অধ্যাপক খোন্দকার সিদ্দিক-ই রব্বানী
চেয়ারপার্সন
বায়োমেডিকেল ফিজিক্স এন্ড টেকনোলজী বিভাগ
ঢাকা বিশ্ববিদ্যালয়
ঢাকা- ১০০০, বাংলাদেশ

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Technique to provide safe drinking water in disaster struck regions

- To persons working for disaster relief around the globe: for the present in Nepal and Vanuatu

Safe drinking water would be one of the most needed items for the surviving victims of the disasters in Nepal and Vanuatu. We have developed some simple devices based on 'Green House Effect' that use solar radiation to Pasteurise water to make it safe to drink, in sizes and costs that are appropriate for single families or small units. The main advantage is that the users can make the devices themselves using simple materials, commonly available around the house, or in the local markets of the low resource countries. More than 60^0C, needed for Pasteurisation, is achieved in about an hour in tropics and the subtropics; 2 hours is suggested to keep a safe margin. A typical device will Pasteurise 5 to 10 litres of water in one session, and one can use it for two or three sessions in a day depending on the weather conditions and the length of the day. One can also Pasteurise water in small transparent polythene bags which can then be distributed to the surviving victims.

All biological microbes that cause diarrhoeal diseases are destroyed through these methods. We have carried out extensive microbiological studies of water from different sources treated using our devices, all proved its efficacy. Most fresh surface water from rivers, canals, ponds and lakes can be treated to make the water drinkable using these techniques. The only ones that should not be used are those that have been chemically contaminated (polluted by industrial waste, insecticides, arsenic, etc.) as these contaminants are difficult to remove in domestic scale low cost devices. Also to be kept out is saline water in the coastal areas.

We have also developed simple devices to collect rainwater in a clean condition so that it is not contaminated by dirt, rotten leaves or bird droppings, so that it can be consumed straightway.

We had published a booklet, with funding from UNESCO, giving the details of these techniques so that any person can make the devices. Besides, any person with a little knowledge of science will be able to improvise the devices if the exact materials are not available in any country or region off hand. The booklet is available free online from the website below:
http://bmpt.du.ac.bd/publications/books-chapters/
(please click the download instruction on item 04)

We feel that since your organisation may be involved in mitigating the sufferings of disaster victims in Nepal and Vanuatu, you may benefit from these techniques for providing safe drinking water. If you want any further information, please feel free to contact me.

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