

# Integrated Production and Pest Management (IPPM) Programme in West Africa

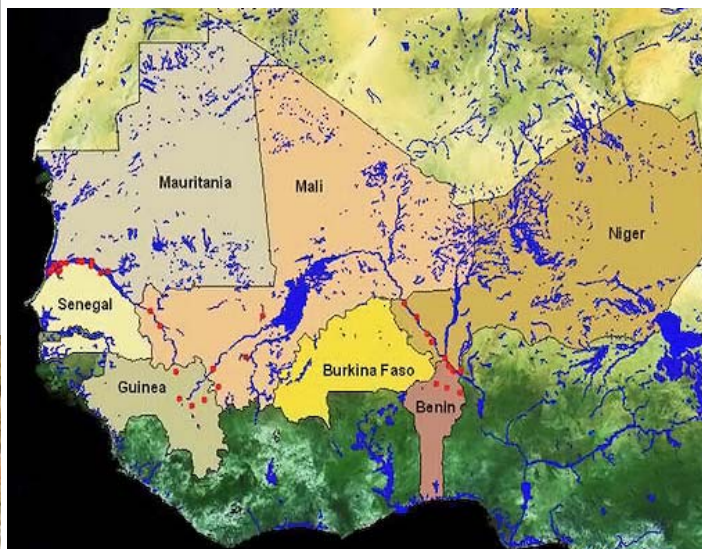
Brief Information



Trends in irrigated agriculture over the past four decades in West Africa have been marked by overuse of agro-chemicals that are likely to produce damaging effects on water, air, wildlife, and human health and well-being.

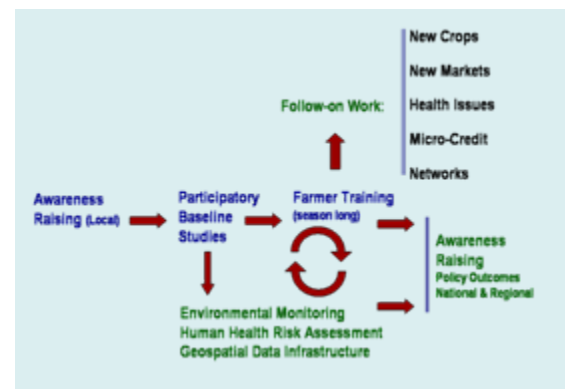
Pilot tests in 3 villages along the Senegal river found 19 pesticides above detection level, with 90% being tens-to-hundreds of times above levels considered safe with respect to environmental and human health risks.

The Integrated Production, Pest and Pollution Management (IPPM) Programme in West Africa encompasses the Niger and Senegal River Basins. It addresses sustainable agriculture and riverine contamination issues in **seven countries: Benin, Burkina Faso, Guinea, Mali, Mauritania, Niger, and Senegal.**



**Purpose:** To build increasing capacity at all levels for economically and ecologically sustainable and resilient agro-ecosystems, while improving quality of transboundary waters in the Niger and Senegal River Basins through substantial reduction and elimination of toxic pesticides.

**Approach:** After initial awareness raising, the programme establishes a solid baseline of agronomic, economic and ecotoxicological data for each participating community. These data inform the content for farmer training via the well-known Farmer Field School (FFS) methods, which treat a range of related topics. The outcomes from the work are then used to raise awareness at national, regional and international levels. The programme represents **the first large-scale effort in Sub-Saharan Africa to comprehensively monitor pesticide use in agriculture and to estimate associated economic and health risks .**



## Farmer Field Schools and marketing of safer food produce

A typical farmer field school brings together 25 farmers weekly for an entire cropping season. Farmers work together in a common set of experimental fields with guidance from facilitators trained by the programme. Here they jointly design experiments and observe, record, discuss, and interpret their findings to develop improved management systems. This discovery-learning and participatory process helps to develop an ecosystem perspective by generating a deep, mechanistic understanding of their specific agro-ecological system. *Farmer groups will be supported to produce and commercialize safer and more sustainable produce on local and international markets.*

Food and Agriculture Organization of the United Nations



**Target** - 130,000 farmers for season-long training in seven countries

**Cropping systems** - irrigated rice, vegetables, cotton, sesame, mango

**Other topics** - Farmer Business Schools, Integrated Vector Management for vector-borne diseases, rice-based aquaculture

### Scientifically-based Environmental Monitoring

Environmental monitoring and pesticide risk assessment (i) generates high quality data necessary for the setting of protective standards for human and environmental health and (ii) promotes the development of a robust model for sustainable agricultural production.

A novel *Passive Sampling Device* (PSD) approach is used for measuring concentrations of environmental contaminants in water, as a function of space and time. This method is immune to accidental and extreme variations of pollutant concentrations.

A *Virtual Analytical Laboratory* will promote collaboration among African ecotoxicology laboratories and strengthen their institutional and technical capacities. This effort builds on a collaboration initiated between the Ceres Locustox Laboratory (Senegal) and Oregon State University (United States of America).

A *Pesticide Fate and Transport Modeling* framework provides an approach to estimate pollutant concentrations, while the *Quality Assurance Plan for Sampling and Analysis* guarantees that the environmental monitoring program serves the intended purpose and that results are representative and meet standards for Good Laboratory Practices.

### Integrated Pesticide Risk Assessment

*The Human Health Risk Assessment* instrument evaluates the consequences of pesticide exposure from various environmental media including soil, air, water, and biota and via multiple pathways (ingestion, inhalation, dermal exposure). An aggregated exposure assessment characterizes acute and chronic risks over time for various sensitive sub-populations (infants and children; pregnant women; elderly; sick).

*Community baseline surveys* are critical to identify the starting conditions in the communities by capturing essential details of cropping systems, pesticide use, agronomic practices, economic production details, local hydrology, farmer attitudes, etc.,. Core data collected guides and informs the various activities and provides a base-line for measurements of economic and environmental impacts over time.

*Communication and Awareness Raising* activities bring results back into the communities to illustrate the existence and importance of the multiple benefits derived from under-appreciated ecosystem services and also support recommendations to policy-makers for change.



### Target Beneficiaries

Stakeholder involvement has been critical at every stage and includes dozens of government agencies, NGOs and Farmer Organizations. It brings in policy-makers, the research community, CGIAR/NARS, donors, consumers and others. Stakeholder buy-in and national ownership of project deliverables determine the long-term success and sustainability of project approaches and outcomes.

**Strength and novelty** of the programme lies in its breadth and depth of knowledge, bridging the fields of epidemiology, public health, ecotoxicology, risk assessment, entomology, agronomy, economics, policy sciences and natural resource management. A scientifically-based approach will ensure that results will be legally defensible and directly meaningful to communities and policy-makers.

### For more information

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The Programme is funded by: major contributions by the Government of the Netherlands, the Global Environmental Fund and with additional funding by the European Union and the governments of Sweden and Norway and the participating countries

Programme partners include:

