

A man wearing a straw hat and a striped shirt stands in a field of coffee beans. He is holding a long wooden stick. The sky is blue with white clouds. The foreground is filled with a large pile of yellow coffee beans.

Heavy weather for coffee farmers

Climate change is hitting the Colombian Andes hard. Coffee farmers are seeing their harvests threatened by heavy rains alternating with long droughts. Young people armed with Wageningen knowledge are supporting their efforts to make their water and soil management climate-proof.

TEXT GERT VAN WIJLAND PHOTO HOLLANDSE HOOGTE INFOGRAPHIC JORRIS VERBOON



It came as no surprise to Maarit Ivalo of the Netherlands Enterprise Agency that the coffee plantations of the Colombian Andes were not located on gentle slopes. But when she went there on her first working visit, she was not prepared for quite how steep the slopes were, how inhospitable the landscape and how tough the conditions. This was brought home to her when she watched the pickers hanging over the edge of deep ravines to do their work. ‘They hang in the air on ropes to reach the coffee beans, sometimes in the hot sun, sometimes in torrential rain.’

It was precisely because of these increasingly tough weather conditions that Ivalo was visiting the area in her capacity as Public-Private Partnerships (PPP) advisor for Latin America at the Dutch ministry of Foreign Affairs. She coordinates the international aid project Manos al Agua, whose objective is to make coffee farming in the Andes more sustainable and more climate-proof. ‘We are doing this at the behest of the federation of Colombian coffee farmers FNC, whose harvests have been falling sharply recently.’ Climate change is hitting the region hard,

on Water – focuses on the watersheds of five big rivers that cut through the Andes mountain range. Currently this enables the partners to reach about 11,000 farmers. In Colombia there are a total of more than half a million small-scale coffee farmers. The Federation hopes they will all end up benefiting from Manos al Agua.

IMPROVING HARVESTS

Wageningen’s main contribution is knowledge about water management and climate change, says Wouter Wolters, a researcher in Climate Change and Adaptive Land and Water Management at Wageningen Environmental Research (formerly Alterra). ‘Our focus is on adapting the water management and land use to the worsened conditions.’ Wolters works on extension and training along with his fellow researcher Laura Miguel Ayala at Wageningen Environmental Research. Their aim is to make the farmers aware of the importance of balanced local water management, and teach them how they themselves can improve the water system, and therefore their harvests.

their drinking water. This pollution is even worse now that the periods of drought are increasing and water is getting scarcer,’ says Wolters. Farmers who want to participate in Manos al Agua are asked to stop dumping the polluting waste from their production process on communities downstream. Besides, there is a simple and effective solution to this problem: the husks can be composted and then spread on the plantations as organic fertilizer. This means less pollution, less erosion and less need for artificial fertilizer. Not a bad harvest from a bit of awareness-raising and knowledge-sharing, reckons Wolters.

AWARENESS-RAISING

This is how it works on a smaller scale too, as FNC worker Lina Echeverri knows from experience. ‘For some time now we have been making local residents aware that the way they run the plantations and their own communities has an impact on the environment and therefore on the yields.’ And with success, she reports with pride: after a campaign on saving water, domestic water consumption went down by as much as 90 percent in the local communities in just three years. ‘Manos al Agua thereby has a direct impact on the quality and quantity of water in all the watersheds.’ A better environment begins at home, that much is clear for Echeverri.

She stresses the fact that farmers stand to gain a lot from projects such as Manos al Agua. Without climate adaptation, she predicts that the coffee farmers will become less competitive on the world market. Harvests will diminish, endangering all the coffee farmers’ future prospects, given that most of them already have trouble making ends meet.

So Echeverri is very pleased with the initial results of the collaboration. ‘More than 11,000 coffee farming families are working on making their water management and their production more climate-proof. In ➤

‘They are champion coffee farmers,
we are champion water managers’

says Ivalo. Heavy rains and long droughts are threatening the farmers’ livelihoods in the longer term. ‘There are years in which 30 to 40 percent of the harvest is lost to rot, diseases, drought or insect damage.’

