

‘I was given five minutes to tell my story’

## Rik van den Bosch, environmental scientist

10.09.

05 On 10 September 2005 Rik van den Bosch convinced the Chinese government.

For decades, the economy in China took precedence over the environment. In recent years, however, China too has realised that there are limits to what the natural environment can sustain, and the government is working on a stricter pesticide policy based on expertise and models from Alterra. Researcher Rik van den Bosch needed only five minutes to convince the government that collaboration would be useful.

### by Laurien Holtjer

If a manufacturer wants to bring a new product to fight diseases and pests onto the Dutch market, the new agent would first have to be thoroughly tested. ‘The government tests such an agent according to three general criteria’, explains Rik van den Bosch. ‘One: does it kill the bug? Is the manufacturer’s claim regarding the agent’s effectiveness true? Two: human toxicology. How bad is the stuff for the farmer’s and the consumer’s health? And three: how bad is the agent for the environment?’

For the last thirty years, Alterra has been conducting research on the third criterion, the environmental impact of pesticides. Researchers have developed numerous methods to predict the behaviour of pesticides in the environment. Some models calculate how much of the pesticide reaches the groundwater or the surface water. Others show the impact of pesticides on soil life, fish, birds and

water plants.

Thanks to Alterra, the Netherlands has for years been an important player in the development of methods to achieve better pesticide policies, explains Van den Bosch. Europe has taken full advantage of this expertise in establishing its pesticide policy.

‘Since we had already come this far in Europe, it was time to spread our knowledge further’, says Van den Bosch. In 2005 he saw an opportunity to branch out to China, where economic development had taken precedence since the 1980s, to the detriment of all else. ‘The reasoning behind this was that everyone would benefit, including the poorer rural population.’ But since the turn of the century, attention to the environment has been growing. ‘Thirty-five percent of the Chinese population lives in the urbanised eastern part of the country. Sixty-five percent lives in the rural countryside, which covers the largest part of China. The contrasts between the urban and rural areas are enormous. It is becoming increasingly clear to the government that this discrepancy will only increase if the environment continues to be ignored. The people are getting tired of smelling foul air and watching the environment deteriorate.

‘At the end of August 2005 I heard that a congress on pesticide policy was going to be held in China in mid-September. China was about to develop a new pesticide

Wageningen,  
Lumen  
30.10.2009  
15:14:58 h

Beijing,  
China  
15.09.2005



56

< The speakers at the second international symposium 'Pesticide and Environmental Safety', where it all began.

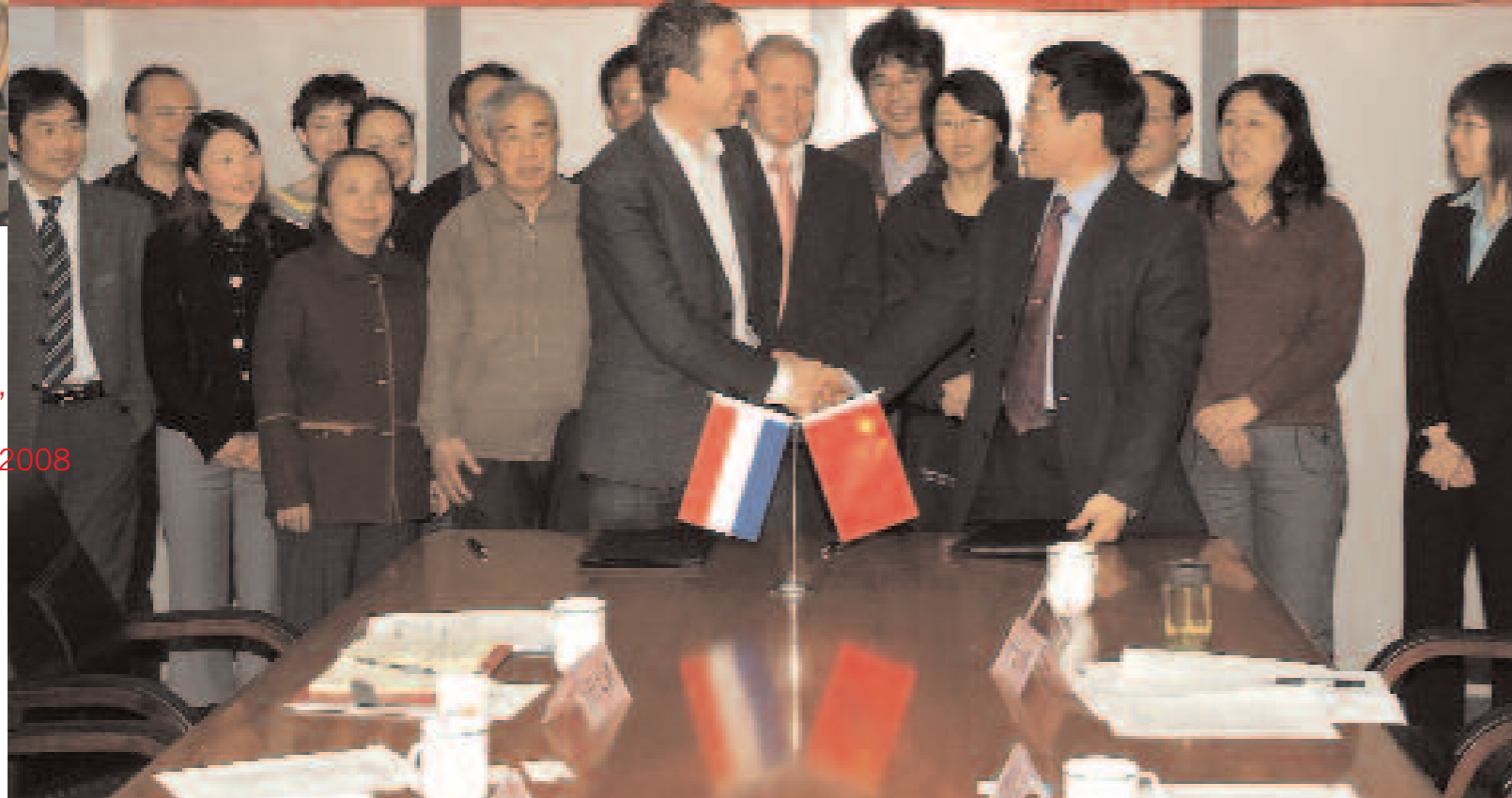
< After almost three years of preparation, Rik van den Bosch sealed collaboration in the project by shaking hands with the director of the Chinese regulatory authority.

