CASE STUDY

SURPRISE SOAP:

Promoting handwashing among children in humanitarian settings

CONTENTS

ACRONYMS

FCDO	Foreign, Commonwealth & Development Office
HIF	Humanitarian Innovation Fund
HWWS	Handwashing with soap
IDP	Internally displaced persons
LSHTM	London School of Hygiene & Tropical Medicine
MEng	Master of Engineering
NGO	Non-government organisation
STC	Save the Children
VfM	Value for Money
WASH	Humanitarian water, sanitation, and hygiene

CASE STUDY SERIES: CONTEXT AND APPROACH

Since 2011, our Humanitarian Innovation Fund (HIF) has been supporting increased innovation practice in the humanitarian system. This case study is one of four that have been produced to evaluate the HIF's portfolio of funded projects. These projects seek to deploy innovative approaches to addressing a specific humanitarian challenge aligned with one of HIF's four thematic funding priorities:

- Humanitarian Water, Sanitation and Hygiene (WASH)
- Gender-based Violence (GBV)
- Disability and Older Age Inclusion (DOAI)
- Accelerating the Journey to Scale

Each case study examines the **impact of the innovation** and aims to identify evidence at two levels:

- Primary:
  - Assessing the project's impact on humanitarian outcomes.
  - Evaluating the project's contribution to or influence on shifts in humanitarian policy and/or practice.
- Secondary:
  - Understanding the project's contribution to increased learning and evidence, driving adoption and scale, and what the Value for Money (VfM) is of the innovation.

They also consider briefly:

- the **approaches and tools** grantees have developed, tested and implemented to innovate in the humanitarian system and address one of the four priority areas
- future **scope, scalability and opportunities** to embed lessons learned and emerging best practices
- **changes, challenges and barriers** during the innovation process and how they can be overcome to inform further innovation.

The case studies seek to contribute to a better understanding of what successful innovation looks like in the humanitarian sector and identify ways to evolve, disseminate and sustain best practices and innovative programming.

CASE STUDY METHODOLOGY

This case study uses a qualitative approach. It begins with an explanatory analysis framework which looks at existing data and information (secondary data) from documentation such as regular reports submitted to the HIF.

The analysis framework is used to identify opportunities for building on existing information on outcomes using a primary data collection method: key informant interviews (KIIs).

A purposive sampling method was used to find informants with the greatest potential for sharing rich and relevant information on outcomes to shape future opportunities, scalability, policy, and practice. The use of primary and secondary data sources aims to reduce the risk of bias for comprehensively identifying the contribution of the innovation's activities towards achieving positive, negative, intended, and unintended outcomes and/or impact.

Bodhi Global Analysis, an independent consultancy firm, conducted the initial document review and additional data collection through KII. Based on the draft they produced, the Elrha team restructured and edited the document to complement the main findings identified with additional, recent information provided by our grantees.

For this case study, Bodhi Global Analysis interviewed four key informants across the London School of Hygiene & Tropical Medicine (LSHTM), Field Ready and Save the Children (STC) UK.

CASE STUDY LIMITATIONS

Several constraints were experienced in preparing this study. The first was the lack of comparable studies on handwashing interventions with children in humanitarian contexts, making it difficult to make any comparisons about the effectiveness of Surprise Soap with other interventions. There was also limited cost data for the Surprise Soap intervention and any similar interventions, making it difficult to plausibly calculate or model cost per benefit (CpB) for this innovation.

Another constraint is that the results of the study in Somalia and Sudan are not yet finalised, and that, as they show conflicting trends with the pilot study, more research may be needed to guide a more nuanced approach to Surprise Soap implementation. There is also no data on the effectiveness of Surprise Soap beyond 16 weeks or its use with children with disabilities.

Finally, data provided by the innovation partners have not been independently validated, as this would require extensive in-country primary data collection.

