

Local Manufacturing in a Conflict Zone: Lessons from the White Helmets' PPE Project

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Contents

Executive Summary 1

Context: Healthcare in Northwest Syria2

About the White Helmets3

Ethics of Localization5

How They Succeeded7

Lessons Learned 14

Executive Summary

While the world has become increasingly globalized, humanitarian aid delivery has rapidly transitioned toward localization in the past decade. Actively partnering with and funding local actors has the potential to greatly increase humanitarian systems’ effectiveness. Local actors have greater access to and better understanding of culture and needs, making them invaluable assets in aid delivery. Encouraging local humanitarian interventions can also make aid more equitable by actively investing in capacity building.

We investigate the use of local manufacturing in a humanitarian response by evaluating the White Helmets’ efforts to manufacture personal protective equipment (PPE) in Northwest Syria during the COVID-19 pandemic. This initiative was born out of necessity — ongoing civil war, bureaucratic challenges, and international PPE shortages all contributed to difficulties in supplying the region through traditional humanitarian aid channels. Years of armed conflict and a decimated healthcare system had left the area exposed to potentially catastrophic coronavirus outbreaks. To help mitigate this risk, the White Helmets took it upon themselves to locally manufacture 8 million masks, 150,000 face shields, and 50,000 gowns for use by healthcare workers.

We examine how the White Helmets’ local manufacturing project enabled them to better identify needs and respond rapidly to them. By leveraging and building on local trust, the organization was able to deliver a successful humanitarian response. Beyond addressing short-term needs, the project also contributes to sustainable development in a conflict zone by offering employment opportunities and improving local capacity.

Context: Healthcare in Northwest Syria

A decade of the Syrian civil war has resulted in the displacement of over 11 million people and the deaths of over half a million people, including over 900 healthcare workers. Direct attacks on public health and water and sanitation infrastructure, as well as indirect consequences of conflict such as supply chain and staffing challenges, have led to increased difficulties with the management of infectious diseases. Communities in Northwest Syria rank among those most affected by the war. The healthcare system in the region has collapsed, with healthcare facilities operating below 1 per cent functionality. With such dramatic challenges with staffing and infrastructure, much of the community faces an urgent need for healthcare services.

Displacement, conflict, and poor governance have increased the region's infectious and noncommunicable disease risks. Previously eradicated diseases such as measles, scabies, and polio have resurfaced and spread among vulnerable populations. Individuals with noncommunicable diseases such as cardiovascular illnesses and diabetes have also had their treatments disrupted as critically injured and wounded civilians take priority in healthcare services. Moreover, the country has seen poor maternal and child health outcomes, malnutrition, trauma, and other physical and mental health concerns. To make matters worse, as the conflict continues, healthcare workers often choose to leave the country, and those who remain face highly stressful conditions including severe mental trauma, inadequate training (e.g., lack of specialization, working with incomplete medical training), a lack of physical and human resources, and fear of attacks on healthcare facilities and themselves.

Health directorates were established in opposition-held areas to address the community needs but have faced challenges including security, funding, and capacity. Additional short-term solutions to the public health and humanitarian crisis have also been implemented over the past few years, including the erection of field hospitals and the development of United Nations (UN) safe zones. However, the lack of robust support for protection and security and limited funding made these actions insufficient and inadequate to serve the needs of the community, even prior to the COVID-19 pandemic.

Northwest Syria and the COVID-19 Pandemic

On July 9, 2020, the first confirmed COVID-19 case in Northwest Syria was announced. Since then, the pandemic has placed additional stresses on the already strained healthcare system in the region. Risks for COVID-19 transmission remain high, resulting from the decentralized and fragmented health system governance, insufficient and inadequate personal protective equipment (PPE), poor infection prevention-and-control practices, and the severely scarce human resources. Physical distancing and self-isolation, which reduce viral transmission, are challenging in crowded settlements. An interviewee described how, because of the lack of financial security and the need to provide basic needs such as food for families, it would also be impossible to convince the population to stay at home.

Similarly, insufficient sanitation facilities and healthcare infrastructure make hand washing, as well as testing and treating symptomatic individuals, challenging. Securing practical tools and equipment such as protective masks is also a challenge because of global shortages and supply chain disruptions. The masks provided by the World Health Organization (WHO) are

primarily reserved for, but still insufficient, for healthcare workers, and those who can find an alternative supply are typically unable to afford an appropriate number of masks. While there have been examples of community-led engagements to address COVID-19 misinformation, the low perception of COVID-19's risk compared to other conflict-related risks (e.g., exposure to bombs, mental trauma) makes these efforts futile. The region therefore required additional aid to protect the already scarce number of healthcare and local humanitarian aid workers.

