

<b>PWR:</b> Belize	<b>TCC PROJECT FINAL REPORT</b> <b>INFORME FINAL DE PROYECTO CTP</b>	2003 No. 13	<b>Date:</b> <b>Fecha:</b>
<b>Pan American Health Organization/Organización Panamericana de la Salud</b> <b>TCC FINAL REPORT / INFORME FINAL DE PROYECTO CTP</b> <b>SUMMARY SHEET / RESUMEN</b>			
			<b>Report Date / Fecha del Reporte:</b> February 9, 2006
<b>1. GENERAL INFORMATION / INFORMACIÓN GENERAL</b>			
<b>Project title/ Título del proyecto:</b>		<b>Country Leading / País Líder:</b>	
Strengthening of Acute Pesticide Intoxications Surveillance via Monitoring of Cholinesterase Levels in Blood.		Belize	
<b>Participating countries/ Países participantes</b>		<b>Start date / Fecha de inicio:</b>	
<b>Belize – Nicaragua</b>		September 2004	
		<b>End date / Fecha de finalización</b>	
		December 2005	
<b>2. PROJECT BACKGROUND AND ORIGIN / ANTECEDENTES Y ORIGEN DEL PROYECTO</b>			
<b>a) Context/ Contexto</b>			
<p>The importation and indiscriminate use of pesticides in the Central American Isthmus has increased significantly over the past years causing health and environmental problems of different magnitudes in all the countries. This is due to the fact that synthetic pesticides are used as the main method for pest control in agriculture, quarantine, public health vector control programs and domestic pest control activities. Central America is the sub-region with the highest pesticide use per capita at 1.5 kg/person/year, doubling WHO's world average estimate of 0.6 kg/person/year (PAHO/WHO, 2002).</p> <p>In order to address the increasing problems related to the use of pesticides in the Central American Isthmus the "Occupational and Environmental Aspects of the Exposure to Pesticides" (PLAGSALUD) Project was developed and implemented in all the seven Central American Countries between 1994 and 2003. The Ministries of Health, in coordination with relevant stakeholders from government, non-government agencies and the technical cooperation from the Pan American Health Organization made significant progress in addressing health and environmental problems related to the use of pesticides. One of the main achievements of this project was the establishment of acute pesticide intoxication surveillance systems in all participating countries.</p> <p>Acute pesticide intoxications, resulting from both occupational and non-occupational exposures, represent a significant public health problem in Belize and Nicaragua. Studies conducted in the two countries show high morbidity and a significant mortality levels due to acute pesticide intoxications. And while the epidemiological surveillance of acute pesticide intoxications has been integrated into the national surveillance systems, only about 2% of the total cases are being reported.</p> <p>The epidemiological records and studies show that a significant number of acute pesticide intoxications, both in Belize and Nicaragua, are caused by organophosphate and carbamate pesticides. These pesticides are known to inhibit or suppress acetylcholinesterase (AChE) enzymes levels in the blood. The degree of cholinesterase (ChE) inhibition indicates the extent of exposure to the pesticide. Therefore, testing or monitoring ChE levels would allow the identification of those persons potentially at risk, preventing severe intoxications and increase the capacity for diagnosis and treatment of those intoxicated. However, cholinesterase testing was not readily available, especially in Belize.</p> <p>This project was developed to increase the capacity of both countries to monitor ChE levels through the sharing of experiences and increased bi-national cooperation, hence improving the surveillance and prevention of acute pesticide intoxications.</p>			
<b>b) Purpose/ Propósito</b>			
Strengthen national and local capacity and bi-national cooperation in the surveillance and prevention of acute pesticide intoxications.			
<b>c) Expected results/ Resultados esperados</b>			
<ol style="list-style-type: none"> <li>1. National cholinesterase base line levels established in both countries.</li> <li>2. Strengthened laboratory capacity to monitor cholinesterase levels at national and local level.</li> <li>3. Increased capacity in the management and prevention of acute pesticide intoxications.</li> </ol>			

