

# Empowering pesticide-affected communities in Uruguay

*Local branches of PAN, Friends of the Earth and the International Agricultural Workers' Union joined forces with concerned medics and affected communities to better document and understand the impacts of intensive pesticide application on people's health around the city of Bella Union. María Isabel Cárcamo reports on an innovative project to integrate research with community analysis and action.*

Bella Union is an important farming and agricultural processing zone in Northern Uruguay close to the border with Brazil. The main crops of fruit and vegetables, rice and sugarcane, are heavily dependent on agrochemical use, with very frequent pesticide applications. Most of the rural population are farm workers or run their own small holdings, growing vegetables in plastic-covered greenhouses (polytunnels). By the 1990s health professionals had observed the main health problems in the area to be a high incidence of respiratory diseases in children and adults, along with levels of cancer, malformations and women's reproductive problems above national averages.

In 2003, the three civil society organisations together with a multidisciplinary team of medics, toxicologists, geneticists, specialists in children's respiratory disease and social psychologists started to examine whether the health problems were related to pesticide exposure and how communities perceived the problems<sup>1</sup>. The holistic project took a number of approaches from examining relevant research, to undertaking health promotion work, making sure to provide opportunities for communities to discuss and record their experiences and set up communication channels with health professionals and NGOs. Its main objectives were to encourage communities to take ownership of the issue and start to take collective action, to compile information as a basis for proposing a health watchdog unit for preventative health vigilance for rural families, and to encourage farmers to develop alternative production methods to eliminate pesticide use and reduce contamination risks for workers, their families and the local environment. The community education element included workshops with residents and teachers, including a school for disabled children.

## Exposure hazards and risks

The first phase of the project pulled together data from different sources to get a better understanding of the hazards to which Bella Union residents are exposed and the practices which increase their risk of exposure and adverse effects. Use of hazardous pesticides

is common in the country as a whole and PAN Uruguay has recorded widespread national trade in 43 active ingredients which other countries have prohibited, severely restricted or withdrawn for health or environmental reasons<sup>2</sup>. In 2003, over 280,000 tonnes of the most acutely toxic WHO Class I pesticides were imported. Using information from a Ministry of Agriculture department, fumigators and the project developed a database of pesticides used around Bella Union. This showed that the most commonly used are the herbicides 2,4-D and glyphosate and the insecticides carbofuran, chlorpyrifos, cypermethrin and endosulfan.

Pesticide application is intense and aerial spraying is common in large-scale rice production on the Uruguayan and Brazilian sides of the border. The legal minimum distance established to protect houses is 500m, yet residents complain that crop-dusting pilots fail to respect this when fumigating rice. And drift can travel up to 3km. Crop-dusting pilots sometimes spray right over houses and people's farm plots and discard empty containers under bridges by the rivers. Residents have seen plane tanks dripping liquid even

when they are not spraying.

Pesticides are also applied by small-scale farmers in fruit orchards and vegetable open fields and polytunnels. Residents in Porton de Fierro, a locality with particularly intense applications, reported that in total, aerial and terrestrial spraying operations in both large and small-scale farming take place between five times per month to daily, with an average of every three days. People admitted that they often enter polytunnels before the safety time for re-entry after spraying.

Although it is mainly men that handle pesticides, women and children may be exposed indirectly via washing the men's work clothing, pesticides stored in the house and working in the fields or handling produce. Women often carry on working in the fields or polytunnels until they are six months pregnant and return to work just six weeks after giving birth, when they are breastfeeding, thus contributing to significant exposure for their unborn children and infants. Residents have also observed indicators of environmental damage. For example, when the air is laden with pesticides, the leaves of the common paraíso tree (the chinaberry tree, or *Melia azedarach*) turn yellow and tender plants like oregano or lettuce get scorched.