Policies and approaches that may be effective in developed settings may not be as well suited to developing regions or conflict zones. As the Ebola outbreak and other large public health crises have taught, sociocultural perspectives and community trust must be considered in areas where there is a mistrust of government and foreign workers.

The Hardest to Reach

People in Northwest Syria live in a region where the healthcare system is severely damaged. The lack of staff, infrastructure, and certainty have led these individuals to have challenges receiving basic healthcare or support for other physical and mental health concerns. The importance of access to adequate healthcare was further emphasized by the COVID-19 pandemic, which increases the risk of potential deaths and outbreaks in the region, especially among the internally displaced population (IDP).

As in other conflict zones, there are significant challenges to delivering humanitarian aid to the region. Risks of violence are as common as bureaucratic barriers. In 2020, Syria was deemed the deadliest place in the world to be an aid worker.

Northwest Syria is a non-government-held region, and this status brings further challenges. In fact, international humanitarian law, while

considering situations of non-international armed conflict (which includes civil wars), requires the consent of all the parties to the conflict to initiate humanitarian operations. For this reason, delivering aid to the region has been particularly difficult for international organizations. Despite several resolutions issued by the UN Security Council to facilitate the process, delivering aid in remote areas of Northwest Syria is challenging because of ongoing fighting, even though more than ten years have passed since the beginning of the war.

Because the area is a non-government-held region, the government has refused to supply aid there. Instead, supplies must be delivered through Turkey. However, Turkey imposed a temporary restriction on the export of medical supplies to meet its own demands to contain the virus. This reliance on Turkey therefore brings instability to aid, especially during border closures and policies related to the COVID-19 pandemic. International nongovernment organizations (INGOs) are also unable to deliver aid and cannot operate without the help of local organizations. In addition to the conflict-related risks posed by the civil war and the health risks posed by the pandemic, the additional bureaucratic, logistical, and security challenges in aid delivery make the population in Northwest Syria even harder to reach.

About the White Helmets

The White Helmets, formally known as the Syria Civil Defence, is a nonprofit humanitarian organization based in Syria. A grassroots organization made up of community first responders and volunteers, they were formed early in the civil war. Working on principles of neutrality, the White Helmets workers and volunteers provide humanitarian services such as warning, rescue, evacuation, and medical

services. During the pandemic, they provided aid through emergency response, medical screening services, and manufacturing medical equipment.

The White Helmets set up a local manufacturing project which is funded through a CAD \$1.6M grant awarded by Creating Hope in Conflict: A Humanitarian Grand Challenge, a partnership of the US Agency for International Development, the UK Foreign, Commonwealth and Development Office (FCDO), the Ministry of Foreign Affairs of the Netherlands, and Global Affairs Canada, with support from Grand Challenges Canada. Beginning in January 2021, the initiative aimed to produce and distribute personal protective equipment (PPE) including surgical face masks, protective gowns, and face shields, as well as to install a medical waste incineration plant for the safe disposal of PPE and medical waste. The PPE would protect local aid workers and healthcare workers to ensure that they are able to continue providing aid to the community.

Because of the significant shortages in supply of PPE, disruptions of supply chains, and challenges with internationally delivered aid at the time, the White Helmets decided on an approach that focused on local manufacturing to significantly

reduce procurement costs (see Table 1). The project is designed to be sustainable, eliminating uncertainties and the need to rely on external sources. The project is also innovative: it is the only one that manufactures PPE within Northwest Syria, and its effects should last beyond the COVID-19 pandemic through empowerment of the local population, and the population's increase in self-reliance and resilience.

	Local production cost per item	Market price in Turkey per item
Surgical mask	0.08 USD	0.30 USD
Medical gown	6.00 USD	10.00 USD

Table 1. Cost of manufacturing compared to purchasing PPE at the time of project proposal

As a part of the project, an existing White Helmets' uniform factory pivoted to manufacture PPE. The plan was to produce masks, protective gowns, and face shields for White Helmets volunteers and healthcare workers. These populations are particularly important to protect because of the already significant shortages in staff and their critical roles in providing aid to the public. By procuring a medical waste incinerator, they were able to properly dispose



Figure 1. White Helmets volunteers putting up COVID-19 informational posters (Credit: White Helmets and GCC)

of medical waste. From the repurposing of the facility to the manufacturing and distribution of PPE, the project relies on a network of local community volunteers. It also engages local businesses in Turkey and Northwest Syria to source and transport materials, and to repair and maintain machinery.

