

CUSTOMER
The HALO Trust

PROJECT
Clearing landmines
across the world

SOLUTION
Trimble R1 and R2 GNSS
and KOREC consultancy.
Esri software

CASE STUDY

Clearing landmines

Through its support of the HALO Trust with Trimble GNSS systems and extensive consultancy, KOREC has been proud to provide back up and affordable GNSS technology to support this charity.

Established more than 30 years ago, The HALO Trust (Hazardous Area Life-support Organization) is a British charity and American non-profit organisation specialising in the removal of debris left behind by war. HALO operates in war-torn countries and territories around the world and now employs over 9,000 men and women, 98% of whom come from the impacted communities.

Since its inception, accurate surveys and clear, up to date maps have been key factors in The HALO Trust's aim to 'make land safe, save lives and help families rebuild their lives' through its worldwide mine removal programme.

As a charity, HALO receives funding from governments and institutions, including the UK government, but is also dependent on support from the public and other sources. KOREC is proud to be a part of this effort through its provision of consultancy and Trimble GNSS equipment suitable for use worldwide.

Operational efficiency - accurate maps are key

Accurate maps are key to the Trust's work in a number of ways. These maps include the creation of boundaries clearly delineating areas to be cleared, the assessment of threat in certain areas and the actual position of each landmine after clearance. However, one of the most important maps that HALO will create is the one that is presented to the local community and national authorities on completion of a successful clearance operation. This map provides vital visual information on reclaimed areas which will allow local communities to access their land and infrastructure again.

All of these maps are reliant on the quality of data captured in the field and for many years The HALO Trust has managed adequately using basic handheld GPS systems, traditional survey methods and paper maps. However, the Trust's Global GIS & Database Officer, Jesse Hamlin, knew that operational efficiency would be vastly improved through better technology, improved accuracy and faster field data capture.

Jesse was also aware that whilst a dictating factor for a move to new GNSS hardware would always be affordability, other considerations had to be taken into account if the systems were to be suitable for use worldwide by a non-technical workforce of men and women from local communities.



HALO Libya staff using the R2 connected via Bluetooth to tablet for data entry into Survey123 in the field to map rubble piles contaminated with unexploded ordnance.

Key GNSS requirements

- Compatible with existing Esri field apps and office software
- Systems needed for decimetre (or better) and 20-50 cms accuracy
- Easy to use by local workforce
- Affordability
- No need for a base station
- Reliable positions, worldwide
- Portable and discreet
- Supported by a collaborative partner



Trimble R1 (left) and R2 (right)

As a user of Esri's Survey 123 for ArcGIS and ArcGIS Field Maps, the search for affordable hardware began at a pre-Covid US Esri conference. After a meeting with Trimble during this conference, Jesse, who like the charity is based in the UK, contacted KOREC (Trimble's distributor for the UK and Ireland).

GNSS priorities

Jesse came to KOREC with a clear idea of the type of system that the Trust would find most beneficial for its landmine clearance projects, including:

- The ability to deliver positions of decimetre accuracy or better for some projects, and 25-50 centimetres for others.
- GNSS systems that would be easy to use by a local workforce.
- GNSS hardware compatible with HALO's existing Esri field apps and office software for seamless data collection and transfer straight into the organisation's database and GIS for immediate use.
- Systems capable of providing reliable positions, worldwide, especially in areas with no mobile phone coverage.
- Systems portable and discreet in appearance for use in countries with political unrest.
- Systems supported by consultancy and a collaborative partner who would be able to provide advice and suggest adjustments.
- Affordable hardware with costs in keeping with HALO's charitable status and budget.
- Avoidance of a daily base station set up for corrections – a base station would be costly, time-consuming to set up, require power, reduce the team's ability to move quickly between sites and may not be secure in some areas.

KOREC consultancy

KOREC's Business Manager for Mapping, Richard Gauchwin, was keen to assist HALO in any way possible. He therefore suggested that HALO trialled two different systems, a Trimble R1 and a Trimble R2, both of which use RTX technology for submetre accuracy via IP or satellite:

- **Trimble R1:** A rugged, compact, handheld receiver, the R1 can be connected to any mobile device using Bluetooth connectivity - in this case a smartphone or tablet running Esri ArcGIS Survey123. The R1 is capable of delivering 20-50 centimetre accuracy using RTX corrections and requires no base station setup making it the ideal choice for the Trust's most mobile teams that can move sites daily.

The R1 is extremely discrete and portable making it an ideal tool for transportation and use in areas of political unrest.



Above: HALO Sri Lanka staff using the R1 connected via Bluetooth to tablet for data entry into Survey123 in the field. The programme is using the R1 and R2 to map clearance progress, mine lines, firing points and wells on the Muhamalai minefield, one of the largest and most heavily contaminated minefields in the world.

“ Before encountering KOREC, we had not managed to find a DGPS solution that would provide the functionality we required, at the right price, and be suitable for worldwide use. ”

Jesse Hamlin, Global GIS & Database Officer,
The Halo Trust

- **Trimble R2:** Capable of delivering between submetre and centimetre positions, the R2, although more expensive, is ideal for mapping explosive remnants of war in close proximity to one another. A flexible system, although more prominent than the R1, it can be operated mounted on a pole, a backpack or a vehicle. The HALO Trust was also pleased to be able to use it as a base station during its recent introduction of drone surveys. In areas with poor accuracy, such as next to tall buildings in Libya or in dense forest jungle in Sri Lanka, the R2 helped improve accuracy considerably compared to HALO's previous handheld GPS systems.

In both cases, Richard provided all the consultancy required to ensure that both solutions were suitable choices as well as extensive back up during the trial. The HALO Trust was delighted with both the trial and the service from KOREC, and consequently multiple R1 and R2 systems were purchased at a specially reduced rate in keeping with the Trust's charitable status. Although training requirements were minimal, this was also provided by KOREC.

The final map

Jesse concludes, "Before encountering KOREC, we had not managed to find a DGPS solution that would provide the functionality we required, at the right price, and be suitable for worldwide use. Richard has been with us every step of the way, patiently assisting the organisation through a process that has ensured we have made the best choices. Since then, he's always been on hand to deal with any questions or adjustments we might need such as sourcing a mounting which means the R1, like the R2, can now be used on a pole as well as held in the hand.

"The success of our work is closely tied to the quality of the data and maps that we produce during each stage of our mine clearance projects. However, the most rewarding map of all is the one that we are able to present to the local community and national authorities at the end of clearance project. This map shows precise, visual information on the areas that we have cleared and allows them to have confidence once again to safely use the land."

CONTACT US

Please do get in touch for further information on any of the products or services mentioned in this case study or just a chat about your requirements.

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Below left: Features taken using the R1 and R2 by the Sri Lanka programme on one of the sectors of Muhamalai minefield. Understanding the nature of the battle which took place on the minefield helps HALO's operations understand better the nature of the threat and clear the minefield in a more efficient manner, providing value for money to donors, beneficiaries and the Sri Lankan government.