1. PROJECT OVERVIEW

Organisation	Save The Children UK
Partners	London School of Hygiene & Tropical Medicine (LSHTM)– Research partner Field Ready – Design and distribution partner CARE International (Sudan) and Action Against Hunger (Somalia) – Implementation partners
Problem addressed/Thematic focus	Handwashing/WASH
Location	Iraqi Kurdistan; Somalia and Sudan
Project period	2016–2017; 2020–2022
Total HIF funding received	£511,954

2. INNOVATION OVERVIEW

This case study evaluates the HIF-funded project **Surprise Soap intervention**. The study briefly summarises the evolution of the innovation but focuses mainly on results and evidence from the HIF-funded activities.

HUMANITARIAN PROBLEM BEING ADDRESSED

Diarrhoea, and other faecal-oral diseases, can account for 40% of all deaths in an acute emergency.[1] In humanitarian settings, public health infrastructure is often compromised, and access to key services, such as drinking water and sanitation, can be limited and the environment highly contaminated. These conditions increase the risk of disease transmission and thereby threaten the health of already vulnerable populations.

In these high-risk environments, the simple act of handwashing with soap (HWWS) can be an effective means of preventing the transmission of important diseases, including diarrhoeal disease and pneumonia. Multiple systematic reviews have shown

[1]Connolly M.A., Gayer M., Ryan M.J., Salama P., Spiegel P., Heymann D.L. Communicable diseases in complex emergencies: impact and challenges. The Lancet. 2004;364(9449):1974-83.

that HWWS can reduce the risk of diarrhoeal disease by up to 48%[2] and the risk of pneumonia among children by approximately 25%.[3]

However, handwashing remains low in many emergency settings. The HIF's 2016 Handwashing Challenge[4] highlighted, amongst other barriers to handwashing, the need for an evidence-based understanding of solutions to promoting handwashing among children in humanitarian settings – a setting that had not been tested for innovative handwashing solutions before – to help inform strategies to improve WASH programming and services.

Traditional interventions for handwashing among children have been concentrated in schools and are typically resource-intensive and focus on health-based ('negative behavioural triggers' and emphasising risk) messaging emphasising risks and knowledge of diseases. Research from non-humanitarian settings suggests targeting specific motivations, such as play and curiosity for handwashing, may be more effective. The innovation focused on the household level in order to reach in- and out-of-school children.

THE SOLUTION

The Surprise Soap intervention includes the delivery of a novel bar of soap, with a small toy embedded inside, to children in a short, fun, interactive and child-friendly household session. It aims to incentivise children to wash their hands in order to reach the toy inside.

The innovation builds on the hypothesis that a rapidly deployable and simple household intervention, designed to appeal primarily to the motives of play and curiosity using a modified bar of soap delivered in a fun and interactive session, can increase handwashing at key occasions by children in a humanitarian emergency setting. The intervention is specifically designed to require little formal training of implementers.

The innovation is a two-fold innovation: it is a 'product/service innovation' in which modified soap bars include a hidden toy; and also a 'position innovation' – i.e., an innovation that is "*a change in how a product is targeted and delivered*"[5] by focusing on specific motivations for handwashing to ultimately inform better WASH programming, policies and practice within the humanitarian sector.

[2] Ejemot et al. (2008). Hand washing for preventing diarrhoea. Cochrane Database of Systematic Reviews.
[3] Rabie T, Curtis V. Handwashing and risk of respiratory infections: a quantitative systematic review. Tropical Medicine & International Health: TM & IH. 2006;11(3):258-67.
[4] Elrha (2016). Handwashing Challenging Handbook.
[5] ibid.

Design

The toy soap was co-designed by children in the Sharia Displacement Camp (Iraq), together with Field Ready, through an interactive prototyping workshop. The children were encouraged to provide feedback on the colours, shapes and smells they liked. The final product was a translucent soap bar of different colours with a toy animal embedded within it (see figure 1).

Figure 1: Hidden Incentives toy soap

Image source: Save the Children UK – Hidden Incentives Final Report (2017)

Delivery

There are two components to the delivery of Surprise Soap:

1. Soap production: In the Iraq study, the soaps were rapidly produced using 3D printing technology for the toys through a partnership with Field Ready, a non-government organisation (NGO) using technology and innovative design to shift manufacturing of humanitarian items to local economies. In the Somalia and Sudan study, the manufacturing was outsourced to a soap production company. Another option could be to provide training for the production of the soaps locally as an income-generating activity.[6]
2. Interactive play-based dissemination of toy soaps to children: hygiene promoters trained locally by STC UK, or its partners deliver game-based activities that encourage handwashing.

