

Waste Management at Rapid Onset Disaster Sites

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Debris is transformed to waste at disaster sites.



Photo by Gregory Bull, of
Port-au-Prince, Haiti, 2010



Photo: Supply Chain Mgt. Systems a project administered by USAID, taken outside of Port-au-Prince, Haiti, 2015

Discarded packaging creates a substantial waste problem.



Photo by Chris Herlinger outside of Port-au-Prince, Haiti, in 2015



Effective waste management systems are needed.



Research with Humanitarian Groups capture first hand accounts of waste at disaster sites.



Photo by Giles Clarke, of waste piles outside of Port-au-Prince, 2015



Photo: Frans Delian,
Male Port, Maldives 2004

Shipping waste to established processing plants is viable under certain situations.



Photo: The Resource Company,
Compacted metal bales, ready
for shipping. California, 2016



Plastic Brick development, credit:
Conceptos Plasticos

Plastic waste can be
recycled into useable
construction materials.



Conceptos Plasticos bricks for school development
partnered with UNICEF, credit: UN News



Photo by UN News, of a plastic classroom

Plastic structures provide an eco-friendly way to reduce plastic waste.



Photo by Inhabitat, of a plastic house



Photos of Puerto Rico
after Hurricane Maria in
2017

Assessing the viability of Waste
Management solutions
depends on local conditions



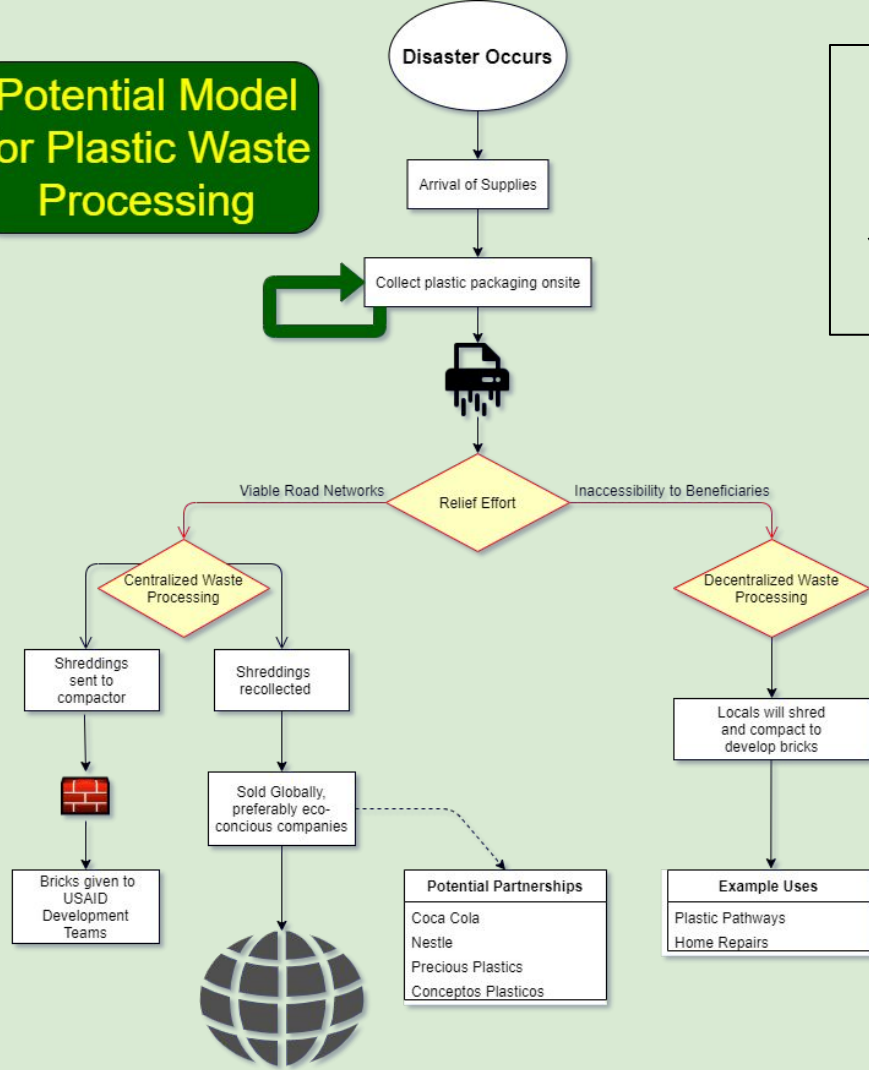
UNICEF/Conceptos Plasticos



Video by UNICEF/Conceptos Plasticos, of the plastic brick making process.