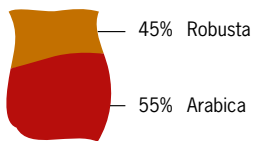
In an effort to reduce these losses, the Dutch government is contributing 9.5 million euros to a collaborative venture (see text box) which Wageningen University & Research is involved in as well. Manos al Agua – Hands

This begins, says Wolters, with tackling the environmental problems traditionally faced by Colombian coffee farmers: pollution, deforestation and erosion. Take the husks left behind after drying the coffee beans, for example. These husks are highly toxic for water and everything that lives in it, but tons of them have always been dumped, unprocessed, in the rivers. ‘And that when nearly all the villages depend on these rivers for

COFFEE AND CLIMATE CHANGE

Worldwide more than 100 million people depend on coffee production for their livelihood. Coffee farmers are facing growing challenges caused by climate change.

Global production: 150 million 60-kilo bales, mainly Robusta and Arabica beans



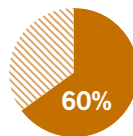
Robusta

The Robusta bean is cheaper to produce: it is less vulnerable to disease and yields are bigger.

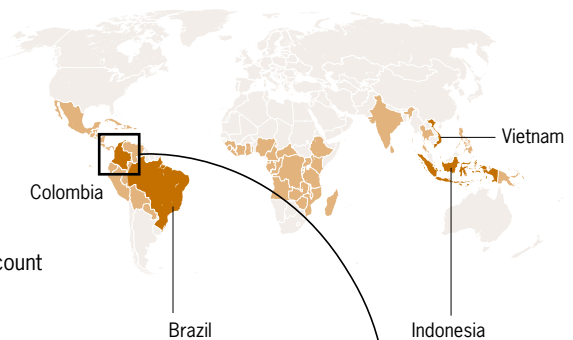
Arabica

Coffee made with Arabica beans has a milder, more aromatic flavour than Robusta coffee, with its bitterer taste.

Seventy countries grow coffee



Four countries account for 60 percent of the production



Coffee-growing areas



Climate measures in Colombia

There are more than half a million coffee farmers in Colombia, most of whom grow Arabica beans on steep mountain slopes. Heavy rains and long droughts threaten these farmers' livelihoods.

The Manos al agua project offers small coffee farmers in Colombia advice on steps they can take to cope better with drought and flooding.