HIF SUPPORT FOR THE SOLUTION

The Surprise Soap project has received two grants from the HIF.

In 2016, HIF launched its Handwashing Innovation Challenge to support innovation in humanitarian settings that contribute to "*increase[ing] innovation in humanitarian practice resulting in demonstrated and cost-effective improvements in humanitarian action*".[7] In order to realise this, HIF's Handwashing Innovation Challenge sought to fill gaps in research, policy and programme design and practice by shifting from reactive to new, more proactive ways of delivering effective humanitarian relief.[8]

[6] Field Ready (2021). Surprise Soaps: starting small with big impact.
[7] IPE Triple Line (2017). The Humanitarian Innovation Fund External Evaluation.
[8] Ramalingam B., Scriven K., Foley C. (2009). Innovations in international humanitarian action: ALNAP's 8th Review of Humanitarian Action.

Surprise Soap was one of five selected projects in the Handwashing Innovation Challenge and received an initial grant of £219,268 from 2016–2017 to support a pilot carried out in an internally displaced persons (IDP) camp in Iraqi Kurdistan, led by STC UK, with Field Ready as an implementing partner and LSHTM as an academic evaluation partner.

Subsequently, the Surprise Soap team were awarded a second grant of £292,686 from 2020–2022 for the scale-up of the innovation project as part of HIF's WASH Evidence Challenge. This funding supported an extended comparative and longitudinal impact study in Sudan and Somalia, led by LSHTM, with CARE International (Sudan country office) and ACF Somalia as implementation partners and STC UK taking an advisory role. In the study, the Surprise Soap team tested their innovation with approximately 500 children across 400 households in the two countries.

EVALUATION DESIGN

Iraq: The innovation was piloted for the first time in the Iraq study with an aim to test the hypothesis that a rapidly deployable handwashing intervention which targets specific motives of curiosity and play can promote the handwashing of children of primary school age (between the ages of five and 12) in a humanitarian setting.

The project took place in Sharia Displacement Camp, an IDP camp located in the Dohuk Governorate of the Kurdistan Region of Iraq. The innovation team used a non-randomised controlled before-and-after (CBA) study design to test the above hypothesis. The trial was configured as a two-arm study, where one out of five camp blocks was assigned to intervention and another to control. Forty households from each assigned block were then randomly chosen for inclusion in the study.[9] The practice of HWWS at key times was measured at baseline and four weeks after intervention delivery. Children in the intervention group households were given the Surprise Soap intervention. The control group received plain soap in a more typical, health-based household WASH session of the same length.[10] It is worth noting that, during the study period, STC UK were promoting hygiene best practices in child-friendly spaces, schools and in the home. However, this was consistent across the entire camp, and exposure to any previous hygiene-related programming was deemed uniform enough for comparison for both the intervention and control groups by the research team.

Somalia and Sudan: In the expanded second trial, the team applied a cluster-randomised trial design with a similar structure to the Iraq study to allow for comparisons of results. However, the sample size was increased to give greater power to detect an effect and greater generalisability, and the follow-up period was

[9] With this sample size, the minimum detectable effect (MDE) was equivalent to a risk ratio (RR) of 1.45–3.6 for baseline handwashing rates ranging from 10% to 60%, 80% power and 5% significance.

increased to 16 weeks – roughly the length of time an emergency spends in the 'acute phase' where disease transmission is highest, and resources are limited. Children's handwashing with soap at key moments was measured in both intervention and control groups at baseline using 3-hour structured observations, after which promoters delivered the Surprise Soap intervention to children within the household in short, fun, sessions avoiding the use of health-based messaging. In control households, children received the equivalent quantity of plain soap delivered in short sessions using standard health-based messaging to control for both soap provision and the individual household visit. Handwashing was then measured again using structured observations at the mid-point and then at the end line to minimise children's reactivity to being observed and to allow the researchers to determine how long interest and response to the soaps is sustained. The team also conducted on-the-spot observations of handwashing facilities and the presence of the soap to determine if the soap was being used and how much of the soap remained at the follow-up.