Potential Model
for Plastic Waste
Processing

Proposed Waste
Management
Solutions for Rapid
Onset Disasters



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Works Cited

Slide 1:

- Barker, Keith. "Coalition Urges U.S. Congress to Pass Legislation to Address Plastics Pollution." *Recycling Product News*, www.recyclingproductnews.com/article/34015/coalition-urges-us-congress-to-pass-legislation-to-address-plastics-pollution

Slide 2:

- 2010 Haiti earthquake. (2020, November 16). Retrieved December 09, 2020, from <https://www.britannica.com/event/2010-Haiti-earthquake>

Slide 3:

- Haiti Tackles Hazardous Pharmaceutical Waste. (n.d.). Retrieved December 09, 2020, from <https://2012-2017.usaid.gov/results-data/success-stories/securing-pharmaceutical-waste-haiti-protects-people-and-environment>

Slide 4:

- Typhoon Haiyan/Yolanda Response. (2015, August 26). Retrieved December 09, 2020, from <https://2012-2017.usaid.gov/news-information/photo-gallery/typhoon-haiyanyolanda-response?page=0%2C0%2C3>
- IOM Haiti Accelerates Distribution of Aid to Hurricane-Hit Areas. (2017, September 04). Retrieved December 09, 2020, from <https://www.iom.int/news/iom-haiti-accelerates-distribution-aid-hurricane-hit-areas>

Slide 5:

- Clarke, G. (2015). HAITI: WASTE IN TIME - GILES CLARKE: Getty Images Reportage: Photographer. Retrieved October 08, 2020, from <http://www.gilesnclarke.com/2068066-haiti-waste-in-time>

Works Cited

Slide 6:

- WorldAtlas. (2018, September 19). *What Was The Indian Ocean Tsunami of 2004?* WorldAtlas. <https://www.worldatlas.com/articles/what-was-the-indian-ocean-tsunami-of-2004.html>
- Resource Equipment Company. (n.d.). *Two-Ram Balers*. Resource Equipment. Retrieved November 27, 2020, from <https://resource-equipment.com/industrial-waste-recycling-balers/two-ram-balers/>

Slide 7:

- R, J. (2016, July 5). *Man Builds Homes for the Homeless Using Discarded Plastic!* Baba-Mail. <http://www.ba-bamail.com/content.aspx?emailid=21538>
- HyperNoir. (2019, October 24). Conceptos Plasticos partners with UNICEF to build schools made of plastic in Ivory Coast. Retrieved November 17, 2020, from <https://hypernoir.com/en/conceptos-plasticos-partners-with-unicef-to-build-schools-made-of-plastic-in-ivory-coast/>

Slide 8:

- Cooke, L. (2016). These LEGO-like recycled plastic bricks create sturdy homes for just \$5,200. In *InHabitat*. <https://inhabitat.com/lego-like-building-blocks-of-recycled-plastic-allow-colombians-to-build-their-own-homes/conceptos-plasticos-building-houses/>
- HyperNoir. (2019, October 24). Conceptos Plasticos partners with UNICEF to build schools made of plastic in Ivory Coast. Retrieved November 17, 2020, from <https://hypernoir.com/en/conceptos-plasticos-partners-with-unicef-to-build-schools-made-of-plastic-in-ivory-coast/>

Works Cited

Slide 9:

- “Hurricane Maria Nears Turks and Caicos as Puerto Rico Assesses Damage.” *CBS News*, CBS Interactive, www.cbsnews.com/news/hurricane-maria-path-puerto-rico-flooding-latest-update-2017-09-21/.
- Torres, Joseph. “The Communications Crisis in Puerto Rico.” *Free Press*, 31 Jan. 2018, www.freepress.net/our-response/expert-analysis/explainers/communications-crisis-puerto-rico.

Slide 10:

- UNICEF Côte d’Ivoire. (2020). Production of the first plastic brick [YouTube Video]. In *YouTube*. <https://www.youtube.com/watch?v=RNVoe3nroiQ>