What's Involved in PPE Production

The White Helmets procure raw materials from Turkey. In their Northwest Syrian facilities, the organization has the capacity to produce 6,000 masks per hour. To ensure that their output meets necessary standards, they hired a quality assurance consulting firm to certify that their masks meet ISO 13485:2016 requirements. To manufacture face shields, they purchased a 3D printer and a laser-cutting machine and are using Open Source Medical Supplies (OSMS) designs. This manufacturing capacity can later be adapted to produce other humanitarian supplies. They are also using OSMS designs for their gown production.

Given sanctions and supply chain disruptions that limit the flow of items, including raw materials and equipment that can enter Syria, sourcing essential supplies is challenging and complex. Manufacturing in conflict-affected areas further complicates the work. The White Helmets have to be creative and resourceful in their process.

Ethics of Localization

The localization of aid involves a process in which the decision making about and then implementation of a humanitarian or development intervention is led by the affected community. However, in conflict zones, aid localization is often met with pushback because the affected community is involved in the conflict and presumably unable to be a neutral actor in humanitarian response. The principle

of neutrality is based on the concept that humanitarian aid cannot favour any side of an armed conflict. It supports the important idea that everyone affected by conflict should be treated with human dignity and deserves life-saving support regardless of their political views.

The White Helmets operate on a very fine line when it comes to their neutrality in Syria. Formally known as the Syria Civil Defense, they have been victims of targeted disinformation campaigns and labelled a terrorist organization, similar to the Islamic State, by Russia. Even though they have never aligned with any side of the conflict, the White Helmets' neutrality has been questioned in the context of Northwest Syria's fragmented governance system, the Assad regime, Russia's specific targeting of them through air strikes, and the fact that Northwest Syria is still considered contested territory in the international system.

The White Helmets believe themselves to be completely neutral and impartial. They commit to working in accordance with international humanitarian law and Article 61 of Protocol I of the Geneva Conventions (of 1949) through their adherence to the values of neutrality and impartiality. They are willing to serve anyone who comes to them for help and will rescue anyone who is in danger. Their operations are also not affected by the change in military status of the region they operate in, and they have no affiliation with any regime. They should be considered neutral actors in line with humanitarian principles because they are willing to work with anyone and everyone in the region.

However, it is also important to recognize that it is almost impossible for local actors to be perceived as completely neutral, even if they are acting neutrally. In this struggle local actors are not alone. Although the White Helmets act in accordance with neutrality principles, the Assad regime would not categorize them as such. During the Syrian

Civil War, even international humanitarian aid groups have been targeted as opposition.

When we spoke to individuals who had experience working for INGOs, they told us that neutrality for international actors is usually overstated while for local actors it is understated. One individual said that international actors can believe themselves to be neutral and impartial when they are not perceived that way on the ground. In Northwest Syria, one interviewee told us that organizations affiliated with the West are never seen as neutral actors. Since it is practically impossible to be perceived as completely neutral, INGOs and others employing localization of aid in conflict zones should ensure that local implementing organizations will be neutral in their operations. Projects that are neutral must be dedicated to serving anyone, regardless of which political side of a conflict they are on.

Localization's Outcomes and Opportunities

In the past few years, localization has become increasingly popular in the humanitarian field. In Northwest Syria, years of civil war and barriers to access for international actors have made

localization a viable alternative to more traditional aid modalities that focus on providing goods. Simply put, international organizations were unable to adequately respond to humanitarian challenges in the region. The threat that the Islamic State posed, coupled with the fact that international humanitarian workers were consistently targeted by the Assad regime, meant that Northwest Syria was considered too dangerous. International actors consequently became increasingly reliant on those already on the ground, proving that access is a key component to identifying needs in humanitarian response, updating and monitoring such needs, and carrying on sustainable projects.

The White Helmets PPE manufacturing project shows how localization can be the best choice for aid delivery in a conflict zone. The White Helmets were able to quickly implement a project that was a direct response to an urgent crisis, identifying the needs of the local communities and shaping the project itself based on the gaps that they had identified. Moving manufacturing inside the country made it possible to rapidly adapt and deliver supplies based on continuously changing local needs. This also mitigated challenges of cross-border

A NOTE ON GENDER CONSIDERATIONS

Because of cultural and gendered norms in Syria, women usually take on a primary caregiving role, performing tasks such as house cleaning and caring for vulnerable groups (i.e., children, elderly, the sick). As the pandemic worsened, the number of sick and vulnerable individuals increased, so women experienced an increased risk of exposure to the virus. The pandemic's socioeconomic stressors also led to intensified and increased gender-based violence.

