

**Waste management and Bottle-brick House Project Fact sheet**  
**Battambang model house**

1. Title :	<b>Waste management and Bottle-brick House Project</b>
2. Location(s) of the action:	- <i>Battambang</i>
3. Total duration of the action (months):	3 months
4. Amount (in US\$)	\$14,300
5. Funding sources	EXO Foundation \$10,000 COMPED \$4,230 Local input, further funding will be developed after pilot phase completed.
<p><b>6. Background and rationale</b></p>  	<p>Plastic waste is becoming a plague suffocating seas, lakes, rivers, ground waters tables, as well as mammals and all life living in these ecosystems, as well as on land; it is estimated that over a million birds die every year from plastic waste accidental ingestion. It is as well affecting human health as the decomposed plastic materials are contaminating waters along the food chain locals heavily depend upon.</p> <p>In urban environment, plastic waste clogs sewages flows, blotting evacuation points it increases the impacts of potential flooding in cities. Secondly, the accumulation of plastic waste invades all public as well as rural areas deteriorating the beauty of landscapes, spoiling tourism sites and raising questions of hygiene in tourists' minds, one of the main criticisms from Asian tourists in Cambodia is that they find it 'dirty'. Thirdly the decomposition or burning in open air of these materials is an important source of Co2 emissions contributing to global warming and is a health hazard.</p> <p>Whereas most waste is now increasingly reused and so collected, light plastic waste such as plastic bags, straws, aluminium wrappings, styrofoam boxes, cigarette butts, etc. are not being collected as so far there is no economic value attached to it. As a result all non-collected waste is thrown away in an anarchic manner on land and water alike. With locals' income level rising, junk food consumption seen as a sign of richness is increasingly consumed and is a high waste generator. Increasing tourists' arrivals (both domestic and international) are adding to the pollution with plastic bottles, glasses, straws, take away food styrofoam containers etc.; being sold on tourism spots.</p> <p>The pollution from plastic waste in different forms is becoming a serious issue now acknowledged by local authorities. As locals sensitisation to environmental issues is still very limited if existent, there is a need to find a real motivation for them to start being more careful about it: on one hand reducing use of plastic in general and, on the other hand to dispose them in a more environmentally friendly manner that would limit the pollution of natural areas and ecosystems.</p> <p>Whereas a sensitisation campaign explaining the health hazards of such pollution for the environment, the food chain and thus, human beings is necessary, it would not be sufficient to curb this plague. The only solution is to give value to plastic waste and create an economic activity from recycling that would make it attractive and useful to some extent to the locals.</p> <p>This project looks at sensitising locals (through conference, theatre plays, comic book) and at creating new economic activities paying locals to fill plastic bottles with plastic waste of all sorts (while the price paid shall remain below the price of a brick but well above the price of empty plastic bottles sold by waste pickers), training others to build</p>

	<p>describing the process is available upon request. This technique was developed in Guatemala since early 2003 and had proven its efficiency as well as the solidity and robustness of constructions compared to conventional ones.</p> <p>Any kind of construction can be made: walls, benches, schools, toilets, health centers, community halls, houses, bungalows for tourists, etc.</p> <p>Apart from reducing the pollution of natural ecosystems, and reducing health hazards for animal life at large and human, this project allows as well reducing the cost of construction and can be easily reproduce by any household on a private basis.</p> <p><b><i>The Advantages of the bottle bricks for construction</i></b></p> <ul style="list-style-type: none"> <li>✓ It contributes to reducing environmental pollution especially in cities, villages, rivers, lakes and seas.</li> <li>✓ It is a simple recycling system, applicable worldwide.</li> <li>✓ It is hygienic, since it remains sealed with its own (bottle) lid.</li> <li>✓ This recycling system uses human –thus renewable, energy.</li> <li>✓ It recycles all plastic waste, soft and clean, without distinction; including cigarette butts, styrofoam, metallic paper wrapping, plastic bags, etc.</li> <li>✓ It avoids transport of waste, as the purpose is to collect local garbage.</li> <li>✓ It takes cubic meters of plastic into constructions, avoiding those to end up in dumping sites, in rivers or seas.</li> <li>✓ It provides new livelihood activities for people working at dumping sites, new skills for masons, new opportunities for construction companies.</li> <li>✓ It contributes to reducing emissions to the atmosphere, since it replaces pollutant construction materials.</li> <li>✓ It reduces high CO2 emission and deforestation caused by bricks making which production requires lots of energy, of wood and generates lots of CO2.</li> <li>✓ Brick making is also often using child labour in dangerous and very unhealthy working conditions</li> <li>✓ It avoids the purchase and transport of conventional construction materials, it can be sourced locally.</li> <li>✓ It is an effective isolating material.</li> <li>✓ It is earthquake-resistant.</li> </ul>
<p><b>7. Objectives of the action</b></p>	<p><b>Overall Objective:</b></p> <p>The overall objective is to reduce plastic waste being thrown out in natural areas, and to find economic alternatives to reuse and recycle waste which are currently not being collected. Create new economic activities for disadvantaged locals.</p> <p><b>Specific Objectives:</b></p>



	To construct buildings at reduced costs, to train some people to develop this activity. To sensitise tourists and locals to the consequences of using and throwing away plastic.
<b>8. Project scope and description including detailed activities planned</b>	<p><b>Activity 1:</b> Train local some waste pickers in same location where bottle house is constructed, previously selected and willing to undertake this task, on how to sort the plastic waste, clean it and fill the bottles. Bottle collection can be made as well through hotels that use hundreds every day. Create a comic strip to be distributed to locals explaining the risks of waste anarchic disposal on people and environment.</p> <p><b>Activity 2:</b> Design building according to expectations and select a few masons to be trained on how to develop this concept.</p> <p><b>Activity 3:</b> To disseminate sensitisation materials on waste management and use the building constructed as a model.</p> <p><b>Activity 4:</b> Continuous training and construction of such buildings benefiting the poorest.</p>
<b>9. Target group(s)</b>	Locals and tourists
<b>10. Final beneficiaries</b>	<p>City authorities as we clean sites.</p> <p>Locals at large for reduced pollution of their environment and reduced induced health risks.</p> <p>Waste pickers and locals communities improve their revenue from the sale of bottles filled with plastic waste.</p> <p>Some masons to be trained how to build these houses made of bottle bricks.</p> <p>Tourists who can thus enjoy cleaner sites, also a possibility in the future to use this as a volunteer activity to offer to tourists willing to contribute to something useful.</p>
<b>11. Expected overall outcome</b>	Locals are sensitized to the risks of anarchic plastic waste disposal. The site is cleaner and locals are aware of the issues at stake and dispose of their plastic waste in a more environmentally friendly manner. An economic activity is created and handled by local people.
<b>12. Expected specific outputs</b>	<ul style="list-style-type: none"> <li>• Buildings made of plastic bottles bricks are constructed.</li> <li>• Waste is better disposed</li> <li>• Some locals earn revenue from the activity.</li> </ul>
<b>13. Time log</b>	Start February end April 30
<b>14. Monitoring and evaluation</b>	EXO Foundation and local partners
<b>15. Implementing agencies, organisations</b>	The EXO Foundation acts as a coordinator and funding source; COMEPD acts as executive
<b>16. Linkages with other projects/ organisations,</b>	Phare Ponleu Selpak graphic school designed the comic strip Hotels willing to give away their empty plastic bottles City of Battambang