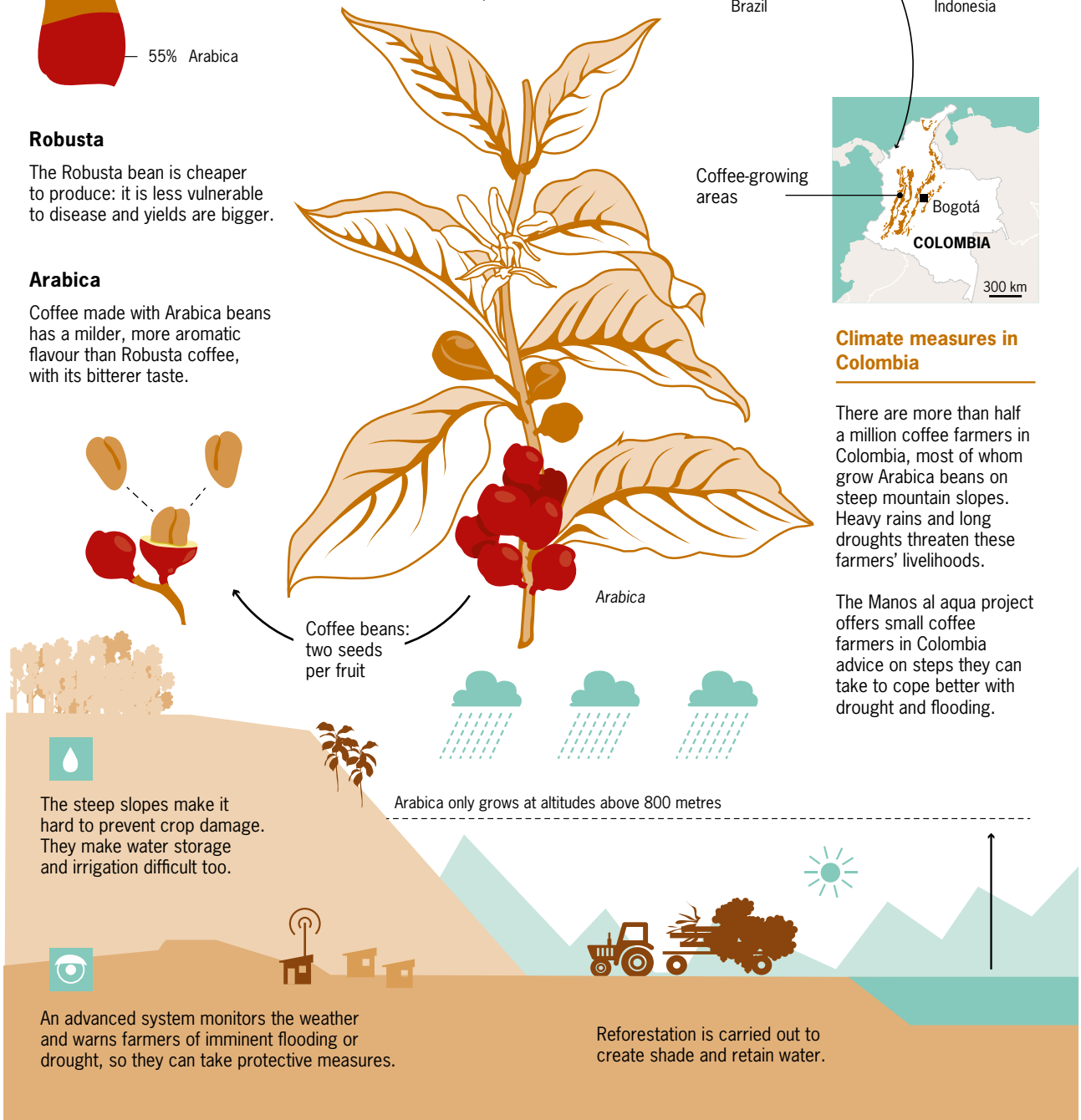




PHOTO CIAT / NEIL PALMER

A Colombian coffee farmer in the middle of his plantation.

spite of the increasingly extreme weather, we hope and expect that this will enable them to stay competitive on the world market.'

WEATHER STATIONS

The most visible Wageningen input for the project, from the farmers' point of view, is in water management and meteorology.

Wolters: 'After three years of planning and data collection, local water purification systems are now being put in place. There are already hundreds in use, both for purifying the coffee production water and for domestic use. And the first reforestation projects have started now too.'

The farmers can also see the 24 meteorological stations which have been put in place on the slopes where the plantations are located. 'We use these to monitor temperatures, humidity and precipitation,' explains Wolters. Those data are fed into an existing local database which is used for a special weather

bulletin for coffee producers. 'Our task within Manos al Agua is to further refine these weather forecasts using local knowledge about the area in order to give more accurate warnings of flooding or droughts. If there is danger of flooding, we warn the farmers to clear their waterways, for instance, and take other steps to prevent flooding.'

When drought strikes, however, it is harder to prevent long-term damage to the crop, especially since the slopes are too steep for conventional irrigation. 'It is difficult to store water to use later to prevent drying out; creating a dam is no simple matter in these extremely high mountains. What we can do is advise the farmers not to use artificial fertilizer during long-term droughts, and to postpone planting vulnerable new bushes. We also encourage them to create shady areas on and around the plantations, to reduce evaporation.'

Wolters talks in 'we' terms because he feels involved in the project, but it does not mean

that Wageningen staff personally go into the mountains to advise farmers. 'We train local people who travel to the plantations to share this knowledge.'

To that end, the FNC has a staff of about 1400 people who have been advising coffee farmers for years about how to make their production as sustainable as possible.

Wolters is happy to make use of their services. He explains: 'Wageningen invites these advisors to workshops on water management and they then pass on this new knowledge when they visit the plantations. The farmers are instructed in how to use the new water purification plants provided by the project. They also learn simple methods of preventing flooding and get advice on how to adapt – by not using artificial fertilizers during droughts, for instance.'

