

Title of case study	Climate controlled greenhouses
Name of organization(s)	Greenfield Hydroponics Systems, Inc.
Business sector	Agriculture
Region(s) relevant to case study	<input type="checkbox"/> All regions <input type="checkbox"/> Africa and the Arab States <input checked="" type="checkbox"/> Asia and the Pacific <input type="checkbox"/> Caribbean and Central America <input type="checkbox"/> Europe <input type="checkbox"/> Least Developed Countries <input type="checkbox"/> North America <input type="checkbox"/> Polar regions <input type="checkbox"/> Small Island Developing States <input type="checkbox"/> South America
Country(s) relevant to case study	India
Adaptation sector(s) relevant to case study	<input type="checkbox"/> Business <input type="checkbox"/> Education and training <input checked="" type="checkbox"/> Food security, agriculture, forestry and fisheries <input type="checkbox"/> Human health <input type="checkbox"/> Oceans and coastal areas <input type="checkbox"/> Science, assessment, monitoring and early warning <input type="checkbox"/> Terrestrial ecosystems <input type="checkbox"/> Tourism <input type="checkbox"/> Transport, infrastructure and human settlements <input checked="" type="checkbox"/> Water resources <input type="checkbox"/> Other (please specify):
Adaptation activity	<p>Greenfield Hydroponics Systems, Inc. is the manufacturer of US and Canadian patented solar photovoltaic and wind powered portable and fixed structure greenhouses. These eco-friendly and self-sufficient greenhouses are capable of growing organic crops in a range of climatic conditions. Greenfield believes this technology is the key to fighting drought, starvation and famine across the world in the most cost efficient way.</p> <p>Between 1985 and 1987 India suffered severe consecutive droughts across the majority of its states, resulting in huge loss of livestock due to a lack of available fodder. This motivated Kashyap Bhatt, a non-resident Indian living in</p>

	<p>Canada, to develop a solar powered portable greenhouse to grow green fodder round the year. In 1987 the first prototype was built in India and since then research and development continued to create an automatic system that can grow various crops under controlled climatic conditions in +50° Celsius to -50° Celsius ambient temperature.</p> <p>In countries with limited land, the housing needs for a growing population and industrialization in urban areas is using up agriculture land near the cities, and has forced the agriculture sector to move to rural areas or has created dependency on the import of agricultural products. Furthermore, the lack of a dependable electricity supply in many Indian villages has greatly hindered agricultural development in many rural areas. The portable greenhouse, which works on the principal of hydroponics, could meet a developing country's ever-growing demand for fresh vegetables and animal fodder, while at the same time reducing demand on present water and electricity requirements.</p> <p>The portable greenhouse is made of fibreglass or metal and insulated with polyurethane or glass wool. Its windows have 90% light transmission capacity and outstanding heat deflection properties. The operation of the water pump, environmental control system and fluorescent lights is regulated automatically so that all three systems work economically and efficiently. Water is recycled over 24 hours.</p> <p>The technology has been increasingly refined and has been awarded numerous prizes including the 2009 Development Market place award by the World Bank. An additional advantage is that the system qualifies for CDM funds and carbon credits, making it a potentially attractive investment for organizations or individuals keen to offset carbon emissions and aid development.</p>
<p>Cost-benefit</p>	<p>These portable, climate controlled greenhouses present a business opportunity in countries where increasing temperature ranges, erratic weather, droughts and shortages of land are common. Thanks to their simple design and use of solar power, the greenhouses are cost effective to construct and operate. The increase in crop yield, in addition to the possibility of carbon revenue, adds significant value to this product.</p>
<p>Case study source(s)</p>	<p>Greenfield Hydroponics website</p>

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