## Impacts on health

A team working on health explored the links between chronic exposure to multiple pesticides and children's health, following national workshops organised by the Latin American Health Organisation and the Ministry of Public Health, which concluded that agrochemicals are one of the main sources of environmental contaminants and pose an increased risk of exposure, particularly for children. Children are far more vulnerable to harm from environmental contaminants than adults because their bodies are still developing and tissues and organs can be permanently damaged from exposure at critical periods. They also take in more air, food and water relative to their body weight com-



'More work, a decent wage, no pesticides!' Street demonstration in Bella Union.

Photo: Sandro Pereyra

pared to adults. If they are contaminated, they will be more affected than adults. In addition young children frequently transfer items from hand-to-mouth, increasing their risk of ingesting harmful substances. In the context of poverty in rural Uruguay, children's health is also more vulnerable due to lack of clean water and poor hygiene conditions. Furthermore, many children in farming families work alongside their parents and are exposed directly to pesticides.

It is much more difficult to associate pesticide exposure with chronic, than acute, health effects and the team decided to examine biochemical markers in tissue and fluid samples to assess possible genotoxic effects of chronic exposure. The bioassays used detect chromosome aberrations in blood lymphocytes and DNA damage to individual cells. Both are valuable for detecting and quantifying toxicity when organisms are exposed to mixtures of substances.

### Data on ill health

A multidisciplinary clinical evaluation was conducted with residents in Porton de Fierro, a community of almost 400 people living in basic wooden houses surrounded by rice and cane fields and vegetable polytunnels. All 74 households work in agriculture and also tend their own kitchen gardens. The research team noticed that all the paraiso trees in the Porton de Fierro had yellow leaves and many had dried up, due to overhead fumigation.

The research reported numerous environmental contaminants in and around the household - 48% use wood for cooking and 97% for heating. Rubbish is also burnt in the backyard. Household insecticides are used by 42% of families and 40% of adult males smoke. While 42% of household heads work directly with agrochemicals only 53% of these take hygienic measures such as hand washing after application. Porton de Fierro residents live very close to regular pesticide spraying. Houses are situated between 10m and 1km from pesticide application (either aerial and/or terrestrial), with 50% of houses less than 250m from application sites. Wildlife can be affected by the spraying intensity - 31% of families had observed animals eating contaminated material and 61% had noticed a decrease in numbers of insects,



Abandoned pesticide waste, Bella Union. Photo: Sandro Pereyra

birds and other animals correlated with an increase in spraying. In terms of health problems, 27% of households reported earlier attacks of bronchitis, 23% of asthma and 20% repeated pneumonia. Overall, 54% of families reported persistent problems: 37% with respiratory and 16% with skin problems. 62% of households reported health effects following aerial or ground spraying.

A more detailed study was made of 16 children under five years old in the community, selected to include those living in households closest to pesticide application and in which the fathers work directly with pesticides, and the mothers have indirect contact. Only 19% of the fathers of these children used protective clothing when spraying. The data collected shows an alarmingly high incidence of chronic health problems suffered by these children. The most common health problem was respiratory: 60% of those under two years old suffered breastfeeding bronchial obstruction syndrome and 50% of over twos had asthma. Repeated bouts of pneumonia affected 37% and 32% had skin problems (eczema or pruritis), while only 25% were totally healthy.

A study of 12 women and 11 men attending the local clinic also linked serious health effects with pesticide application. All the men handled pesticides currently or in the past and the women all had indirect contact. After aerial applications near their houses, 45% of the men and 58% of the women reported feeling ill, with respiratory, visual, digestive or neurological problems; 15% had documented incidence of respiratory problems and 14% skin problems. Of the women surveyed, 37% had had problems getting pregnant and 25% had suffered multiple miscarriages.

The small sample size of the biomarker analysis did not permit statistical analysis, but the results suggested possible genetic damage compared with the control group and a tendency to higher levels of genetic damage in children than adults.

