction with people on the ground who are able to work in an operational and agile way.
- Restoring safe and productive agriculture in Ukraine will take an investment in size and scope equivalent to a 'Marshal Plan'.
- This will need to begin with mapping farmland to document hazards and contamination and prioritise land for production, remediation and conservation.





Training of experts to assess soils damaged due to hostilities

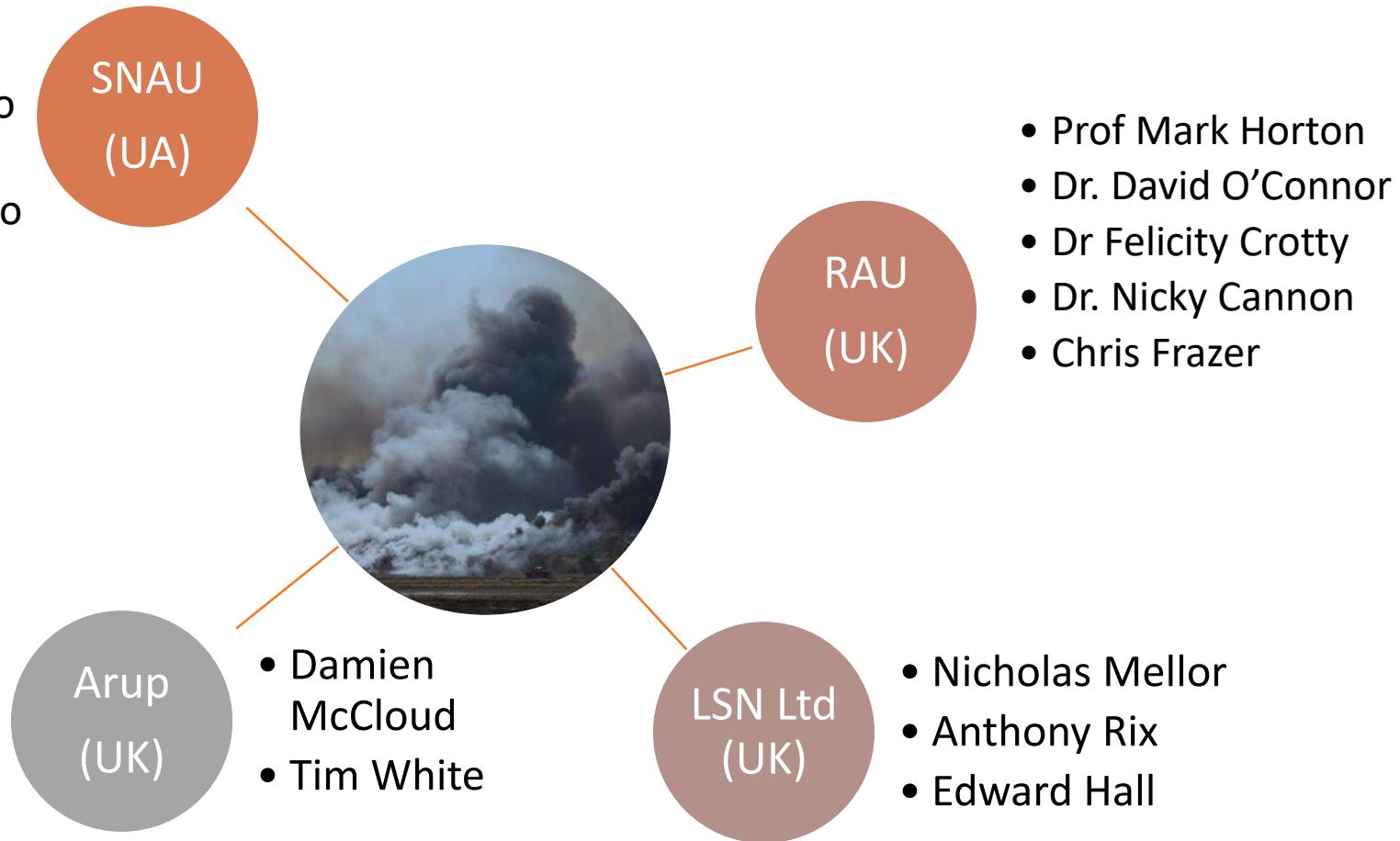


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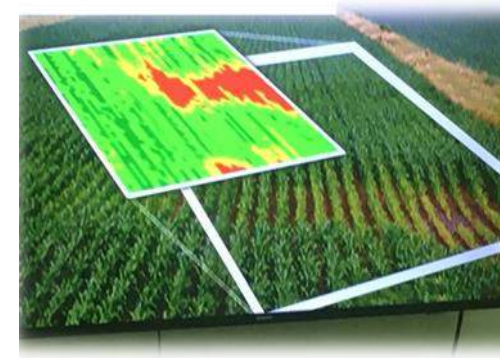
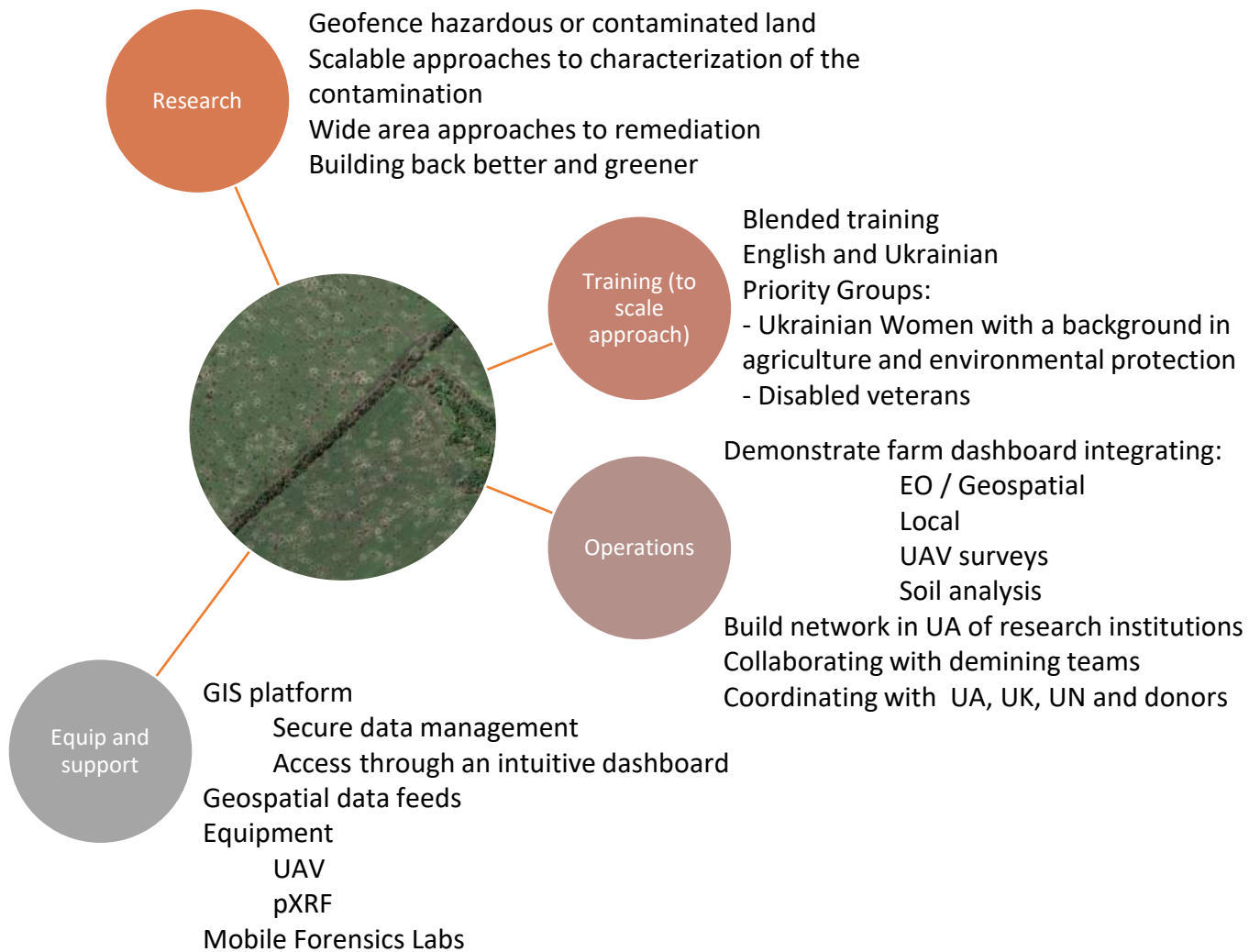




