**RESEARCH FOR HEALTH PROJECT FINAL REPORT**

BY JOHN H.W. HUMMEL OCTOBER 28, 2000

INTRODUCTION

This final report details my activities, major findings, conclusions and recommendations as ‘Ontario Partner’ in the ‘Research for Health Project’ presently being conducted by the Kahnawake Environment Office. This report covers the time period from August 26th to October 28th of this year. Hours worked: 222.5, Expenses Incurred: $1,172.45

RESEARCH METHODOLOGY

The major research methods used for this project are detailed in ‘Progress Report No. 1’ which was submitted to Kahnawake Environment on September 15th. Since that time, several additional research methods have been added including: 1) a ‘Research for Health’ information request was mailed to all 127 Ontario First Nations and to 103 additional contacts who may be able to provide some of the data we are seeking, 2) Health Canada was contacted and asked to send two important health studies and 3) Environment Canada’s National Pollutant Release Inventory was searched in order to determine which specific companies are releasing pollutants related to scleroderma, diabetes, iscemic heart disease and cancer near First Nations communities.

RESULTS

As of October 28th the following documents have been forwarded to the Kahnawake Environment Office 1) 244 abstracts of published scientific studies, 2) 44 entire published scientific studies, 3) 15 excerpts from studies including the cover page, table of contents, executive summary, key pages, recommendations and conclusions, 4) 186 additional documents which have relevance to the project, 5) a current contact list for all Ontario First Nations, 6) a comprehensive 26 page contact list for all groups and individuals who received the ‘Research for Health’ mailout (on computer disk and also a hard copy), 7) a computer disk containing the Diabetes/Dioxin telephone contact list of 55 key contacts and 8) a computer disk containing hundreds of Internet links to non-government funding sources, First Nations, environment groups, media and other web sites of interest to environmental/aboriginal rights activists.

The focus of most of my research since September 15th has been on the following topics: 1) links between exposure to specific industrial chemicals and major health problems being experienced by First Nations communities e.g. scleroderma, diabetes, ischemic heart disease, cancer and thyroid problems, 2) locating specific companies releasing these chemicals and finding out how much of each toxic substance those companies are releasing, 3) identifying information gaps in the scientific literature and determining some of the steps necessary to filling those gaps.

MAJOR FINDINGS

There is a scleroderma epidemic happening at Kahnawake. Exposure to the following chemicals has been linked to the onset of scleroderma and other autoimmune diseases: vinyl chloride, trichloroethelyne (TCE), tetrachloroethelyne, methylethlketone and possibly toluene. In the United States these chemicals are present at many hazardous waste sites at levels from hundreds of thousands of times higher in groundwater to millions of times higher in soils and sediment than the U.S. EPA’s maximum regulatory levels in drinking water. TCE was blamed for the deaths of 12 children in Woburn, Massachusetts. That incident provided the storyline for the 1998 movie called ‘A Civil Action’. One scientific study described a previously healthy 47-year-old woman who developed scleroderma after being exposed to TCE for just over two hours. A Hamilton Ontario woman recently won a workers compensation victory for workplace induced scleroderma. The Hamilton woman was exposed to methylethylketone and perchloroethelyne while working at the Susan Shoe Industry Ltd. In Burlington Ontario. So far this is the second worker to win a workers compensation case for workplace induced scleroderma. After an extensive search on the NPRI database, I found that some of the industries located close to Kahnawake released tons of some of the above mentioned chemicals over the years. One example from the NPRI database is a company called Safety-Kleen Inc.- Centre de recyclage de St-Constant which reported that it released methylethylketone, tetrachloroethylene, trichloroethelyne and toluene. This company also released the toxin benzene which is toxic and/or cancer causing.

Information Gaps: There is an epidemic of scleroderma at Kahnawake which may be linked to exposure to some of the chemicals listed above but so far no research has occurred to explore this possible health threat from local industries and hazardous waste sites.

Recommendations: An inventory should be made of all potential sources of the above mentioned chemicals in the vacinity of Kahnawake, an investigation of all potential pathways for these chemicals to get into people should be initiated and people at Kahnawake who have scleroderma should be tested to see if they were exposed to these chemicals.