> Application of pesticides in China. An example of bad practice: the equipment is outdated and the personal protection is inadequate. Barefoot and without gloves or a mask, this farmer is in the process of mixing pesticides; rinsing is done in the ditch.

> Lab workers of the Chinese regulatory agency are developing a standard test to determine the effects of pesticides on silkworms.

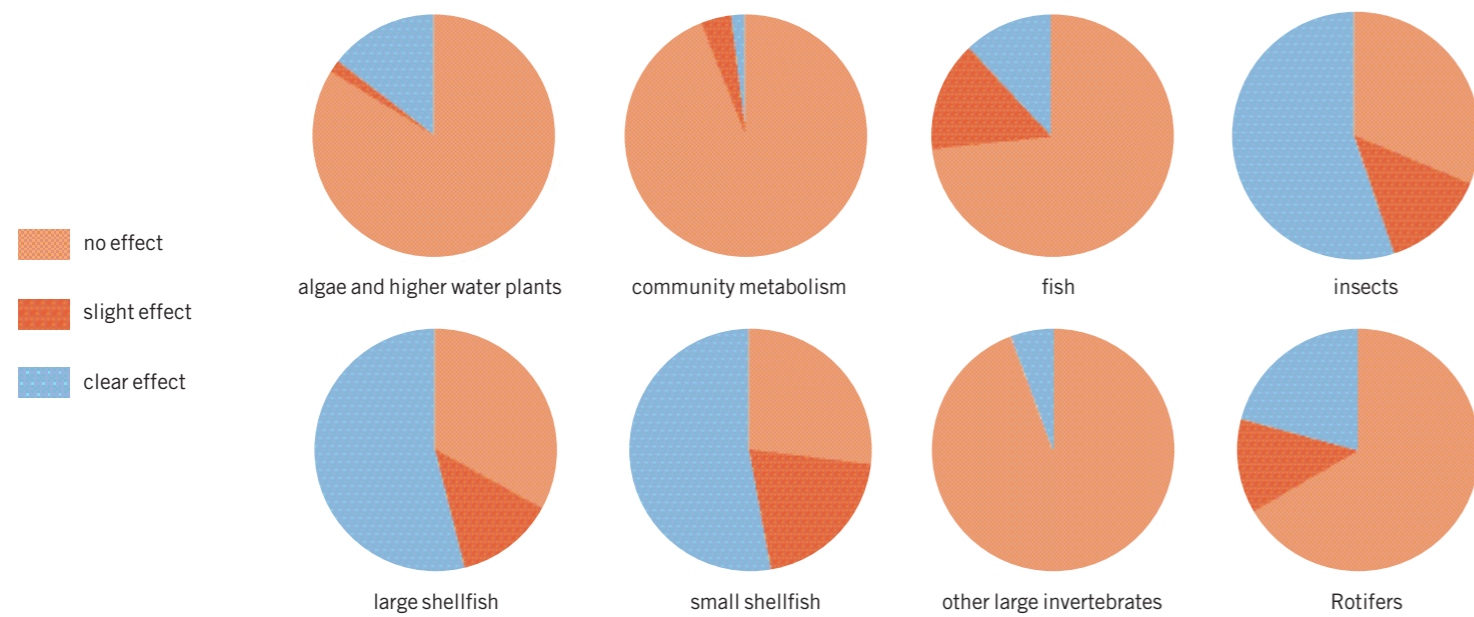


57



Beijing,  
China  
03.07.2008





**The chance of no, slight or a clear effect on various biological groups in the aquatic ecosystem after exposure to 0.3 mcg/l of the insecticide Chlorpyrifos, as predicted by the PERPEST model.**

policy geared toward protecting the environment. I saw it as a great opportunity to tell my Chinese colleagues about the European pesticide policy and hopefully to convince them to begin long-term collaboration with us.'