The White Helmets' project is designed to be sensitive to gender to ensure that everyone regardless of gender and cultural background can be protected. For example, in planning the project, the organization considered women's and girls' needs, resulting in the production of masks and face shields that can be worn with the hijab. The masks were designed so that the elastic band would be secured over the head. Similarly, the face shield frames were movable to make it possible to fasten them to the hijab.

procurement and trade route disruptions and improved their supply chains' agility. While the success of local manufacturing in a conflict zone highly depends on the local context and every conflict zone is different, shortening the supply chain by manufacturing locally decreases lead time on delivery of final goods and improves information flows. This allows organizations to better match consumer demand and rapidly adapt to new needs. The combination of these factors allowed the White Helmets to reach, in only one year, the full number of gowns targeted (50,000) and more than half of the number of masks (4.5 million) and face shields (75,000).

In the long term, localization of manufacturing in a conflict zone helps postconflict economic rebuilding because it generates jobs for local people and improves wealth and local human capital. In one year, the White Helmets' project provided jobs for 75 local people who were trained and therefore improved their manufacturing skills. Given the success of the project in terms of targets met, the organization is discussing a potential expansion to deliver PPE to additional categories of people, which would require additional local labour.

The success of this project was also made possible by the White Helmets' previous activities in Syria, and their reputation among international funders. This inevitably played a role in the execution of the partnership with Humanitarian Grand Challenge (HGC) and in the autonomy that was granted to the White Helmets to manage the project.

How They Succeeded

The White Helmets successfully manufactured personal protective equipment (PPE) in a very challenging context because they were locals who could skillfully identify community needs promptly and efficiently. Being present on the

ground, they were able to shape the project in a flexible way, building a trustworthy and open relationship with the funders. Furthermore, manufacturing locally allowed them to rapidly adapt and deliver goods to end users, thus mitigating the disruptions and the bureaucratic challenges caused by the war. Finally, they shaped and developed their project by keeping in mind long-term results, and focusing on sustainability and local capacity building.

Identifying Needs

Local actors are better placed to identify local needs. International actors, because they are external to the community, are less likely to understand cultural norms and the major concerns that locals face on a day-to-day basis. Local actors have the advantage of community trust, lived experience, and cultural knowledge which means they understand the assets and needs of their own community. Similarly, international actors often operate with a short-term mindset because they are unlikely to have long-term plans for the region where they are operating. In this sense, local actors are better suited to identify what sustainable long-term projects are needed for their community to rebuild their livelihoods, create hope, and foster resiliency in a protracted conflict setting.

The White Helmets PPE manufacturing project highlighted how local actors are best situated to continually identify their own community's needs. They were successful at pivoting production to goods that were in greater demand in the region. In many instances throughout the project, the White Helmets felt comfortable voicing their concerns regarding targets they struggled to meet or when they required additional support. The project's success at maintaining a flexible, trustworthy, and accountable donor-recipient relationship with the Humanitarian Grand Challenge (HGC) proves that it is possible to partner with local organizations in a conflict



Figure 2. White Helmets volunteer picking up masks for distribution (Credit: White Helmets and GCC)

zone for a humanitarian response. The success of the project also suggests that this aid modality should be given more attention.

Flexibility

When international actors partner with local organizations, the priorities for certain humanitarian projects are often set up by international actors. This dynamic often leaves local actors with limited autonomy to dictate what their community needs. Local actors become subcontractors of implementation rather than partners. For the most part, international actors are unwilling to adapt their practices to the local level and at the same time they are reluctant to educate smaller local organizations on the skills needed to access funds at the international level. Consequently, an unequal relationship forms between international and local actors that is shaped by Western demands and methods, rather than a partnership that is based on a mutual agreement on the priorities for a particular community.

The partnership between HGC and the White Helmets did not exist without challenges that

required flexibility on both sides. The White Helmets' main challenges were logistical. Due to the challenges of working in Northwest Syria, including sanctions and a fragile financial system, there were delays in receiving money, which resulted in the White Helmets temporarily financing the project with their own funds. Had the White Helmets been a smaller organization in Northwest Syria with more limited resources, this would have been a major setback. However, both HGC and the White Helmets recognized that this challenge comes with operating in the region — sanctions and a broken financial system have made it difficult to send and receive capital. The White Helmets' ability to be flexible regarding the funding dispersal allowed for the project to continue while awaiting HGC's funding to come through. After HGC figured out the best way to get money in, the White Helmets were recompensated, and such logistical problems did not occur again.

