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The real cost of a bag of salad: You pay 99p. Africa pays 50 litres of fresh water

By Jeremy Laurance, Health Editor

To you it is a bag of salad, dropped into the supermarket trolley with the weekly groceries. But to farmers in Kenya starved of the water extracted by large scale agriculture to grow it, it may spell destitution. The world is running out of water and British supermarket shoppers are contributing to global drought, according to environmental pressure groups.

Customers who scour the aisles of Tesco, Sainsbury and Waitrose for Spanish tomatoes, Egyptian potatoes and Kenyan roses, are intensifying the worldwide shortage of our most precious resource.

In Kenya, the food items grown for export include lettuce, rocket, baby leaf salad, mangetout, peas and broccoli. Even producing a small 50g salad bag wastes almost 50 litres of water in the countries where the commodity is at its most precious. A mixed salad containing tomatoes, celery and cucumber, as well as lettuce, would require more than 300 litres. Washing, processing and packaging adds to that total.

The international trade in out-of-season vegetables and flowers brings employment for some and wealth for a few.

But for those who find the water for their land has been extracted by larger enterprises upstream, it means increasing hardship and even permanent environmental damage.

Bruce Lankford, a senior lecturer in natural resources at the University of East Anglia, said yesterday: "We are exporting drought. High-value agriculture is good for the economies of these countries but its impact on poverty is inequitable. In the dry season farmers downstream [of irrigation schemes] find the river beds have dried out."

A Channel 4 film *A World Without Water*, to be broadcast this evening, spells out the consequences of the growing water shortage and the coming battles over it. Water is increasingly being seen as a tradeable commodity and a source of profit, which is depriving the poorest of one of the essentials of life.

As well as from Africa, many of our salads are sourced from the drought-stricken south of Spain, where rainfall last year was the lowest since records began. Tomato production requires desalination plants that use large amounts of energy and have resulted in high salt levels along the coast. The area under plastic sheeting is now so large it can even be seen from space.

In Egypt, vegetables have become such an important export that the government has threatened military action against any country upstream that dams the Nile or its tributaries. Half of all cut flowers sold in British supermarkets come from Kenya, where the volume of exports to Britain grew 85 per cent between 2001 and 2005.

Roses and carnations are the area's speciality, but the demand for water from nearby Lake Naivasha is unsustainable.

David Harper, a biologist at the University of Leicester, who has monitored the lake for the charity Earthwatch for 17 years, said: "Naivasha is being sacrificed because we require too much water. Almost everybody in Europe who has eaten Kenyan beans or Kenyan strawberries or gazed at

Kenyan roses has bought Naivasha water. It is sucking the lake dry. It will become a turgid, smelly pond with impoverished communities eking out a living along bare shores."

Forty years ago, the nightmare vision presented by experts such as Paul Ehrlich, the Stanford University biologist, in his book *The Population Bomb* was that the population was growing so fast the world would be unable to feed itself. That disaster did not happen thanks to an extraordinary increase in crop yields driven by huge investment in irrigation schemes. But this has created a new threat.

Fred Pearce, the author of *When The Rivers Run Dry*, says: "Today the world grows twice as much food as it did a generation ago but it uses three times as much water to grow it.

"Two-thirds of all the water abstracted from the environment goes to irrigate crops. This use of water is massively unsustainable and has led many people to conclude that the apocalypse wasn't averted, it was merely postponed."

Charities warn that while past conflicts have been over oil, future ones will erupt over water. Jacob Tompkins, the director of Waterwise, which campaigns to reduce water use, says low-level "cold" wars over water are already taking place. "We are mining water that will not be replaced. That can't go on. Whether we see better management of water depends on the decisions people make now. If we paid for the embedded water in our food it would reduce the amount of water we used."

Shoppers could make a start by choosing "water efficient" varieties of vegetables. Maris Piper potatoes use lots of water while Desiree are drought resistant and can be grown without irrigation. Mr Tompkins said: "Desiree taste just as good but the supermarkets tend not to stock them because they say consumers don't like them. They don't give us the choice. The best thing for consumers to do is to ask how much water vegetables need to grow and press the supermarkets to stock low-irrigation produce." *A World Without Water, Channel 4, Saturday, 7.30pm*

Driven to drought **By Kate Thomas**

* Rajasthan, India Coca-Cola has been blamed for exacerbating shortages in a region already suffering from a lack of water resources and rainfall. Government figures show that despite poor rainfall, water levels were stable from 1995 to 2000, when a Coca-Cola bottling plant became operational. Levels then dropped by almost 10 metres, sucking local farms dry. With three litres of local water required to produce one litre of Coca Cola, there are fears that parts of the area could become "dark zones", abandoned due to lack of water.

* Ecuador Ecuadorian rose producers typically use 15 to 20 fungicides, insecticides and herbicides for each hectare of flowers transported to Europe. Overuse of chemicals is poisoning waterways and groundwater - devastating animals and plants and tainting drinking water.

* Tanzania The rural population of the central dry areas of Tanzania faces severe constraints due to the lack of available water supply. Increases in agricultural production, predominately for export to Europe, are partly to blame for reducing the watershed of a country already struggling to balance declining per-capita water supplies with the demands of a rapidly rising population.

* Vietnam The expansion of coffee plantations in Vietnam's Dak Lak province has brought economic prosperity to the region, but at the cost of damage to the watershed. Social conflicts due to water

scarcity have become more common and much of the remaining drinking supply of water is now contaminated by overuse of pesticides and fertiliser.

* China For every ton of rice produced, Chinese paddy fields expel 2,000 tons of water. While China has enjoyed relatively stable water levels throughout the past century, the implications of the increasing demand for rice in the West are beginning to come to light. By 2025 half of the world's population will be dependent on rice as a dietary staple.

* Venezuela Andean cloud forests play an important role in watershed hydrology. The implications of the Western world's growing hunger for Venezuelan beef, coffee and chocolate are only just beginning to be felt.