3. OUTCOMES AND IMPACT

Summary table

Outcome /output	Result	Comments
Reach	**Total: Approx. 25,000[10] children.** HIF-funded: 1. Iraq: 100 children (40 households) 2. Somalia and Sudan: 500 children (400 households) Additional scaling: At least another 24,400 children.	Surprise Soap has so far been implemented further in Iraq (STC UK and Field Ready, ongoing beyond the original study), Somalia (ACF) and Sudan (CARE International) for the second Elrha-funded study, and in Kenya (Field Ready). World Vision is also running a Surprise Soap pilot in Syria and plans to run another in Somalia.

[10] Estimation provided in writing to the HIF by Field Ready in September 2022. Based on Field Ready's activity monitoring.

Handwashing rates	1. Iraq: Average fourfold increase in handwashing rates after four weeks against the control group (normal soap). 2. Somalia and Sudan: In Somalia, the intervention was associated with an approximate sixfold increase in handwashing rates. However, the same was true for the standard intervention received in the control group (plain soap and health-based messaging at the household level), so there was no statistical difference in effect between the two interventions at any time point. Sudan data analysis is ongoing.[11] 3. Additional scaling: Handwashing rates not monitored.	Data analysis for the Sudan study is still ongoing, but early results point to a higher effect of Surprise Soap than in Somalia. See further reflections on results in 'increased handwashing rates' section below.

Reach

Through the two HIF-funded studies, 600 children have used Surprise Soaps in Iraq, Somalia, and Sudan. Additionally, Surprise Soaps have been rolled out further in Iraq and implemented in Kenya by Field Ready and other partners. In total, **Field Ready estimate that 25,000 children have benefited from Surprise Soap** (as of September 2022).

Increased handwashing rates

Pilot (Iraq) study

The controlled before-after (CBA) trial in Iraq found that **children who received the intervention were four times more likely to wash their hands with soap after key handwashing occasions** than in the counterfactual (if there had been no intervention), based on the comparison to children in the control group. The table below shows the detailed results:

Iraq trial results[12]

HWWS prevalence	Baseline	After four weeks	Difference
Surprise Soap intervention (n=33)*	24%	40%	+16%
Control (n=38)	32%	13%	-19%**

*There were 40 households in both the control and intervention groups at the start of the study, but only 33 and 38 of those were included in the analysis because some households were lost to follow-up, and some were excluded from the analysis because there were no key events observed at endline. **The declining trend in handwashing exhibited by the control group is unexplained. The researchers posit that the decrease in handwashing can be explained by reactivity bias at the baseline, which dissipates at the endline.

[11] Early findings provided in writing to the HIF by LSHTM in October 2022. Subject to further analysis. Academic publication forthcoming.

[12] Watson, J. et al. (2019). Child's play: Harnessing play and curiosity motives to improve child handwashing in a humanitarian setting. International Journal of Hygiene and Environmental Health.

This project provided evidence that the Surprise Soap innovation is effective at increasing child handwashing practices within this specific, relatively stable humanitarian setting. The innovation also demonstrates that interactive household sessions focused on fun instead of health messaging may be effective at increasing handwashing frequency within the same setting.

Longitudinal (Somalia and Sudan) study[13]

The cluster-randomised controlled trial in Somalia found that both the Surprise Soap and the standard interventions were associated with a large change in HWWS practice, but no difference was observed between the two interventions at any time point. In this setting, where soap availability and past exposure to handwashing promotion is low, the Surprise Soap intervention performed no better than the standard hygiene intervention.

Effect of intervention on the proportion of key handwashing occasions accompanied by HWWS:

	Intervention	**Control**	**RR ***	**95% CI**	**P value**
Baseline (n, %)	28 (5.2%)	38 (7.4%)	1.32	0.74-2.32	0.34
Week 4 (n, %)	280 (55.1%)	291 (56.4%)	0.97	0.85-1.10	0.62
Week 12 (n, %)	281 (55.0%)	251 (48.8%)	1.06	0.89-1.27	0.52
Week 16 (n, %)	306 (58.0%)	281 (55.3%)	1.04	0.87-1.24	0.64

Generalised estimating equations analyses accounting for clustering at the household level.

*Adjusted for age, sex, number of children aged five to 12 in the household and number of household members earning an income.

These results from the second trial are preliminary but suggest that Surprise Soap is easily implemented by new partners, and the effect of Surprise Soap – quadrupling child handwashing rates – is sustained for at least 16 weeks. However, the effect seems to only be significant in settings where soap is already available, and past exposure to handwashing promotion is high (i.e., only the Surprise Soap intervention is novel to the children), as in the Iraq camp. In settings where soap availability and past exposure to handwashing promotion is low, it appears the Surprise Soap and the standard intervention are both highly but equally effective (perhaps because both interventions are novel to the children).

[13] Early findings provided in writing to the HIF by LSHTM in October 2022. Subject to further analysis. Academic publication forthcoming.

CONTRIBUTION TO, OR INFLUENCE ON, CHANGES IN POLICY OR PRACTICE

Change in practice

Key informants spoke of the difficulty in influencing the "rigid" humanitarian procurement/supply system to adopt the toy soap as part of standardised hygiene kits. However, this has not prevented the innovation from being adopted by other organisations. A small contract with Field Ready was made by an organisation in Basra that produced the soap for local distribution. Field Ready also delivered the intervention in Kenya with local partners. International non-governmental organisations (INGOs), such as UNICEF and World Vision, have also demonstrated interest in the toy soap. World Vision are currently implementing Surprise Soap in their programming in Syria.

Contribution to learning

The innovation's main contribution to learning is its robust, nuanced evidence of the experiences of children's WASH practices in humanitarian settings. For researchers and WASH practitioners, this research also provides a clear picture of the importance of simple, interactive interventions which target specific motivations for rapidly promoting handwashing among children in humanitarian settings. It also offers a better contextualisation of the motivational factors required for promoting WASH practices inside the household.

This evidence has been shared via the publication of a peer-reviewed journal article (2019) of the findings authored by LSHTM, STC and Field Ready, available from the International Journal of Hygiene and Environmental Health.[14]

The findings have also been presented at a range of sector events, including:

- Project presentation at an Erbil WASH Cluster Coordination meeting and the Erbil Hygiene Promotion Technical Working Group.
- Project presentation by Field Ready at The Digital Future of Humanitarianism panel session during the 2018 Bond annual conference, followed by a Development Network (DEVNET) talk at the Department for International Development (DFID).
- Project overview included in a practitioner lecture held by Field Ready's Innovation Advisor for the MEng in Engineering for Sustainable Development at Cambridge University.
- A project display at re:publica: the festival of the Digital Society by Field Ready in Berlin in 2018.
- Sample soaps with the innovation project overview were provided to the Board of Relief and Humanitarian Affairs (BRHA) (unknown date) and to the Iraq IDP Sharia Displacement Camp Manager.
- Outcomes and lessons learned shared at Elrha's Humanitarian Innovation Forum 2018 in Brussels.

[14] Watson, J. et al. (2019). Child's play: Harnessing play and curiosity motives to improve child handwashing in a humanitarian setting. International Journal of Hygiene and Environmental Health.

- Presentation of findings at the 9th Emergency Environmental Health Forum in 2019.
- STC UK's communication and media department to support the dissemination of innovation project findings across 30 STC country offices. STC Switzerland planned to submit a proposal to an innovation foundation in Switzerland.[15]

Another secondary learning is around the effectiveness of inclusive research and design processes that includes project participants or users with a similar profile to project participants and result in more appropriate solutions.