When donors are working with local actors it's crucial that there is open dialogue surrounding reasonable deadlines that are informed by the community's capacity. HGC remained

flexible with deadlines and understanding about delays in project implementation. At one point, when the White Helmets lost some of their staff to bombings, HGC respectfully adapted the project timeline. Deadlines established through consultation with HGC proved to be a useful commitment device for the White Helmets. At one stage, when under pressure to remain on schedule, workers stayed overtime to meet the mask production target they had set. One interviewee told us that the workers were willing to stay because they wanted to make masks for their community. They were happy to do the work to prove the viability of their project and their resiliency.

Trust and Accountability

In the context of donors partnering with local organizations, trust is the belief that the organization involved has the strength to implement the desired project and that they will remain reliable and responsive throughout its duration. On the other hand, accountability refers to the organization's ability to act responsibly throughout all phases of the project (i.e., to not misuse funds or continuously delay). It is important that international donors not impose their own practices and priorities but, after appropriate due diligence, trust the local organization leading the way. Partnerships between international actors (international organizations and INGOs) and the local implementing organizations are often unequal. International actors tend to favour organizations that are seen as Western and have some semblance of international legitimacy that might lead to a higher level of perceived trust.

The White Helmets proven dedication, deep understanding of needs, and localized ways of working were pivotal in HGC providing funds, allowing them to set up Syria's first localized PPE manufacturing. In addition, the infrastructure to locally manufacture items already existed, and

with support from HGC, they were able to pivot and scale up to manufacture the essential PPE.

In terms of aid delivery, trust between donor organizations and recipients is necessary to deliver aid effectively and efficiently. In fact, to implement aid delivery practices that are sustainable, organizations need to have fundamental conversations with local communities — to understand which aid modalities would work best in a specific context and how they should be shaped. Local actors are part of the local community and have built their relationship with it over years, and even generations, thanks to their sustained local presence. For this reason, it is easier for them to communicate with local populations, deliver messages, and get feedback in a meaningful and productive way.

In Syria, local actors have succeeded in establishing communications channels, together with logistic and procurement routes that ensured delivery of essential goods. The White Helmets aimed to empower the local community — to give them a sense of responsibility — so that the local community itself could own the project's success. As a local organization, the White Helmets benefitted from the community's trust, which helped them raise awareness around the COVID-19 pandemic as well, ultimately increasing the demand for PPE and pushing the White Helmets to increase production and identify new categories of beneficiaries.

The rise of aid localization also brings concerns regarding accountability, the biggest being that localization results in a loss of direct oversight by international actors. However, it is possible for local actors to remain accountable to international donors without the rigidity that comes from current aid modalities and intrusive monitoring-and-evaluation (M&E) practices.

Canada has many regulations that require donors, such as HGC, to have full control over

where the funding for operations is going. While it is extremely important that there is financial oversight for funding humanitarian operations, it is also necessary that the implementation of responses is collaborative, and that financing is based on where the community wants the money to go, rather than what international actors think it should go toward. International actors can end up doing more harm than good because of their rigidity and unwillingness to be flexible in their practices. This can have detrimental effects in the community where they operate by creating a neocolonial relationship — believing that implementing partners by nature need to be under surveillance for accountability.

The White Helmets were subject to many M&E reports and were successful in remaining accountable to HGC by meeting agreed-upon deadlines. In certain cases, they explained to HGC that they were having trouble meeting a target by the set deadline. In these instances, HGC was flexible and extended their deadlines. This is an example where a donor understood that operating in a conflict zone involves instability and can cause delays in reporting which does not mean that the organization is unaccountable. The White Helmets also understood that to be accountable to their community, they had to ensure that their masks met a certain international standard. This posed significant delays in the mask-production process because they had to create various designs and procure from different suppliers to meet the international standard.

While accountability remains crucial in funding and implementing humanitarian interventions, there is a delicate balance between the need for accountability and the challenges of meeting accountability standards in a conflict zone. For example, certain standards could be adjusted for localization to ensure that they are attainable when operating in hard-to-access regions, such as Northwest Syria. One interviewee who

worked at an INGO suggested that this could take the form of “local standards” which are still internationally recognized and of high quality but based on the community’s capacity rather than one extremely rigid form that the international community will accept. It is also important that M&E is designed in collaboration with local organizations and that donors remain attuned to the context that local organizations operate in.

Agility

Beyond being better able to identify needs, involving local actors in the manufacturing of humanitarian goods presents opportunities to improve organizations’ ability to rapidly adapt and deliver goods to end users. These improvements stem primarily from structural changes to supply chains that implement local manufacturing, rather than importing foreign-produced products. By moving production in-country, organizations can mitigate challenges of cross-border procurement and improve the agility of their supply chains. Such adaptability is imperative for the ability to respond to local populations’ rapidly changing needs and to deliver timely aid.

