



Hi. Rene Saameli is the GIS Coordinator of the International Committee of the Red Cross. In this video, he will present how Geographic Information Systems can be used in emergency response. In emergency response, GIS can really help in getting a proper situation awareness. That means, on a map you can relatively simply represent where something has happened, where there has been some destruction, and where, potentially, you might have to intervene and provide support or bring in help. That's probably the most easy way to provide a simple summary of the situation post-disaster. Then also, GIS is very useful to start planning the response in terms of logistics, planning the routes-- where are we going to pass to bring supplies in-- or maybe to start rehabilitating an essential infrastructure. Knowing the topography, knowing the access roads, knowing potential obstacles-- maybe broken bridges and things like that. Again, the map is the perfect media to convey this very detailed information. Usually on the onset of an emergency, there's always this systematic scramble for baseline data.

Notes

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0m 05s





Sometimes there were no proper baseline maps-- there were not maps of the location of the villages, of the roads-- so this is where platforms like OpenStreetMap make a very big difference nowadays because through volunteers, a lot of very remote areas have been mapped where there were no maps in the past because there were no mapping agencies. Also, typically, one of the questions that my team gets in the field whenever there is an emergency is: Where are the ICRC assets? Where are our offices? Where are the residences, the logistics warehouses, and things like that? But on top of it, where are the essential infrastructures like hospitals, like health care centers? And this used to be a very big problem because those datasets are, most of the time, they are available somewhere-- hidden either in some government offices or even sometimes online-- but not necessarily easily accessible. Or then, sometimes they are available but in multiple Excel sheets. And when you really need those datasets, it's very hard to get them and get proper intelligence out of them. It's hard to know how accurate they are and how well updated they have been.

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1m 28s





This is one of the reasons we created this platform called healthsites.io where we try to be better prepared-- and not just ICRC, the whole humanitarian community and medical community at large-- trying to better prepare this baseline dataset of health care locations and health sites so it is available on the onset of any emergency. And that might sound-- I was discussing with a friend, recently, who was telling me that he couldn't understand that there wasn't today, already, some existing datasets of hospitals, and it's true that you find a lot of this data, but again, it's never easily available and in a comparable and standard format, globally. And especially not in disaster-prone countries where, very often, this information has not been made available. When it comes to provide very quick situational analysis and combining data sources from multiple sources to present them to different stakeholders, the map is a very good media because then you can put those different sources together, represent them on a common platform, on a common support, and then it's a very easy way to convey a particular message on specific needs in a particular area or let's say you are in a flood area-- there's an interest to be able to communicate with a certain set of people that are actually within that potential flood area, so you want to be able to direct that message particularly to them.

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2m 48s



And so, there again, geography is an important factor to channel certain types of information to certain people in different areas. And I would say that's an important factor because during emergencies, every single set of information is important and you don't want to overload people with unnecessary information, so being able to channel the right information to the right population is very important. For post-intervention monitoring, GIS is very good to locate, first of all, where interventions were done, and then to keep an institutional memory of what type of interventions were done where. It also acts as a basic database where you can have all of these interventions registered, and then you can monitor them over time, afterwards. GIS technology can be used by responders post-disasters, but it's also designed for the general public. So it's, at the same time, a very advanced and scientifically very accurate tool, but as well, designed to be understood--it can be used to be understood by the general public. Most of the people like maps. Usually maps are very easy to understand.

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Now, depending on how you make your map, you can very much overload it with lots of information and it becomes uncomprehensible, or you can leave aside all the unnecessary things and then pretty much everyone is able to understand it. It's also very interesting to see with satellite imagery that even communities that have never worked with the maps in the past, very quickly they understand and they realize what are the features that can be seen on the map: a forest, a house, a street-- they would recognize that very quickly on a satellite image. A few years ago, the major challenges when using GIS was to find data. Finding the data was the most difficult thing, especially in remote areas where there's no mapping agencies and things like that-- that was the major challenge. Nowadays, finding data is easy, but the bigger challenge is to find the right data-- knowing which data to use, knowing how old it is, how accurate it is, how well updated it has been. And also, a few years ago, GIS tools were technically relatively complicated, but there's been a huge progress in the user-friendliness of those tools and it has become very much accessible now for a large public that you don't have to have a long training in GIS now to start using GIS tools, and I would say tools like Google Earth are a very good illustration of that.