4. VALUE FOR MONEY (VfM)

The Foreign, Commonwealth & Development Office's (FCDO) '4Es' framework for VfM sets out the four key dimensions in assessing VfM, and we use this to structure our analysis:

- **Economy:** Are we (our agents) buying inputs of the right quality at the right price?
- **Efficiency:** How well are we (our agents) converting inputs into outputs? ('Spending well')
- **Effectiveness:** How well are the outputs produced by an intervention having the intended effect? ('Spending wisely')
- **Equity:** How fairly are the benefits distributed? To what extent will we reach marginalised groups? ('Spending fairly')

ECONOMY

The estimated cost for producing the Surprise Soaps for the pilot study using the 3D printers was £4.41 per unit of soap. This cost is not representative, as this approach could not be used on a larger scale, and most settings are unlikely to have access to 3D printers. However, as the soaps were produced locally in Iraq, this saved import and transport costs. For the subsequent trials in Sudan and Somalia, the cost was £2.50 per unit of Surprise Soap and £1.30 per unit of plain soap. These figures would also be reduced if the soap was produced on a larger scale, as they represent small-scale production by a manufacturer who had not made them before.

EFFICIENCY

In the pilot study, 350 soaps were produced locally, saving import costs and time. In the subsequent study, 5,000 soaps were produced in two weeks by a manufacturer in Jordan and then shipped to the study locations, which took several weeks. In this

[15] The final report submitted to Elrha by grantees mentioned that Surprise Soaps have been requested for future oral cholera vaccination (OCV) campaigns, however, it did not state who requested them and who will be carrying out the OCV campaigns.

case, the toys were procured locally rather than 3D-printed. This means that transportation costs were higher, but the toy cost was lower.

Furthermore, the innovation team have observed that the innovation is simple and quick to implement based on its immediate appeal to children. Two key informants noted that involving children in the design phase may have contributed to its appeal.

Finally, the innovation can be delivered outside of school and at home. Children can be reached quickly with the intervention product and activities.[16]

EFFECTIVENESS

The pilot study in Iraq demonstrated that Surprise Soap was effective at achieving its main objective in this setting: **it increased HWWS fourfold** against the control group.

However, the Somalia study results indicate that in settings with low existing access to soap and exposure to behaviour change intervention, Surprise Soap does not provide a greater benefit over distributing plain soap of high quality. This indicates that the additional costs of embedding a toy inside soap may not be justified in these settings. Formative research to understand the context variation in effectiveness should therefore inform the use of the Surprise Soap intervention.

It is difficult to compare the effectiveness of the Surprise Soap intervention directly with other interventions due to the differences in methodologies, contexts and target user groups involved in the study. No comparable studies detailing the costs of handwashing interventions in emergencies were identified, and the control groups in the two HIF-funded studies can be considered the most accurate comparison.

EQUITY

The innovation targets, and effectively achieves outcomes for, a vulnerable group, namely children in humanitarian settings. However, one key informant highlighted that reaching the most vulnerable people was not the main focus of the innovation; rather, it was more about mass reach for achieving behavioural change: "*You can't always reach everyone equally – so our focus was on reaching the most amount of people and creating behavioural change with it*".[17]

CONCLUSION

The Iraq study demonstrates that in this particular context—with existing high levels of access to soap and exposure to behaviour change interventions—Surprise Soap is highly effective and could play a significant role in reducing diarrheal diseases. The

[16] Key informant interview. 22 July 2022.
[17] Key informant interview. 22 July 2022.

study in Somalia and Sudan suggests that these increases in handwashing can be maintained over at least 16 weeks.

However, the Somalia results also indicate that Surprise Soap is not effective in all contexts: findings may indicate that where access to soap and exposure to behaviour change interventions is low, Surprise Soap is no more effective than standard, plain soap and basic behaviour change interventions.

The cost of the intervention is several times higher than standard soap (if the cost of different behaviour change interventions are assumed to be similar) with the current small-scale production set-up. Therefore, for Surprise Soap to achieve cost-effectiveness, two things must be in place:

- More evidence and guidance must be developed and made available to procurement and WASH decision-makers to help them understand precisely in which settings Surprise Soap may have a pronounced effect on handwashing rates versus standard interventions

- A large-scale manufacturer and distribution network must be established to bring down the cost of production of the soaps.[18]

5. THE FUTURE: EMERGING LESSONS AND OPPORTUNITIES

CHALLENGES

1. Logistics and manufacturing

In Iraq, the innovation team encountered logistical barriers to importing 3D printers as well as procuring raw materials for printing.[19] In Sudan and Somalia, the team had difficulties finding a local supplier, as raw materials for making soap in Africa are typically coconut-based – which is opaque, and, therefore, would not suit the toy soap innovation, as the toy would not be visible and hence likely not desired by children.[20]