### Confirmation from other studies

Studies in other parts of the world have shown a positive association between asthma and pesticides in adults, yet data on children is very limited. Two recent studies, however, associate exposure to pesticides in rural areas during the first year of life with an increased risk of early asthma, possibly due to the immune and respiratory systems of infants being more susceptible to damage at this stage<sup>3,4</sup>. The Bella Union preliminary study results would agree with the hypothesis that children are more vulnerable to developing respiratory diseases and displaying genetic damage, but further study is needed.

### Community workshops

Seven community workshops were organised to build networks for learning, exchange and to strengthen local groups ability to play an active role in health promotion. The workshops aimed to encourage open reflection on pesticide use and contamination, better understanding of health impacts and to start a



Locals find numerous uses for empty pesticide containers. Here boys in Bella Union use them for washing.

Photo: Sandro Pereyra

community-wide discussion on ways to prevent contamination and promote better health at household and village levels.

Although people interviewed said they disliked aerial fumigations because of the smell and the damage caused to their vegetable plots, few had linked them directly with the common respiratory and skin problems suffered in the community. People had very little idea of the medium to long term impacts that pesticide exposure may have on health. The workshops also revealed contradictions between awareness of risks and a certain denial of the issue. For example, many farmers admitted that they did not respect pre-harvest intervals and often picked vegetables just three days after spraying when they should wait at least seven days. They judged that the vegetables probably would not reach consumers' tables until residue levels had dropped but recognised they had no way of knowing this. On the other hand, they did not use pesticides at all on vegetables for their own consumption.

From the discussions, it became apparent that there was inertia at institutional and political levels on recognising and tackling harmful pesticide effects. Most people felt that the state agencies ignore their health problems and most doctors deny any link with pesticides and treat them as if they were only minor allergies. Others who have consulted doctors in the capital were told to move elsewhere if they wanted to regain their health. There are many factors which prompt silence and lack of action - workers are afraid of losing their jobs if they complain of health problems, growers do not see organic production as viable and most people in the Bella Union area tend to deny the risks as state institutions do. These factors combine to produce a sense of hopelessness.

Nevertheless, during the project, the team



Spray applied to fields often drifts into local houses. Photo: Sandro Pereyra

noticed a definite change in attitude as people became more willing to talk about pesticide issues and started to think about ways to organise to get better informed and demand action from the authorities. Feelings of impotence began to change as the workshop discussions and the health studies took place and people were able to visualise the situation and realise that a large part of the solution lies in their own hands, as well as in the political will of decision-makers.

### Promoting environmental health

The main result from the Bella Union project has been to alert national public health authorities to the health problems and to bring together ministries of health, agriculture, housing, labour, education and environment, along with trade unions and community groups. The first priority recommended is to create a watchdog health unit to coordinate prevention measures, family support and further research. This could be set up as a multi-purpose clinic for primary environmental health care. The project participants recommend several activities to support women, breastfeeding mothers and children, including training and education on women's health, annual cancer checks, follow-up of high risk pregnancies and training of community midwives. There should be special health monitoring of infants, farm workers and farmers and a database of cancer and malformation cases. The health team have proposed to assess genotoxic impacts on a sample of 20 children from each rural community, and to evaluate how providing nutritional and antioxidant supplements to children could help improve immune status and reduce the levels of chronic ill health.

The project has helped build a comprehensive picture of acute and chronic disease, malformations and fatalities around Bella Union, a picture which had hitherto remained

## Legal victories in Latin America

*Pesticides News* reports regularly on pesticide health and environmental problems in developing countries and community struggles to tackle these. Three recent cases in Latin America won important legal victories<sup>1</sup>.

### Paraguay death

Since 2004, the Talavera Villasboa family in Paraguay has been fighting for justice over the death of their 11 year old son Silvino, poisoned by pesticide sprayed by neighbouring large-scale soya growers [PN65 p9, PN 74 pp6-7]. After a series of court rulings and counter appeals, the country's Supreme Court of Justice rejected the last appeal of the defendants Laustenlager and Schlender in November 2006. A verdict of culpable homicide was reinstated and both men were sentenced to two years imprisonment. The vast majority of poisoning cases receive no publicity and are immune from legal recourse and so this set an important precedent in Paraguay as the first legal case on pesticide poisoning. It signalled that, with support from peasant farmer organisations and from health, development and human rights organisations, it was possible for a poor campesino family to win against powerful landowners.