Over the past few decades, advances in information and communication technology (ICT) have enabled the evolution of modern supply chain management models. Commercial supply chains leverage well-established transportation routes and effective ICT to enable agile, globally integrated supply chains. With rapid transportation and trade liberalization, manufacturers can use cheaper inputs (such as labour, technology, and raw materials) to produce goods. Moreover, end-to-end integration allows producers to leverage data to continually adapt production to changing demand. In doing so, they can implement just-in-time delivery of goods to reduce inventory on hand and warehousing costs. Further, the agility gained by shortening the lead time on delivering goods and improved

information flows allows companies to better match consumer demand. As such, they can avoid costly oversupply and undersupply of goods.

The benefits of shortening humanitarian supply chains by manufacturing locally are well exemplified in the White Helmets' operations. Since they work closely with end users of their supplies, the organization was able to quickly recognize the needs of the local population and adapt production to those needs. When demand for PPE was identified at the beginning of the pandemic, the White Helmets could adapt their existing local garment-manufacturing facilities to produce surgical masks, face shields, and gowns. As new needs were identified, they continued to rapidly adapt. For example, they identified how healthcare workers who wear the hijab have trouble using typical surgical masks. The White Helmets were able to immediately introduce a different mask design that is compatible with the hijab. If they had instead sourced masks from overseas, such a change would have taken far longer. Similarly, they were able to address a shortage of body bags by using the infrastructure and raw supplies available in their mask-manufacturing facilities. Finally, by producing PPE locally the White Helmets could overcome bureaucratic challenges: at the start of pandemic, Turkey was not allowing export of PPE, so procurement from overseas would not have been possible.

While operations in conflict zones face different constraints than typical commercial supply chains, local manufacturing allows humanitarian organizations to incorporate relevant aspects of the recent innovations in supply chain management. Delivery of goods to regions experiencing conflict tends to be very costly: disruption of trade routes, risk of violence, and bureaucratic challenges increase expenses and time needed for transportation. Global supply chains are thus limited in their ability to quickly

deliver aid. Employing local manufacturing allows organizations to mitigate the issues of cross-border end-product procurement, while incorporating aspects of supply chain integration. When humanitarian supplies are manufactured in-country, key production decisions are moved closer to consumption, allowing the producers to be more responsive to changing demand.

Unlike traditional models where changing product design or output quantities must be done far in advance because of long delivery times, manufacturing aid locally allows organizations to tweak supply with little notice. Moving decisions and final goods production closer to the end user is a promising development in humanitarian and emergency responses. As manufacturing technologies such as 3D printing become more accessible, responsive just-in-time production of a large variety of final goods can be accomplished with a few basic inputs.

Opportunities for Improvement

While local manufacturing of goods allows for numerous improvements in the delivery of humanitarian supplies, there are a few key areas that present opportunities for improvement. Chief among these are coordination challenges, which continue to hinder the operations of humanitarian organizations in Northwest Syria. With the large number of local actors working in the region, improved communication among them and more centralized planning of operations would streamline delivery of aid, reduce redundancies, and better identify gaps in coverage. For such progress, the international community must address incentives that discourage cooperation between organizations. In a setting where actors constantly compete for limited media and donor attention, sharing resources and information is unlikely when groups aim to maintain their advantage in attracting funds.

Finally, there are challenges in warehousing in conflict zones — warehouses are often targeted by insurgents and looters, making in-country storage of goods risky. If these challenges can be addressed, localization of aid manufacturing will become an even more effective tool in humanitarian responses.

Sustainability

In addition to the short-term advantages of localization, its positive aspects are extremely valuable in the long term as well because relying on local actors can provide a sustainable solution by improving local capacity and leveraging trust.

First, localization can be a more appropriate choice compared to international provision of goods and more traditional aid modalities in general because of its effects on local capacity. Relying on international actors to deliver aid has a limited effect on the actual improvement of local skills and makes countries receiving aid more and more reliant on international players if capacity is not built at the local level. Short-term approaches to funding often do not trickle down to local communities, nor do they allow for sustainable development or community ownership of the response.

In a conflict setting, short-term projects (e.g., food baskets to fight food insecurity) provide only band-aid solutions that create a gap in postconflict rebuilding. Using traditional aid modalities has shown a high risk of creating a dependent local economy and causing market distortion. For instance, one interviewee pointed out that refugee camps in Northwest Syria receive much international humanitarian aid but the population continues to live in a precarious situation because aid is not tailored to the local population's actual needs.

Localization can reduce this risk and help the local economy: creating and developing a local environment that can manufacture and

provide goods as needed at the local level can increase the number of jobs available, and consequently the wealth of the people. This is relevant in a conflict zone, where industry disruption is very common, and in particular in Syria, where the local economy has been devastated and access to basic goods is subject to continuous cut-off by regime forces. In this respect, outside of the immediate health response of providing PPE for healthcare workers, the White Helmets also employed and trained local workers to run the manufacturing facility and operations. In the first phase of their project, they employed 75 local people, mainly men, in the manufacturing process. Given the success of the project, the White Helmets plan to expand the range of products provided, as well as the beneficiaries of the products themselves. In the long term, this would positively affect the local economy even more by increasing the number of people involved.

In terms of skills development, instead of skilled international workers who are sent in only for specific emergencies and crises, operating locally with local people can train a new generation of aid workers (ultimately improving the local human capital) who can tailor their skills based on the actual needs of the local communities.

Local actors are always present, not subject to the limitations of access that international organizations sometimes face. With their sustained and continuous presence, local actors are able to create a bridge from humanitarian assistance to development. This process of knowledge sharing has long-term benefits that go beyond an immediate response to a crisis: since local workers are provided with skills that they can use to fight any future crisis, the risk of disruption is mitigated because there is less dependence on international players. Furthermore, knowledge sharing can be useful for tailoring interventions and projects to be implemented based on the specific needs of a certain place and time.

Local organizations can also adapt more quickly to changing scenarios and needs and can respond more promptly to new needs created by a conflict or other emergencies. Because local organizations are often part of the affected population, they provide built-in opportunities for contextually relevant interventions and local participation. Even environmental concerns regarding the emissions caused by shipping final goods and sending staff to a remote area can be mitigated by having skilled staff *in loco*.

Based on our interviews, the White Helmets' PPE project in Northwest Syria was able to adapt the manufacturing process to the local needs and to update the range of products based on specific local necessities. This shows how dynamic and more flexible localization is compared to traditional aid modalities. By setting up the foundation for a PPE manufacturing facility that is controlled locally, the community also gains confidence and hope in the face of conflict, building a sense of responsibility and ownership of the project itself.

Possible Challenges

Our research highlighted two main critiques against localization — specifically related to capacity: (1) there is no local personnel qualified enough and (2) the capacity of local actors to scale up intervention is still to be proven. However, looking specifically at the White Helmets' PPE project, it seems that these risks have been mitigated. First, the White Helmets were able to leverage their pre-conflict manufacturing skills, and where local labour was not able to work with complex programming methods, certain aspects of the project were reshaped to adapt to the local capacity. Second, their plans to expand the delivery of PPE to education centres and internally displaced persons camps in the medium term seems to prove their will and ability to scale up their intervention, addressing new needs as they arise.

Being able to leverage the community's trust is another advantage for local organizations. Building more trust in the long term ultimately expands their scope of work and the beneficiaries of the projects. The White Helmets' PPE project provides a clear example of this leverage and



Figure 3. Factory employee working on a mask for distribution (Credit: White Helmets and GCC)

increase in local trust. Because their work in the region became well known, more people reached out to them, requesting their services. The different stakeholders knew the White Helmets because of their years of work in the region and their reputation, and even more stakeholders came to know them thanks to their PPE project. Once more, trust allows for a response that is tailored to the needs of the community.

The White Helmets PPE manufacturing project was designed for long-term results. The White Helmets' immediate goal was to protect invaluable trained healthcare professionals, but what they envisaged in the long term was an investment in Northwest Syria to help build local capacity, create a sense of responsibility, and foster confidence in society. The White Helmets' priorities aligned with those of HGC, which allowed them to establish a relationship based on a mutual understanding of the importance of sustainability and long-term capacity building in the region. These shared values coupled with the support, flexibility, responsiveness, and adaptability provided by HGC helped counter the unequal partnership that often forms between international actors and local actors in aid localization.

Lessons Learned

The outcomes of the White Helmets' PPE manufacturing project are a testament to the organization's hard work. Beyond this, the initiative highlights several key factors that led to a successful implementation of localization in delivering humanitarian goods. We offer the following lessons for success in future interventions that involve local actors.

Partnerships with Local Actors Are Key to Successful Humanitarian Responses

Engaging local actors and leveraging local knowledge and feedback were key to the success of the White Helmet's PPE manufacturing project. Local actors are best able to identify the true needs of the community, which is particularly important in conflict zones where international organizations may not have physical access. Local actors can also better identify any trust that has already been developed within the community prior to a proposed project. Interviewees spoke of the challenge for international organizations to fully understand the demand and needs of the community due to mis- and/or underrepresentation in the literature and media.

