Background

Wastepickers and Solid Waste
“Waste pickers can range from poor people rummaging through garbage in search of necessities such as food to informal private collectors of recyclables who sell to middlemen or businesses, as well as organized pickers/sorters linked to unions, cooperatives or associations... The term 'waste picking' is commonly used to refer to the task of extracting reusable and recyclable materials from mixed wastes. Many waste pickers also sort or segregate waste and sell it to persons or units further up the recycling chain” (WEIGO 2011).

In developing countries, it is common for municipalities to spend 20-50 percent of their available recurrent budget on solid waste management. Yet, it is also common that 30-60 percent of all the urban solid waste in developing countries is uncollected and less than 50 percent of the population is served. In some cases, as much as 80 percent of the collection and transport equipment is out of service, in need of repair or maintenance. In most developing countries, open dumping with open burning is the norm. (World Bank).

In Delhi, India wastepickers recycle 15-20% of the garbage... saving municipal authorities 24% of their expenses by removing waste from the waste stream.

Waste management presents a huge challenge for city governments and is a major source of GHG emissions. But it is also a key opportunity for generating “green” jobs and community enterprise. In Brazil, an estimated 500,000 people are employed in the recycling sector, with over 2400 co-operatives bringing decent work and social protection to some of the world's poorest people. But this represents only a fraction of the potential, as only 10% of urban waste is currently recycled.

In many countries, the informal sector of wastepickers recycle 50-100% of the garbage, achieving higher recycling rates than the formal systems in place. Wastepickers thereby remove toxins from trash in urban areas, and they salvage materials that could be reused. Yet they are in the lowest class, their contributions are disregarded, and they are often harassed.

Wastepicking is often a family business, and it is an organized process. Many live at the solid waste dumps (20,000 people in Kolkata, India; 12,000 in Manila, Philippines; 15,000 in Mexico City, Mexico), where they're exposed to health hazards, such as: cuts and pricks, toxins and dangerous materials from leaking trash and from the air when the trash is heated in the summer, and back pain.

Wastepicker earnings vary widely from region to region. Some make $1/day, whereas some make over minimum wage. Men usually earn more than women.

Wastepicking has traditionally been seen as an individualized way of living, which it makes it harder for wastepickers to gain more rights. Exact numbers of wastepickers in the world are difficult to estimate. Organizing helps wastepickers/recyclers see positive impacts of their work. Ie. They begin to think of better ways to manage waste, care about the community more, start bringing technology in (motorized carts
with regular routes as opposed to pushcarts), add value to the materials to be able to sell straight to industry, can influence labor system/law in the country.

Often, the larger management companies will destroy wastepickers' livelihoods. Small-scale technologies/practices tend to work better (recycling, composting, biogas, door-to-door collection, collecting & sorting recyclable materials)

Wastepicking provides the only livelihood for many of the poor. Therefore, completely getting rid of this activity will have negative impacts on poverty alleviation.

**Medical Equipment Waste**

“Waste generated by health care activities includes a broad range of materials, from used needles and syringes to soiled dressings, body parts, diagnostic samples, blood, chemicals, pharmaceuticals, medical devices and radioactive materials.” (World Health Organization)

In 2002, the results of a WHO assessment conducted in 22 developing countries showed that the proportion of health-care facilities that do not use proper waste disposal methods ranges from 18% to 64%. Unsafe disposal of medical equipment waste can lead to pricks for wastepickers. WHO estimated that, in 2000, contaminated injections with contaminated syringes caused:

- 21 million hepatitis B virus (HBV) infections (32% of all new infections)
- two million hepatitis C virus (HCV) infections (40% of all new infections)
- at least 260,000 HIV infections (5% of all new infections)

To get rid of medical waste, incinerators seem like the best solution. However, under some circumstances, including when wastes are incinerated at low temperatures or when plastics that contain polyvinyl chloride (PVC) are incinerated, dioxins and furans and other toxic air pollutants may be produced as emissions and/or in bottom or fly ash (ash that is carried by air and exhaust gases up the incinerator stack). Exposure to dioxins, furans and co-planar PCBs may lead to adverse health effects.

