



## Dealing with extreme weather

‘The serious floods in the Indian state of Kerala in mid-August were the result of extremely heavy monsoon rains. Five hundred millimetres of rain fell in one week. If that much water comes rushing off the mountains, there is no way you can hold it back. There is hardly even time to warn people: the narrow coastal plain is close to the mountains. That much water is unmanageable. In India, making “space for the river” (something we have projects for in the Netherlands) happens spontaneously, whether you like it or not: the rivers regularly burst their banks.

Especially in the north, it is common for hundreds of square kilometres to be inundated. There is a positive side to that too, though: the rivers bring nutrients down with them that make the soil fertile. But the flooding in Kerala was an exceptional case, with hundreds of casualties.

You can’t directly link this kind of disaster with climate change, but it does fit the hypothesis that the wet regions of South Asia are getting wetter, and the dry regions drier. For a long time we have gone by weather averages based on historical records, but they are no use now. That raises huge questions. Where can you still build houses, where can people escape to, how do you steer the unbridled growth of Indian cities to keep it within safe limits?

It was an unfortunate coincidence in Kerala that the dams were as good as full towards the end of the monsoon. They had to discharge water unsystematically, which some say exacerbated the disaster. In Wageningen we are trying to identify the critical moments for dealing with extreme weather.

The climate research agenda has long been set by climate scientists, who have their heads in the clouds, as it were. But how do farmers experience it? When are they vulnerable? A heat wave in northern India might cause the most problems if it occurs just after crops have been planted. Food security depends partly on those kinds of details.’

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