



POPs situation in Senegal- Executive Summary

Pesticide Action Network (PAN) prepared and produced a report on the situation of POPs in Senegal. This work started in December 2017 and ended in May 2018. It should be recalled that Senegal ratified the Stockholm Convention, which deals with POPs issues, in October 2003. To meet its obligations, Senegal made its first National Implementation Plan in 2003 and this was updated in 2014.

The objective was to take stock of the situation of POPs in Senegal in terms of production, use, emissions, and pollution, but also to review the regulatory aspects at the national level and especially in terms of the management policy of POPs in Senegal. POPs are produced for use as pesticides, or as industrial chemicals, while others are by-products unintentionally generated during combustion or chemical processes that take place in the presence of chlorine compounds.

The first POPs inventory included polychlorinated biphenyls (PCBs), POPs pesticides, dioxins and furans. But this first inventory was not thorough. Thus, in 2014, a second inventory was made and revealed the presence of polychlorinated biphenyls (PCBs) in transformers, especially those used by the National Electrification Company (SENELEC). A total of 1243 in-service and out-of-service transformers have been identified and assumed to contain PCBs. The PCBs were also detected in the oils. For example, 1 thousand (1000) liters of dielectric liquid containing PCB oils, stored in 5 drums of 200 liters each, were found at ICS MBAO and C3 Central Cap des Biches.

With regard to dioxins and furans, significant emissions were noted in the combustion of biomass in the domestic environment and would represent more than 5,376 g TEQ / year, approximately 44 times higher than emissions at the industrial level. For other sectors,

emissions have been noted, but are of less importance. For example, four-stroke engines running on unleaded gasoline (with and without catalysts) or diesel emit 0.065 g TEQ / year, while two-stroke engines running on unleaded gasoline emit 0.016 g TEQ / yr in the air. For the petroleum refining sector, for 2012, the quantities emitted into the air are 0.024 g TEQ / yr. The intensity of the source would be 44.080 g TEQ of dioxins / year.

In Senegal, we also find polybrominated diphenyl ethers (PBDEs) detected in the foam of vehicles currently in service (2013) and are of the order of 1 223 kg for trucks and cars from the USA and 1 100 kg from other countries, and 85 kg for buses from the USA and 416 kg for those from other countries. About 895 kg of POPs-PBDEs from vehicle's polyurethane foams entered their end-of-life phase between 2005 and 2013. This poses a real problem in the management and disposal of these PBDEs because Senegal does not have appropriate technology for the environmentally sound management of this type of POPs.

As for POPs pesticides, Senegal does not produce or use POPs pesticides listed in the Appendices of the Convention (Aldrin, Dieldrin, Endrin, Chlordane, Mirex, Heptachlor, Toxaphene, Hexa chlorobenzene and DDT). However, a stock of ROCKY 386 EC, containing prohibited active ingredients such as endosulfan, is available in some chemical distribution and sales stores.

With regard to PFOS, they were inventoried for the first time in 2014. They were detected in the industry sector, specifically in fire-fighting foams or its related substances. Thus, 6,800 liters were listed, including 1,200 liters at ORYX Senegal (Dakar region) and 5,600 liters at the Chemical Industries of Senegal (Thiès region) and were manufactured in 1999, well before 2003.

For synthetic carpets and rugs, quantities of between 979.9155 tonnes and 9799.155 tonnes / year were found based on imports of 1 959 831 kg / year with a 500-5000 mg PFOS / kg. More than 655.1 kg of waste likely to contain PFOS or its related substances are stored at the State Computer Agency (ADIE). Thus, the quantities of PFOS present in electrical and electronic waste have been estimated at around 0.13 tonnes / year of PFOS and at least 0.65 tonnes / year. The quantities of PFOS in hydraulic fluids for the year 2014 are between 0.0817 and 0.16434 tons / year. In Senegal, the annual net PFOS consumption is between 12491.3 and 66 916.3 kg / year, ie about 12.5 tonnes and 67 tonnes / year.

POPs: sources of pollution

Between 2003 and 2004 cases of intoxication were recorded in Vélingara (southern Senegal), which is the cotton zone par excellence. Indeed, endosulfan was the cause of 162 cases of intoxication, including 20 deaths in the area (PAN Africa).

With regard to groundwater, contamination from POPs was detected in the Niayes area of Dakar (Cissé I. & al, 2006). Indeed, residues of endosulfan have been found in some samples with concentrations up to more than 100 µg / (Ciss.I. & al, 2006). POPs are also present in ambient air (CERES Locustox, 2012) particularly in the sites where the samples were taken. PCBs and Dieldrin were found at the Ngoye site but at low concentrations. At the same time, in the marine sediments of industrial areas of Dakar, individual concentrations of PCBs were also detected at a lower concentration. However, there is no reported organic contamination data for two other sites selected in this study.

Monitoring of breast milk (Poison Center, 2012) revealed high levels of POPs pesticides, PCDDs, PCDFs and dioxin-like PCBs in milk samples collected in Senegal.

In Senegal, POPs are detected in virtually all sectors (transport, industry, informal, agriculture, electrical and electronic materials, consumption, etc.). PAN Senegal has formulated a set of recommendations to ensure that urgent measures are taken to mitigate the problems associated with POPs and achieve an environmentally sound management of these pollutants. Please see the full report for these recommendations.