“Effective programmes for the management of immunization waste require both the assignment of legal and financial responsibility for safe management to the waste producer, and the responsibility of duty of care. Where possible, management of immunization waste should be integrated into existing health-care waste management systems” (WHO)

Donating medical equipment to areas of need can be helpful, for many clinics in developing countries lack supplies. Reprocessed equipment can cost 40-60% of new equipment. However, not all medical equipment is useful; supply should meet demand. Additionally, certain medical equipment must be donated with a manual/clear instructions, as well as supplies to stock the equipment.

**Electronic Waste (E-Waste) / Manufacturing Waste**

E-waste includes laptops and mobile phones that contain hazardous chemicals and materials

The UN estimates that 20-50 million tons of e-waste is produced globally every year (= 10,000-20,000 space shuttles). E-waste from the world is often dumped without regulations at hotspots in Ghana, Nigeria, India, Pakistan, and China.

Though electronics are donated to supposedly bridge the technological gap, 25-75% of “second hand goods” imported to Africa cannot be reused.
Biowaste (Human waste, Biodigesting, Post-agricultural processing, Food processing)
Organic waste can be used for further use such as animal feed or charcoal, farmers can save money by reducing post-harvest loss. Produce waste in developing countries leads to food wasted. Up to 50% of fruits rot from poor logistics and market infrastructure. 1600 calories/person/day is lost to wasted food (Waste, Uncovering the Global Food Scandal, 2009).

With 75% of the world's poor living in rural areas, increasing food produced within those regions can be more beneficial than importing food.

“Food production in Africa alone with decrease by 40-50% in the future due to climate change. Don't let the remaining food go to waste!” - Quote from Andrew Steer, Special Envoy for Climate Change, World Bank (November 16, 2010)

Wastewater
Solid waste that is dumped into water sources, as well as wastewater, contaminates water supplies for poorer populations. Through rigid guidelines and strict monitoring, it is possible to use wastewater, excreta, and greywater (with or without treatment)

Key Considerations and Judging Criteria
Solutions should be designed for implementation in communities living at or below the poverty level, where infrastructure is limited. Innovation, feasibility and impact will be important criteria in judging. Proposed solutions should be new, focus on measurable change, and aim for a price point that makes intervention accessible to the poorest populations and allows for dissemination on a large scale. Specific aspects to address include, but should not necessarily be limited to:

Credit will be given for supporting rationale regarding how the solution will directly address the issues faced. The needs of the poor are wide and varied and teams are not expected to address all issues surrounding deriving value from waste, however, proposed solutions should address a particular need and fill it well. Participants are encouraged to work on solutions with a specific community or region in mind, as this can be helpful in identifying constraints and providing context.

Supporting Initiatives
What systems, technologies, and designs will change waste and help alleviate poverty? Create it! Enter the 2011 Yunus Challenge in one of these ways:
Interested participants may enter proposals into the IDEAS Global Challenge, where special awards have been created to provide winning teams with funding to pursue their ideas. For more information, please contact Kate Mytty or check the IDEAS Global Challenge website.

Students are encouraged to apply for Public Service Fellowships (PSC), Internships and Grants that provide them with the opportunity to work on a potential program and with communities to develop a feasible solution which takes local context into account. For more information, please contact Alison Hynd or visit the PSC Website.

In the fall of 2011, D-lab will hold its first class focused exclusively on Waste. D-Lab Waste provides a multi-disciplinary approach to managing waste in low-and-middle-income countries with strategies that diminish greenhouse gas emissions and provide enterprise opportunities for marginalized populations. The course, comprised of lectures, fieldtrips, and guest speakers, studies waste management strategies in cities in Africa, India, and Latin America; examines case studies of collection, recycling, and waste-to-energy businesses developed in low-income settings; and researches public policy that supports sustainable,
integrated, solid waste management systems. Student teams develop waste management strategies that culminate in a two-week IAP trip to Nicaragua where students will work with a local NGO and the municipality, to assist in the implementation of waste management initiatives. For more information contact Libby McDonald.