At Kahnawake, the prevalence rates of ischemic heart disease in adults with and without diabetes are the highest reported in a North American Indian population. Ischemic heart disease has been linked to dioxin exposure in recent studies of Vietnam veterans exposed to the dioxin-contaminated herbicide Agent Orange. A mortality study of people living near the notorious Sydney Tar Ponds in Sydney Nova Scotia found a significantly elevated rate of death from ischemic heart disease, diabetes, cancer and many other illnesses. Although nobody near the Tar Ponds was ever tested for dioxin exposure, it is well known that steel making is a major source of dioxin and Sydney Steel (which is still releasing dioxin) has been in operation for over 100 years. Elevated levels of ischemic heart disease were also found in people exposed to dioxin from an industrial accident in Seveso Italy. The prevalence of ischemic heart disease has increased in the Native population of Ontario even though the incidence of this disease is declining in Ontario’s non-native population. Dioxin has been found in St. Lawrence fish and companies near Kahnawake such as Nova PB Inc. release dioxin.

Information Gaps: It is not known why Ischemic heart disease is so high at Kahnawake. Heart disease is often a complication of diabetes and there is a lot of diabetes at Kahnawake but that does not explain why the prevalence of this disease is 22 per cent for those without diabetes. In those people with diabetes the rate was 48 per cent but neither age, sex, smoking, hypertension nor obesity could explain the high rates of this complication in the people. It is also not known why the rate of this disease is increasing in Native people living in Ontario while simultaneously decreasing in the non-native population.

Recommendations: There is the possibility that pollution is a contributing factor to the onset of ischemic heart disease. All local sources of and potential pathways for dioxin and arsenic pollution should be determined and if they are present in the area, the people should be tested for those substances.

There is an epidemic of type 2 diabetes (adult onset) happening in Kahnawake and in First Nations communities all over Canada. Federal Health Minister Allan Rock recently said that “it is estimated that over a quarter (it’s actually 27%) of First Nations people will have type 2 diabetes within the next twenty years”. Recent studies have also shown that native children are now getting type 2 diabetes. Numerous studies have shown an association between dioxin exposure and the onset of type 2 diabetes. Studies have shown a link between arsenic exposure and diabetes and preliminary research indicates there may be a connection between diabetes and PCB’s. Some of the largest sources of dioxin in the past and at present are pulpmills, steel mills, incinerators, smelters, herbicide spraying and tepee burners. Thousands of First Nations people (in roughly 150 communities across Canada) are either downstream from or live near pulp and paper mills which polluted their waters and fish with dioxin, furans and assorted other poisons. Many first Nation’s people ate fish containing some of these poisons for decades.

Information Gap: Although the Canadian government closed fishing grounds all over Canada due to concern about dioxin/furan related health risks, it never bothered doing dioxin/furan testing of the people in downstream communities who eat those fish. Although there has been extensive testing of Inuit people for these toxins, I am only aware of 3 such studies in First Nation’s communities. Also, no one at Health Canada or in Canada’s scientific community has conducted research into the connection between dioxin exposure and the onset of type 2 diabetes and ischemic heart disease.

Recommendations: There are literally thousands of published scientific studies showing an association between dioxin and dioxin like substances with a great many health problems e.g. cancer, chloracne, endometriosis, diabetes, heart disease etc. Health Canada should immediately do dioxin testing and extensive epidemiological studies in all First Nation’s communities likely to have been exposed to this toxin. Considering the mounting world-wide evidence of a link between dioxin and type 2 diabetes and between dioxin and ischemic heart disease, Health Canada and Canadian scientists should start doing extensive research into those links.