CLOSED COMMUNITIES

A major strength of a PPP construction such as Manos al Agua is its capacity to link up with existing networks, says Maarit Ivalo of RVO.nl. The collaboration with Colombian authorities, and with the FNC in particular, enables the project's staff to gain access to local farmers who would not otherwise be easy to reach. 'Don't forget that we are talking about traditionally closed communities that are not particularly open to contact with outsiders. The last thing we want is for a foreigner to go there to tell the farmers how they should be doing things. That would definitely backfire.'

For this reason, the advisors who go out to the plantations and farming communities on behalf of the FNC are crucial to the success of Manos al Agua, in Ivalo's view. She also sees these staff as the implementers and ambassadors of the project. 'For years they have fanned out over the steep slopes of the mountains, clambering from plantation to production centre, from farm to village. Villagers and farmers are more open to advice from them than from outsiders.'

And even that does not go without saying.

'The coffee from the Colombian highlands is among the best in the world'

'New advisers still have to prove their worth to the farmers,' says Ivalo. 'Young women in particular are put through the mill by the farmers. They have to earn their respect and show they can cope with the mountains. When I talk about clambering up the slopes I mean that literally.'

According to Ivalo, the advisers go by the nickname 'the yellow army', a reference to their unofficial uniform of bright yellow T-shirts. The authority of the advisers has grown since the farmers started experiencing the damaging impact of climate change for themselves. 'Especially now that, thanks to Manos al Agua, they are offering new insights on water management,' says Ivalo.

LONG TRADITION

Echeverri of the FNC is pleased with Wageningen's input. 'We have a long tradition of knowledge about coffee cultivation; our knowledge institutions are rapidly developing new varieties which can withstand both drought and excess water. But knowledge about the coffee sector alone is no

longer sufficient: the changes in the weather are so serious that their impact can no longer be addressed just from one field of expertise.'

Wolters agrees, commenting that Colombia cannot cope with the impact of climate change alone, whether at the local or at the national level. 'They are champion coffee farmers, we are champion water managers. Within our collaboration we respect each other's roles and share the expertise we have. We won't be developing new resistant coffee plants because the FNC's institutes are much better at that. Our strength lies in making water systems climate-proof and forecasting the weather conditions, both short-term and long-term. By focusing on that we complement the expertise of the other partners.'

QUALITY COFFEE

Coffee producer Nestlé/Nespresso fears for the future of coffee cultivation in Colombia if its water management is not improved. The coffee multinational is involved in the

project as a private partner. 'Our chief commercial interest is in securing a supply of quality coffee for the future,' explains technical director for water management Carlo Galli from the head office in Switzerland. 'We see the coffee from the Colombian highlands as among the best in the world and we still want to be able to work with it in ten years' time.'

But 'of course', Galli hastens to add, the top priority is to make coffee cultivation climate-proof and improve living conditions in the Andes. The company is putting 4.5 million euros into the project and paying participating farmers an extra bonus if they supply sustainable high-quality coffee. 'The joint approach and the shared commitment make the PPP collaboration valuable for us.' If this pilot scheme works out well, Nestlé wants to upscale the model globally. There's no good coffee without good water management, says Galli.

www.wur.eu/coffee-climate



PHOTO ANP

AID TO COLOMBIA

The international joint venture Manos al Agua - 'hands on water' – was launched three years ago at the behest of the Colombian National Federation of Coffee Farmers, FNC. This organization saw how the damage caused by both heavy rain and long droughts was getting worse every year, and asked the Dutch government's Sustainable Water Management fund for help. This led to the formation of an International Public-Private Partnership with a budget of about 20 million euros spread over a period of five years. Colombia has 570,000 coffee farmers, all of whom stand to benefit from the programme in the long run. The main participants in the programme are coffee producer Nestlé/Nespresso, RVO.nl, Wageningen University & Research and the Colombian government. Wageningen Environmental Research contributes its expertise on water and climate change on behalf of Wageningen University & Research. The Sustainable Water Management fund's contribution of 9.5 million euros makes it the partnership's chief donor, with the remaining funding coming from Nestlé/Nespresso (4.5 million), FNC, Cenicafé, the Colombian government and the farmers themselves.