

Survival in the Sahel

It's getting harder all the time

Climatic extremes, from drought to flood, threaten survival

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IN SOME ways Alhaji Bunu Fodio is lucky: at least his house is still standing. Most of Kagara, his dusty village in Nigeria's far north, was smashed to smithereens during this year's rainy season when an unexpected deluge burst a nearby dam. Floods destroyed homes and farms in at least a dozen nearby villages. Mr Fodio lost his entire harvest of maize and sorghum.

Kagara lies on the edge of the Sahel, an arid belt of land on the Sahara desert's southern fringe that spans Africa from Senegal in the west to parts of Ethiopia in the east, and is constantly battling the elements. During the Sahel's nine-month dry season, roughly from October to June, the subsistence farmers who make up

most of its inhabitants eagerly await the rain. Temperatures can touch 50 degrees Celsius. Many go hungry towards the end of these dry months, known as the "lean season". The United Nations Children's Fund, better known as UNICEF, says that malnutrition kills 225,000 children a year in five Sahelian countries alone (Burkina Faso, Chad, Mali, Mauritania and Niger).

But now the rains have started bringing problems too. Farmers and aid workers say rainfall has been more erratic and stormy for at least the past five years, though it is unclear whether any areas are getting more water overall. Kagara is just one pocket of woe; an hour's drive north, this year's floods left over 50,000 people homeless in the desert country of Niger. Ruined harvests caused crippling food shortages that put more than half of the population at risk of going hungry in the spring.

Countries across the Sahelian belt have suffered similar deluges. The number of those who routinely lose crops, cattle or houses in such floods has been rising steadily since 2005.

So the Sahel's inhabitants are increasingly facing a cycle of extreme dry and wet spells, raising doubts as to whether the region is really habitable at all. Each season seems to exacerbate the problems of the next. When torrential rains destroy crops, Sahelians are even likelier to suffer from food shortages in the following dry months. "This next season will be very worrying," says Carlos Muñoz, an adviser in west Africa for Oxfam, one of several aid agencies in the area.

The rest of the world spends vast sums sustaining life in the Sahel. The UN's World Food Programme, which is funded largely by governments of rich countries, has asked its backers for \$300m-plus to spend on emergency aid this year. The European Union has spent €74m (\$98m) providing food vouchers and arranging cash-for-work schemes, among other things. Other groups forked out for tents and cholera treatment during the floods. Such handouts helped ensure that Niger's food shortages did not cause a full-blown famine earlier this year.

Mr Muñoz acknowledges that repeated bouts of emergency action are no way to tackle a recurring problem. But donors are more willing to stump up cash for dramatic emergencies than for prevention, where success is harder to measure. "This is more expensive but more sexy," he says. "Donors like to see impact."

The biggest fear is that climate change will make survival for the people of the Sahel impossible. Scientists disagree on whether the belt will get drier or wetter in coming decades, but either is generally bleak. Some predict 25% less rain a year by 2100. Others predict a 25% increase that, if the rain came in isolated bursts, would mean more of those destructive floods.

In any case, Petra Tschakert, an expert in climate-change adaptation in west Africa at Pennsylvania State University, says the main concern is the ever more unpredictable and violent rainfall, not the amount. "Farmers can adapt to trends. They cannot adapt to extreme weather," she says. One of the few areas of scientific consensus is that Sahel temperatures are rising and will rise further in the coming years. This can disrupt rainfall patterns and provoke storms, as warmer air is capable of holding more moisture. Some farmers in northern Nigeria are already noticing such changes. "We had to plant four times last year," says a villager in Kagara, who lost of a third of his maize crop through false starts. "Each time the rain had started but then it suddenly stopped."

Some longer-term solutions are being tried out. Mali's government has made big efforts to irrigate farmland, largely thanks to loans from outfits such as the African Development Bank. A project near its Bani river began in February. Farmers in several countries are planting "short-cycle" crops, such as a kind of maize that can be harvested in three months instead of the more usual five.

The nascent weather-insurance industry offers hope too. Both farmers and aid agencies can buy this insurance, which uses complex indices to track climatic patterns and predict crop yields. Insurance companies can resell some of the risk in capital markets using "weather derivatives" and "catastrophe bonds". This, it is claimed, is working well in India.

A snag, however, is that the data for such indices are lacking in much of the poor and remote Sahel, though fledgling schemes have been tried in Ethiopia since 2006. Some Sahelian governments charge outside bodies for gathering the data. Mannava Sivakumar at the World Meteorological Organisation, another UN body, says many of the Sahel's weather stations report to the outfit's central hub half as often as they should—or not at all. "How can a doctor help you if he cannot take your temperature?" he asks.

Some Sahel-watchers say the inhabitants must seek alternatives to reliance on cattle or crops: easier said than done. "In most cases, there is food available but people cannot afford it," says Sibiri Jean Zoundi, an agricultural economist at the Sahel and West Africa Club, a coalition of the region's governments and foreign-aid groups started by the rich-country OECD. Imported food is almost always available after failed harvests, but it is costly. Crippling poverty means that some families go hungry even after good harvests. Moreover, the Sahel's population is growing at 2.6%, more than twice the global rate, outpacing economic growth. The size of plots is ever diminishing. More people are being forced to settle in flood-prone areas.

Back in Kagara, Mr Fodio is wondering how to feed his two wives and ten children in the coming months. "We are looking to the donors," he says, sporting the fez-style cap worn by Nigeria's mostly Muslim northerners. "And, of course, we are looking to Allah."