There is evidence of significant excess in incidence and prevalence of hypothyroidism among Akwesasne Mohawk women (especially older women). The people in this community were heavily exposed to PCB’s and there is a study currently being conducted to investigate the association between long-term exposure to PCB’s and acquired hypothyroidism, to identify the critical exposure routes and to develop and apply toxic equivalents for thyroid disease for the various PCB congeners. A recent study done in a PCB polluted area of Slovakia reached the conclusion that the increased thyroid volumes and prevalence of thyroid disorders in the polluted areas presumably results from long-term exposure to toxic substances. A study of consumption of Great Lakes fish found that the environmental PHAH mixtures accumulated in fish represent a significant threat to the thyroid hormone economy. Another study looking at heavily polluted beluga whales in the St. Lawrence River said that functional and morphological changes have been demonstrated in the thyroid gland and adrenal cortex in many species exposed to organochlorinated compounds.

Information Gaps: Although Inuit people have been extensively tested for PCB’s in their bodies it is not known how many similar studies have been conducted in First Nations communities (I only know of two at the present time). Also it is not known if PCB exposed aboriginal people in Canada have an elevated rate of thyroid disorders.

Recommendations: Keeping in mind that PCB’s come down as fallout from air pollution (sometimes in isolated areas like Nunavut) and remembering that this toxin has also been known to leak from hazardous waste sites, studies should be undertaken to identify any increased incidence of thyroid problems in PCB exposed First Nations and Inuit Communities.

A recent study comparing the rates of type 2 diabetes in the two largest Algonquin communities in Quebec found that Lac Simon women had a prevalence rate of type 2 diabetes reaching the rate found in Pima Indian women. The Pima people have the second highest rate of type 2 diabetes in the world. The study also found the rates of type 2 diabetes varied markedly between the two communities studied. The observed differences between the two Algonquin communities suggests a highly heterogeneous pattern of Type 2 diabetes and cardiovascular disease risk factors in aboriginal populations even within a given tribe and limited geographic area. A previous study of the same two communities concluded that: although widespread, particularly in women, obesity cannot entirely explain the much higher rate of type 2 diabetes in Lac Simon.

Information Gaps: Since these two genetically similar communities have large differences in their rates of type 2 diabetes and since obesity can not entirely explain the differing rates in the two communities what then explains what is occurring at Lac Simon? Could another element be involved?

Recommendations: The people of Lac Simon should be tested for possible dioxin and arsenic contamination. If significant levels are found in the people then the sources of the pollution should be stopped and cleaned up.

The North American Commission for Environmental Co-operation together with Dr. Barry Commoner of Queen’s College New York published a study linking dioxin pollution in specific Inuit communities to individual companies in Canada, the U.S.A. and Mexico. It is the first ever continent-wide study of dioxin that traces source-to-receptor relationships. One of the companies shown to be polluting the Inuit was a municipal waste incinerator in Levis Quebec. This model provides First Nations communities with a tool that can be used to tackle the pollution problem right at the source and it provides the people with a means of identifying the sources of all kinds of pollutants-not just dioxins-entering the environment.

Information Gaps: Some of the research techniques used in this important study are very new but they seem to be very effective for tracking down polluters. Once this model is more widely used it should become a much more refined investigative tool.

Recommendations: All first Nations communities who are found to have toxic chemicals in their peoples bodies should use the above technique to track down the specific companies which are polluting them and take legal and political action to force those companies to stop polluting people, clean up the mess they have made and pay compensation for any health and environmental damage they have caused.

CONCLUSION

Pollution from industry and a variety of other sources is contributing to some of the major health problems currently being experienced by First Nation’s people. Those most vulnerable to the ill effects of pollution are the elders, the children and the unborn babies who are still inside their mothers. First Nations people who rely on traditional foods like fish and other animals are in a “catch 22” situation. If the people eat a lot of wild foods they may be exposed to poisons that bioacumulate in their bodies and harm their health. If the people stop eating wild foods then the beneficial effect of that food is gone and a central part of the people’s culture is lost. Such a situation leads to poor health and social disintegration. The situation I just described is genocide. The only option I can see for First Nations to escape the “catch 22” is to hunt down the specific companies who are polluting their people, force those companies to stop the pollution, clean up their toxic mess and pay damages to their victims. I hope that my participation in the ‘Research For Health’ project has given the people a few tools with which to protect their people.

For Land and Life,

John H.W. Hummel