DNA and stable isotope technologies to fight illegal logging

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Illegal logging and associated trade

1. Unsustainable and illegal logging is driving deforestation and forest degradation worldwide for example in the Amazon, Central Africa, South East Asia and Russia. The trade of such illegal wood is generating annually between US$10–15 billion.
2. Stopping or reducing the trade of illegal wood & wood products requires the ability to **identify timber species** and determine their **geographic origin** anywhere and anytime along the **supply chain: DNA and stable isotope technologies** are useful for that in combination with wood anatomy.
3. DNA can be extracted not only from freshly cut wood but also **from wood products** and old samples of wood. Particular markers can be used as a "DNA barcode" to identify species and others can be mapped to determine geographic origin. Stable isotopes are associated with physical properties associated with geographic location.
4. DNA and stable isotopes have proven to be useful for the traceability, monitoring and independent verification of timber and timber products; thus facilitating compliance with forest laws. They are also important to address the broad issue of **sustainable forest genetic resources management**.

Entandrophragma cylindricum

Global Timber Tracking Network (GTTN)

Through GTTN, Bioversity is bringing together key stakeholders to use, more effectively, existing and emerging science-based technologies to fight illegal logging and associated trade worldwide.

The goal is to facilitate the integrated use of DNA and stable isotope technologies in timber tracking to reduce illegal logging and associated trade.

In collaboration with its partners, GTTN with will set the international standard for use of these innovative timber tracking tools.

GTTN's approach

Networking	Database	Standards
▪ Experts and institutes using the methods ▪ Working Groups on: •Genetic methods, •Stable isotope methods, •Wood anatomy methods, •Policy and advocacy.	▪ Listing priority species ▪ Data sharing agreement ▪ Elaboration of database for selected species ▪ Agreement for the use and maintenance of the database.	Internationally accepted protocols and guidelines for genetic and stable isotope fingerprinting of timber species.

Logging operations in forest concession in Ghana

Sampling of wood cambium for DNA fingerprinting

Photos: M. Ekué / Bioversity International

Partners

Federal Ministry of Food and Agriculture

RESEARCH PROGRAM ON Forests, Trees and Agroforestry