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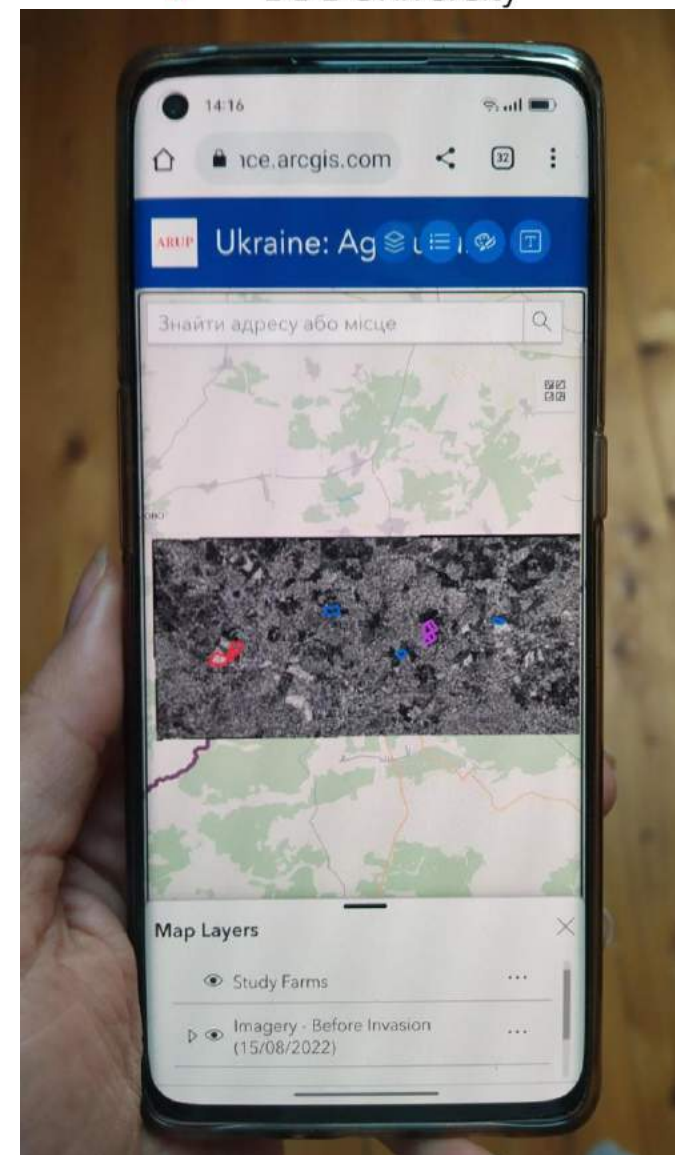
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The GIS app sponsored and developed by ARUP with details of the survey sites

- <https://tinyurl.com/UkraineFarmsStudy>, bringing together:
- Open Source EOS
- Spectral filters for analysing soil health
- Capacity upload survey site data





The Research Programme

- The research area - the oblasts of Sumy, Kharkiv and Chernihiv, which have all been strongly impacted.
- The research pilots a methodology to assess the extent of damage and contamination in soil.
- Field-mapping using UAV's and satellite imagery, soil sampling and plant analysis.
- Bench-marking landscape recovery after the cessation of conflict.





Outline Training Programme

- Curriculum development – with a focus on digital skills to be able to:
 - Blended approach 4-6 weeks
 - Compare and analyse geospatial data, UAV mapping and soil samplings
 - Provide recommendations on:
 - land decontamination
 - remediation options
 - ‘building back better and more sustainably.
- Recruitment and selection of potential faculty
- Mentoring for problem-solving in the field and skills development



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Thank you!

Do you have any questions?

Follow the project updates

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