

Using 3D Printers in Emergency Settings: Humanitarian Supplies Made in the Field

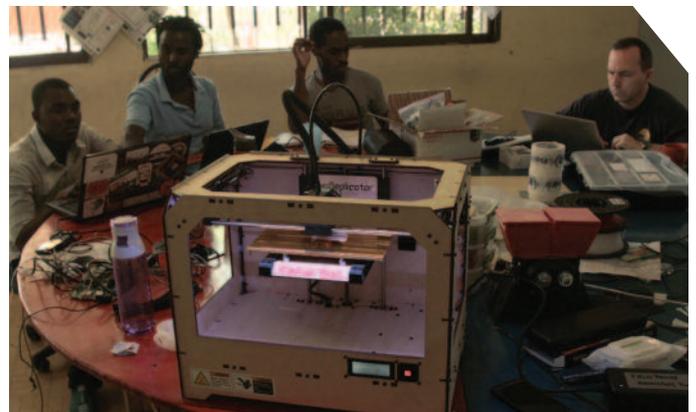
Rapid Manufacturing: Refining the Approach Field Ready

“3D printing in the field can transform humanitarian logistics. This project is highly significant because in some ways humanitarian aid relies on old ways of thinking and doing, but we need to take advantage of new technology. The way that technology is rapidly developing allows us to do things that previously we could only guess at. HIF has been absolutely vital for Field Ready – they ‘get it’ – they are set up to support things like this and without them we wouldn’t be nearly as far down the line as we are.”

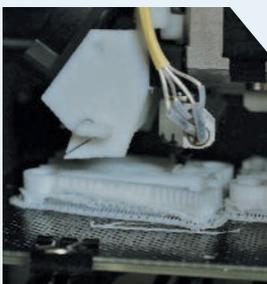
Eric James, Field Ready

The challenges facing humanitarian logistics are enormous; challenging contexts which lead to sudden and unpredictable spikes in demand, difficult to access locations, disruptions due to conflict or disasters. Simple procurement orders for items like medical equipment can take weeks and sometimes months. Logistics is not only central to any assistance project, it is also the most expensive. There are estimates that 60-80 percent of costs related to humanitarian aid is spent on logistics.

3D printing in the “field” can immediately and efficiently produce medical and technical components where supplies are needed most and can transform the way humanitarian logistics are done. Field Ready is improving supply chains through the use of technology, especially 3D printers (3DP), and engaging local people in this approach.



Field Ready has had two grants from HIF. The first grant allowed Field Ready to look at the application of new, smaller and faster manufacturing approaches using 3D printers. The second Large Grant will allow Field Ready to develop this innovation by documenting and creating practical action plans and guidelines. This will build on previously HIF-funded activities in Haiti which demonstrated the revolutionary potential impact of this approach and the potential to transform humanitarian logistics.



Using 3D Printers in Emergency Settings: Humanitarian Supplies Made in the Field

Project Title:

Rapid manufacturing: Refining the Approach

Key Information:

Lead organisation:

Field Ready

Grants awarded: 2014 - Small Grant to look at supply chains and rapid manufacturing for quick onset disasters with testing in Haiti and printing out a variety of small WASH components i.e. umbilical ties, 2015 Large Grant to build on previous work, to develop and train up staff, document and share information.

Partners:

TiKay Haiti (www.tikayhaiti.org), Haiti Communitere (www.haiti.communitere.org) Griffith University, Singularity University, Maya Design and Practical Action Publishing

Project Bases:

Haiti, California, Nepal

One sentence/paragraph description of the innovation (the elevator pitch):

Field Ready is implementing the application of new, smaller and faster manufacturing approaches using 3D printers and other techniques. The 2014 project in Haiti allowed Field Ready to demonstrate the impact and move toward wider application of this new managing supply chains. The second Grant in 2015 will allow application of new, smaller and faster manufacturing approaches for the transformation of disaster relief logistical supply.

What humanitarian need is being addressed?

Lack of supplies and long logistical chains in rapid onset disasters continues to be a significant challenge for humanitarian response.

What is the innovative solution?

This is a process innovation (at the invention stage) that provides services in new places that uses additive manufacturing (3D printing) in the “field” where supplies are needed most.

How does the innovation build on and improve existing humanitarian practice?

HIF funded activities in Haiti confirmed a number important points. Procurement in Haiti, for instance, is costly and time consuming. According to one local logistician interviewed, prices generally cost 200% above items sourced internationally. Other lessons learnt include:

Low awareness by aid workers of the potential of on-site 3DP and (hyper) local manufacturing for humanitarian purposes. At the same time a desire for aid workers on the ground to take advantage of this innovative approach.

Technical obstacles to overcome before 3DP can be used more widely. As commercial machines become more sophisticated, their suitability for the “field” has become reduced. In future, all systems need to operate both online and off-line and be more robust, reliable and easier to repair (in short, better for the “field”).

A comprehensive approach is needed to successfully field a 3DP programme. There must be a transfer of knowledge and technical capacity, which takes appropriate and specifically tailored materials as well as time to deliver. To do this, Field Ready have not only worked with global leaders in innovation and also coordinated and networked with others working in this area such as Griffith University, OCHA, eNable and MoreThanShelters.

Field Ready tests and prints designs closely with the people who will use them. For example, in Haiti, Field Ready spoke to nurses at a hospital three times in a week showing them different designs each time.

Potential Impact:

Field Ready aims to revolutionize the delivery of aid.

Anticipated impacts:

- 1) Survivors of humanitarian disasters will get critical lifesaving supplies when, where, and how they are most needed,
- 2) humanitarian supply chains will ensure the most efficient and cost effective distribution of humanitarian supplies,
- 3) disaster rehabilitation will be expedited and more cost efficient, and
- 4) communities devastated by disasters will be empowered (with knowledge, skills, and equipment) for economic growth and resilience.

www.fieldready.org

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