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<b>3. PROJECT EXECUTION / EJECUCIÓN DEL PROYECTO</b>		
<p><b>a) Achievement of the expected results / Logros de los resultados esperados</b> All expected results were fully achieved.</p> <p>1. National studies to determine the cholinesterase baseline level were conducted in each country. These levels have become the official reference values to monitor exposure, treatment and prevention of acute pesticide intoxications in both countries.</p> <p>2. Testing kits were acquired through the project and cholinesterase testing is available countrywide, especially in those areas where high-risk workers had been identified. Laboratory and public health personnel were trained in the use of these kits. Upon recognizing the importance of monitoring cholinesterase levels among workers some large agricultural employers in Belize purchased testing kits and provided to the health centers in their areas. There has also been an increasing demand for cholinesterase testing from the private sector.</p> <p>3. The local and national capacity in the clinical management and surveillance of acute pesticide intoxication has increased as a result of training provided to health personnel and the availability of cholinesterase testing in all health regions.</p>		
<p><b>b) Specific products / Productos específicos</b></p> <ul style="list-style-type: none"> <li>- National cholinesterase baseline study</li> <li>- Cholinesterase baseline determined in both countries</li> <li>- Equipment for cholinesterase testing provided to health regions.</li> <li>- Draft guidelines for protecting exposed workers prepared.</li> <li>- Recommendations for the preparation of national regulations for cholinesterase testing.</li> <li>- Trained medical and public health personnel, as well as labor and social security inspectors.</li> <li>- Revised acute pesticide intoxications surveillance manual</li> </ul>		
<p><b>c) Additional achievements / Logros adicionales</b></p> <ul style="list-style-type: none"> <li>- Identification of high-risk geographical areas and population groups</li> <li>- Interest and support of the private sector in establishing and expanding local capacity in monitoring and preventing exposure to pesticides.</li> <li>- Increased public awareness on acute pesticide intoxications.</li> <li>- Strengthening of the national occupational safety and health program, especially in the agricultural sector.</li> <li>- Increased and continued collaboration between Ministries of Health of Nicaragua and Belize, especially at the technical level.</li> </ul>		
<p><b>d) Limitations / Limitaciones</b></p> <ul style="list-style-type: none"> <li>- Delayed implementation of project activities due to constraints in mobilizing health personnel/staff from one country to another.</li> <li>- Limited personnel to fully implement an active surveillance system, as required.</li> <li>- Technical problems with testing kits acquired (e.g. temperature interference and hemoglobin readings).</li> </ul>		
<p><b>e) Total budget and amount spent / Presupuesto total y ejecutado</b> \$47,500 (29,500 from PWR Belize and \$18,000 from PWR Nicaragua): Financial Execution: \$41,458 PWR Belize: 23,458 PWR Nicaragua: \$18,000</p>		
<b>4. STAKEHOLDERS INVOLVED, E.G. MINISTRIES, INSTITUTES, FOUNDATIONS, NGOS / ACTORES INVOLUCRADOS, EJ: MINISTERIOS, INSTITUTOS, FUNDACIONES, ONGS.</b>		
<ul style="list-style-type: none"> <li>- Ministry of Health</li> <li>- Social Security</li> <li>- Ministry of Labor</li> <li>- Pesticides Control Board</li> <li>- Banana Growers' Association</li> <li>- National Occupational Safety and Health Committee</li> </ul>		

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<b>5. LESSONS LEARNED / LECCIONES APRENDIDAS</b>			
<ul style="list-style-type: none"> <li>- Countries can address common public health problems through TCC, however both countries need to be fully committed to give and take.</li> <li>- The establishment of a new requirement/service can be challenging and lengthy, especially when there are limited national resources.</li> <li>- The establishment of national health reference values is very important for proper diagnoses and treatment; using global references or values from countries which vary significantly can be misleading and even risky.</li> </ul>			
<b>6. CONCLUSIONS AND RECOMMENDATIONS / CONCLUSIONES Y RECOMENDACIONES</b>			
<ul style="list-style-type: none"> <li>- The project's prupose was achieved to a great extent, however the achievements can only be sustained if the national authorities remain committed to the continued implementation of the cholinesterase monitoring program.</li> <li>- The preparation of natonal regulations for mandatory cholinesterase moniroting needs to be completed. This will require support from the regular budget for 2006-2007 BPB. Once completed, follow-up will be required to ensure that the national authorities approve and enforce such regulations.</li> <li>- Share experience with other countries who use are moniroting cholinesterase levels using field kits in agricultural workers exposed to organophosphates and carbamates.</li> </ul>			