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There's also a trend now with GIS to do more and more with dynamic maps and online. It's true, these are very good platforms to illustrate the fast-changing rate and to update information that is changing frequently, typically coming from social media. Now, this information is not always easy accessible to the population that we work with, so sometimes we really have to go back to the paper map because this is the media that is the most easily understandable and that is also the most easily accessible. And even if you don't have electricity or adverse conditions, paper map will always be the best and most simple media to transfer a certain set of information. It's true that in certain countries, maps are still seen as containing some potentially confidential or restricted information, so dealing with maps in certain areas can be a bit sensitive. So it's always important to know beforehand what's the attitude of authorities regarding maps, and also whether you're allowed to use GPS, whether you're allowed to use even cameras and making pictures before starting collecting geographic data. In terms of data formats that are being used for different kinds of maps, there's also been huge progress in the last years where most of the GIS tools have become interoperable.

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What is ReliefWeb?

- Informing humanitarian worldwide -

ReliefWeb is the leading humanitarian information source on [global crises and disasters](#). It is a specialized digital service of the UN Office for the Coordination of Humanitarian Affairs (OCHA).

We provide [reliable and timely information](#), enabling humanitarian workers to make informed decisions and to plan effective response. We collect and deliver key information, including the latest [reports](#), [maps](#) and [infographics](#) and [videos](#) from trusted sources.

ReliefWeb is also a valuable resource for [job listings](#) and [training programs](#), helping humanitarian build new skills and discover exciting new career opportunities.

I love being introduced to new resources and how up to date it is.

- Graduate student, Boston College

ReliefWeb is constantly updated, and it's amazing. I use it all the time because it is always on the topic.

- Disaster Management Consultant, Red Cross

ReliefWeb is really well-dated, which is really helpful... I use the site a lot, it's fantastic.

- Communications Manager, World Vision

To learn more, visit our [FAQ](#)

How did ReliefWeb develop?

- One report at a time for 20 years -

That means that there's no more proprietary data sources-- they can all be used by multiple types of software and they can be converted from one format to another, which is a very important point because when you are doing coordination exercises, maybe post-disaster, if someone produces a dataset that cannot be read by the others, it's completely useless, so interoperability is a key element. To find geographic information for humanitarian response, there are multiple websites that do an excellent job at that, at aggregating such kind of maps. I would say the main one is ReliefWeb, obviously, that aggregates and that allows to publish situation maps from whatever kind of emergency.

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But then there are some more specific sites that will do data on particular damage assessments and I would say UNOSAT is a very good reference for that where, in case of floods, they will rapidly analyze the areas that have been flooded-- maybe count the buildings that are under water-- and they will publish that information as PDF maps, but also as web services so they can be used by other GIS tools to be overlaid on your own dataset, typically. Then there's other sources which are more related to baseline information. Again, OpenStreetMap is a very good source of baseline maps. In terms of the future of GIS technology and humanitarian works, basically, we see a lot of increase of data, at large, be it geographic or non-geographic, so the data management part is becoming an increasing part of the humanitarian work because we need to collect, assess, analyze, and interpret, basically, bigger and bigger datasets. Nowadays, those GIS tools and those data visualization tools are becoming more and more powerful, and they're becoming more easy-- they can be used by pretty much everyone because they're so easy to use.

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And so it's very tempting to take any kind of dataset that we've found on the Internet somewhere and render it in a very live and very good looking way on a live dashboard. And this can be a danger because when it looks nice, it looks reliable and it looks trustworthy, but the basic rule of "garbage in, garbage out" still applies, and that's sometimes a bit of a threat with those very nice rendering that we see more and more on the Internet, all over. In the humanitarian response, having access to not any data but to the proper data, that is well updated, that is freely available, is a major element in order to provide quick response. And very often, very good geographical data is not necessarily freely available, and I would say initiatives like OpenStreetMap, like Missing Maps, like healthsites.io, where there's a call to collect, but then also make data open and freely available, I would say is a major evolution in terms of GIS and humanitarian work and we need to really support that in the future as well.

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11m 20s



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