Van den Bosch was able to get his name onto the programme at the last minute. 'I signed up far too late, but was still given ten minutes to speak.' But was that enough to fly across the world for? Once they agreed to stretch the time to twenty minutes, he booked the flight. 'I thought: I'll buy the ticket and then we'll see.'

The first speaker of the day was the director of an agency under the Chinese Ministry of Agriculture, which is responsible for pesticide policy. 'He immediately started talking about their ambition to expand the pesticide policy to include environmental criteria and how they wanted to be inspired by the European regulations.' It was exactly what Van den Bosch was planning to propose to the government. 'I thought: this is already in the bag.'

Unfortunately, the organisers had scheduled Van den Bosch to speak at the end of the day. 'And it is customary in China for the VIPs to leave quite quickly. This meant that the director would not see my presentation.' Van den Bosch took immediate action. Through a Chinese student who, in accordance with Chinese custom, had been assigned to him as an assistant for the day, he managed to arrange a meeting. 'I asked the student to find a way for me to talk to the man. A little later he whispered in my ear that I was expected at 11 o'clock.'

The meeting took place in a small backroom. 'The man was standing there stiff as a board in his formal suit and tie

and told me that I had five minutes to tell my story. It was definitely a bit intimidating.' But Van den Bosch was aware of the importance of status in China and was not dissuaded. 'I told my story and it fitted neatly with what he was pushing for. When I arrived back in the Netherlands a week later, a letter was waiting for me with the request to come back and talk more about the topic and possible collaboration. That day at the congress, 10 September, supply and demand simply came together. This was the start of the collaboration.'

But it was only the first step. 'In China it is really very important to gradually build up a relationship. Over the following two years I travelled three times a year to China to talk about what they wanted and what we could offer.' This involved of course the necessary courtesy gestures. 'We exchanged a lot of presents', explains Van den Bosch, pointing to a miniature folding screen on the bookcase. He also dined regularly with the director. 'Relaxation is very important. The Chinese really like to see you enjoying the food and drink.'

The effort was not in vain, and Van den Bosch's patience eventually paid off. 'After two years the project finally got off the ground with money from both the Dutch and the Chinese governments. And for the past eighteen months experts from Alterra and other Dutch institutes have been travelling regularly to China.' These researchers are working on adjusting the models. 'The biggest challenge is to translate all of the models and instruments in a scientifically sound way to fit the Chinese context. The runoff models, for example, are based on the Dutch context, but

China has very different soils. So you can't just apply the existing models.' There are also some different environmental factors in China to be considered. 'The silkworm, for example, is economically extremely important to the Chinese. The worms are cultivated on farms for the production of silk. But these businesses are located right in the middle of agricultural land. If the worms are cultivated next to a field with crops, the neighbouring farmer can't just spray his crops. Before you know it all the worms would be dead. So we have to look for methods that can predict the effects of pesticides on the silkworm.'

'At the moment we are looking carefully at the one hundred most important pesticides in China', explains Van den Bosch. The objective is to explicitly involve policymakers in deciding which pesticides are allowable – because ultimately it is the government that has to decide whether a particular agent may be used. 'If a fish dies, the harmfulness of the agent is clear', he explains. 'But what about if one fin doesn't function properly? Or if the fish act strangely for one day and are then fine again? The policymakers

have to establish criteria for what is, or is not, acceptable. We provide the methods and show them the results of particular choices.'

Four years have passed now since the decisive moment in the backroom of the congress. Van den Bosch is satisfied with what has been achieved so far and optimistic about the future. 'As of this year, it is required by law in China that the environmental impact of an agent be included as a criterion in deciding policy', he says with satisfaction. 'There are currently more than 500 pesticides on the market in China that the authorities permitted without ever considering the potential impact on the environment. China wants to evaluate these old pesticides as well. The rotten ones are going to be thrown out.'

This is only possible through good collaboration, concludes Van den Bosch. 'A large group of colleagues has combined quality scientific research with a good feel for supporting policymaking. The only thing I did was export our knowledge to Asia.'

**Alterra employees at work at Sinderhoeve, the experimental field station of the Environmental Sciences Group in Renkum, the Netherlands. Harry Boonstra is applying a test agent to an experimental system in which the effect of pesticides on water plants is tested. This is a relatively new development for Europe. In 2010 two Chinese postdoctoral researchers will be coming to work with Alterra for a year in order to master this research method. In the foreground is Laura Buijse.**