However, in February 2007, supporters of the Justice for Silvino Talavera campaign in Paraguay were outraged to hear that a judge has unconstitutionally suspended the jail sentences of the two farmers convicted. Instead they will merely be given community service tasks. Overturning the sentence will allow those culpable of actions that harm and kill nearby communities to spray with impunity. The Talavera Villasboa family and supporters will be appealing. More information on the campaign is available at [www.silvinotalavera.phy.ca](http://www.silvinotalavera.phy.ca)

### Costa Rica aerial spraying

In Costa Rica, communities whose health and livestock have been affected by aerial spraying by banana companies [PN67 p11] achieved legal success. In December 2006, the Supreme Court accepted an appeal against the Ministry of Health, submitted two years earlier by Sr. Levy, natural resources inspector in Limon district, on behalf of a group of workers, farmers and residents suffering chronic dermatitis and respiratory problems. Although the banana

largely invisible and shrouded in silence. Painting this picture with local people has been an essential first step in mobilisation to start taking collective measures.

#### References

1. *Agrotoxics in Bella Unión. Weaving networks for community health (in Spanish)*. REDES Amigos de la Tierra, REL-UITA and RAPAL Uruguay. 2006.
2. *Agrotoxics remedios peligrosos. Analisis de la situación de los plaguicidas mas toxicos en Uruguay*. S. Elola, RAPAL and CEUTA, 2004.

plantation, crop-spraying company and the Health Minister have denied causing harm or conducting aerial application in contravention of national regulations (or permitting them), the Court tribunal ruled in favour of the appeal. Inspections of the spray zones showed beyond doubt that the distance between the plantations and houses was insufficient and that strong winds would carry drift directly onto them. Testimonial evidence from workers on long-term health impacts in relation to exposure was also influential. The Court partially accepted the claimants' case that current aerial application regulation is not adequate to guarantee citizens' constitutional rights to a healthy living environment. The Ministry of Health is charged with paying costs related to health and environmental damage caused in the Bananita Sur community and the Minister could face fines or a jail sentence if the Ministry does not improve its conduct.

### Chile farmworker illness

In Chile, a group of 22 farm workers fell ill following pesticide exposure in 2004, including several women suffering severe skin burning, leaving two permanently scarred [PN71 p16]. The farmer responsible for the spraying and for allowing harvest teams to enter sprayed fields appealed against the sentence and fine for non-compliance with workplace health and safety regulations. In late 2006, Chile's Supreme Court upheld the sentence imposed by the Maule regional court on Sr. Navarrete Rojas. However, the affected workers, PAN groups and women's organisations stress that the recent ruling does not address all the issues raised by this case. The state agency for agricultural services only collected plant samples 10 days after the poisoning incident, while the women workers continue to press for state compensation for damage to their health and livelihoods. Inhuman and illegal working conditions remain the reality for many of Chile's seasonal farm workers. Others who have suffered pesticide-related harm are too scared to speak out, following threats that they will lose their jobs. (SW)

1. *At last, justice for Silvino*, pp. 8-9; *Ruling in favour of the community*, p. 10, and *Agricultural business man fined*, p.11, [all in Spanish], *Enlace 75*, PAN Latin America, Santiago, Chile, 2007.

3. *Salameh PR, Baldi I, Brochard P, Raheison C, Abi Saleh B, Salamon R. Respiratory symptoms in children and exposure to pesticides*. *European Respiratory Journal*. 2003, 22:507-512

4. *Salam MT, Li Y-F, Langholz B, Gilliland FD. Early-life environmental risk factors for asthma: findings from the Children's Health Study*. *Environmental Health Perspectives*. 2004, 112:760-765.

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