Collaborative Funding Partnerships Are Imperative to Successful Localization

Donors must respect locals' knowledge of what is required to support their community. Ensuring successful localization of aid requires that local actors are involved from the beginning of a response in identifying the needs for funding and for setting their own project priorities.

It is also essential that donors are flexible in collaborative funding partnerships with local actors, especially when operating in a conflict setting as circumstances are rapidly changing. Donors must actively listen to the challenges that local partners are facing and encourage feedback (positive or negative) throughout the project's duration. To overcome some of the challenges local partners might face in implementation, donors have to be willing to adapt funding requirements and adjust project goals as new needs become identified.

Flexibility must be balanced with accountability. Monitoring-and-evaluation practices and

production targets are still necessary but should be shaped by the realities of operating in a precarious environment, such as a conflict zone. This may look like engaging in dialogue with local actors on the challenges of implementation that they face on the ground and collectively agreeing on a timeline that is realistic and achievable to them which also aligns with the donor's funding capacity.

Local Manufacturing Can Improve Humanitarian Aid Supply's Agility

By producing goods locally, aid organizations can mitigate challenges of cross-border procurement to improve the responsiveness of humanitarian supply chains. For organizations to deliver timely aid, it is imperative that they can readily identify changing local needs and are able to quickly adapt their supply to meet them. Local manufacturing enables this by moving production decisions closer to the end user.

Because manufacturers are part of the local society, their goods-production decisions get made in-country which allows for better identification of needs. Manufacturing locally also allows producers to quickly update designs to better reflect local needs. This presents a great improvement relative to cross-border procurement, which often faces long lead times. As production technology advances, local manufacturing will become an even more attractive tool in aid delivery — 3D printing, laser cutting, and CNC routing allow for the production of a wide variety of humanitarian supplies with a small number of raw inputs.

Building Local Capacity to Achieve Long-Term Sustainable Development

The long-term benefit of involving local actors is mainly related to local capacity building. As the White Helmets PPE manufacturing project shows, involving local actors helps the local economy that, especially in a conflict context, otherwise risks becoming dependent on foreign aid and becoming unable to work toward postconflict rebuilding. Involving local actors generates jobs for local people, improves their wealth, and ultimately increases local human capital.

Finally, training local people is more sustainable. Organizations do not need to rely on expert foreigners but can collaborate with workers who are more familiar with the local situation and needs and who can help frame projects based on those needs and local capacity. In this way, aid ends up being more effective and responsive to what people actually need and sustainable in the long term. Once locals are trained, they can be immediately involved once the next crisis comes. This prevents future disruption and improves local self-sufficiency and resilience, ultimately fostering local development.

Research Team



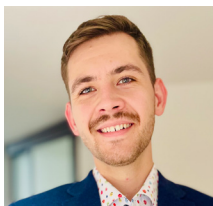
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Dario Toman is a doctoral candidate in the Department of Economics at the University of Toronto, specializing in development economics. His PhD research applies methodology from empirical microeconomics to studying questions at the nexus of armed conflict, violence, and development, with a particular focus on political economy. Prior to his PhD, Dario spent time at the Global Public Policy Institute as a research intern in their Peace and Security division. He holds a BA and MA in economics and has completed course work at the Peace Research Institute of Oslo.



Stanley Zlotkin received his medical training at McMaster University in Hamilton, Ontario, completed pediatric training at McGill University in Montreal, and obtained a PhD in Nutritional Sciences at the University of Toronto. He has worked as a clinician-nutritionist and research scientist at The Hospital for Sick Children (SickKids) since 1980. He is a senior scientist in the SickKids Research Institute and professor in the Department of Paediatrics, the Dalla Lana School of Public Health, the Department of Nutritional Sciences,

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The Reach Alliance began in 2015 at the University of Toronto as the Reach Project, a student-led, faculty-mentored multidisciplinary research initiative. The Reach Alliance has since scaled to include the University of Oxford's Saïd Business School and Blavatnik School of Government, the University College London, and Tecnológico de Monterrey. Reach's unique approach uncovers how and why certain programs are successful (or not) in getting to some of the world's hardest-to-reach populations. Research teams, comprised of top students and faculty from across disciplines, spend twelve months investigating each case study. Once the data collection process is complete, teams write case reports that are published and disseminated across the Reach Alliance's diverse network of policymakers, practitioners, academics, and business leaders.

Inspired by the United Nations' call to eliminate global poverty by 2030 as part of a set of Sustainable Development Goals (SDGs), our mission is to pursue the full achievement of the SDGs by equipping and empowering the next generation of global leaders to create knowledge and inspire action on reaching the hardest to reach.



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