Another challenge highlighted is in relation to the difficulty in producing the toy soaps at both small and large scale via 3D printing (difficult to have 'massive small' scale production, as you would need a 3D printer, corresponding software, and trained staff/community members to use it). Linked to this, it is difficult to manage the significant temporal and spatial fluctuations in demand. The team have explored options for managing this through partnerships with large production companies such as Unilever, but manufacturers require predictable and large-scale demand for the toy soap before they are willing to invest in production capacity.

[18] Save the Children UK (2018). Hidden Incentives Final Report.
[19] Save the Children UK (2018). Hidden Incentives Final Report.
[20] Key informant interview. 22 July 2022.

2. Achieving adoption from major aid organisations

Innovation takes time and investment to scale, and successful scaling of Surprise Soap would require long-term buy-in from major aid organisations, such as UNICEF, to include soaps in hygiene kits for mass distribution. It would also need coordination at regional levels to ensure enough capacity to initiate soap production and for distribution and uptake during surge.[21] As one key informant articulated: "*I think to get the soaps into standard hygiene kits, it will take a lot of time and producing more evidence. I'm not surprised that it [adoption into humanitarian sector hygiene kits] doesn't happen overnight!*"[22] Emergencies are not predictable, and it is a challenge to have the soaps available when and where they are needed. One possible solution to this would be ensuring that the soap is in stock at humanitarian agencies so that they can be distributed when an emergency arises. In more stable settings, local manufacturing may be possible, but care needs to be taken to ensure that this is a profitable and sustainable activity.

Additionally, scaling always carries 'fidelity' risks – ensuring that the innovation is correctly adapted and implemented by adopters. For Surprise Soap, one particular risk is around the size of the toy in the soap, as some toy shapes can be a potential choking hazard for children.[23] The innovation team will therefore need to provide guidance on technical specifications to ensure the safe implementation of the intervention by other actors.

Finally, the procurement processes of (larger) NGOs require the comparison of multiple suppliers and the selection of the cheapest option. Surprise Soap is more expensive than plain soaps, and, as the Somalia results suggest, results seem to vary significantly between types of contexts, so detailed guidance for adopters would need to be available: the series of Surprise Soap trial findings indicate that in settings with no previous access, using plain soap is just as effective, while in settings with good access to soap, the Surprise Soap intervention achieves much higher rates of handwashing than plain soap.

OPPORTUNITIES

1. Design

A key finding which may support the future adoption of the toy soap in humanitarian and non-humanitarian settings is the feeling of ownership of having something personal. As one key informant remarked: "*Children wanted to carry the toy soap around with them! I think ownership is key. Some agencies in the project location asked if we could create a travel pouch for them*"[24].

[21] Save the Children UK (2018). Hidden Incentives Final Report.
[22] Key informant interview. 4 August 2022.
[23] Key informant interview. 22 July 2022.
[24] Key informant interview. 4 August 2022.

2. Partnerships and shared learning

STC and partners could continue the conversation on toy soap WASH practices, forming, for example, a steering committee to advocate for the inclusion of toy soaps in humanitarian WASH kits and form partnerships with soap manufacturers such as Unilever to support production and distribution. There may be significant potential if one of the partners were able to bring on dedicated partnership staff and develop a marketing strategy for the toy soaps that could take the intervention to mass production and global scale.

3. Using windows of opportunity to drive adoption

An idea for the future (and present) from a key informant is that toy soap innovators could target WASH programmes while they are in progress in order to demonstrate the toy soap's effectiveness as a WASH promotion mechanism that is (1) a quickly deployable and (2) easily integrated into existing programme activities: "*Another mechanism for promoting the use of toy soap is to approach organisations while they are deploying WASH programmes…this is what we/IOT Makers did in southern Iraq after the success of the innovation pilot in the sharia camp. The toy soaps became part of the marketing for the WASH programme*".[25]

[25] Key informant interview. 4 August 2022.