



FACTSHEET

2021

THE “DIGITAL FINGERPRINT OF WOOD TRANSPORT”

AN INNOVATIVE TOOL FOR ENABLING
SIMPLICITY — TRANSPARENCY — EFFICIENCY
OF THE SYSTEM FOR COMBATTING ILLEGAL LOGGING



WHAT IS THE DIGITAL FINGERPRINT OF WOOD SHIPMENTS?

The “digital fingerprint of timber shipments” is an IT/AI solution that can automatically identify the uniqueness of each shipment of timber. The basic idea of this system is to “scan” and digitize the unique way in which wood materials are arranged/placed in the means of transport, and thus **automatically generate an “electronic seal” of the transported wood materials**, together with a **rapid determination of quantities/volumes**.

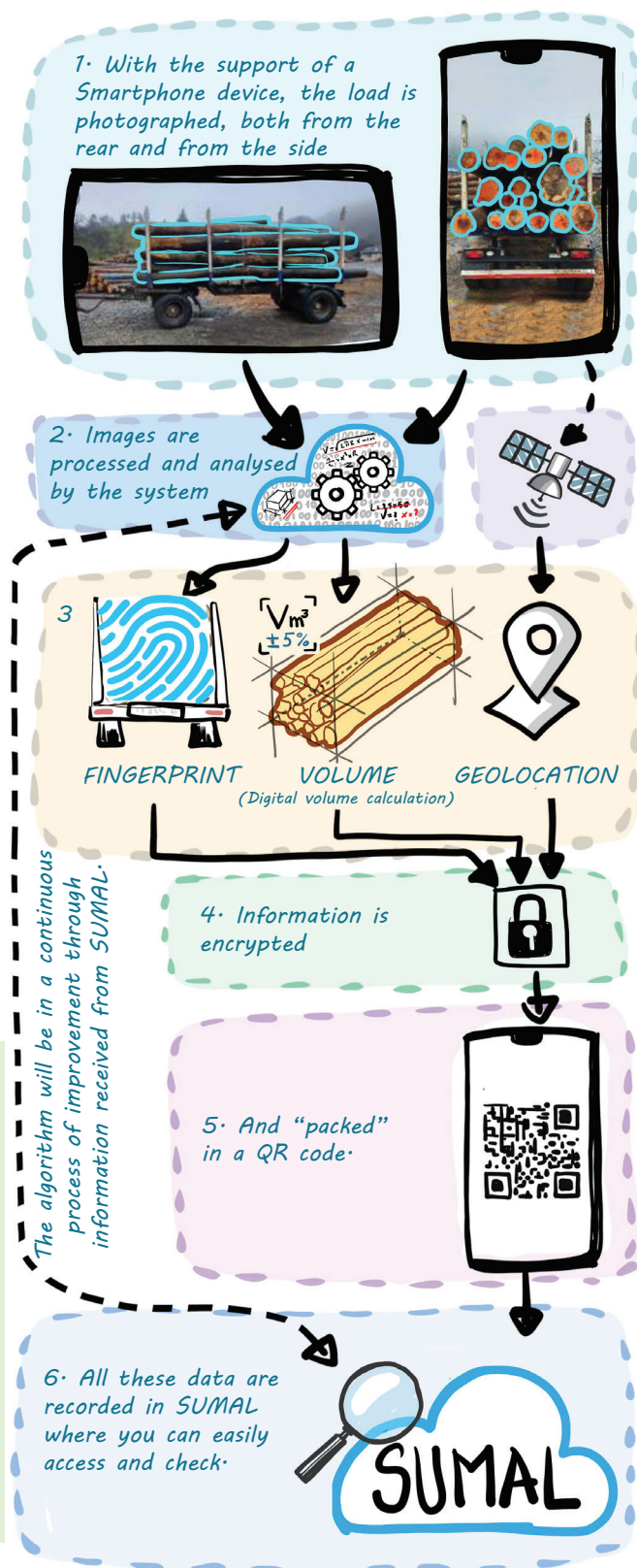
WHY IS SUCH INSTRUMENT NEEDED?

If we want to combat illegal logging effectively, the control system must be able to address, as a matter of priority, **the mode of operation whereby timber is placed on the market**. The problem of the integrated wood traceability tracking system (SUMAL) as part of the control system is that **it cannot support an automated and rapid verification of the data recorded in the system**, **cannot prevent material errors or fraud of volumes declarations** and **is not sized to generate alerts that are subsequently monitored in a transparent manner**.

Through the opportunities offered by modern technology, the “digital fingerprint of wood transports” can complement the SUMAL system for tracking timber traceability so that illegal shipments (whether we discuss unregistered shipments, multiple shipments using the same documents or fraud of records in terms of quantities/qualities declared) can be **automatically reported during controls**.

IT SUPPORTS AN EFFECTIVE CONTROL SYSTEM

- ✓ Allows automatic measurement and rapid verification of the quantities of timber transported.
- ✓ Simplifies verification procedures — with the same resources, 100 times more checks could be carried out;
- ✓ Generates clear evidences in case of multiple shipments or overloading.
- ✓ It provides more transparency and eliminates the subjectivity of the human factor.
- ✓ Strengthens the preventive role of the control system.



WWF Romania,

Bd. Tudor Vladimirescu nr. 29, sector 5, București, 050881, România. Tel. +40 21 317 49 96

office@wwf.ro | www.wwf.ro

WWF® and World Wide Fund for Nature® trademarks and ©1986 Panda Symbol are owned by WWF-World Wide Fund For Nature (formerly World Wildlife Fund). All rights reserved.

THE CENTRAL CHALLENGE OF THE SYSTEM FOR COMBATING ILLEGAL LOGGING



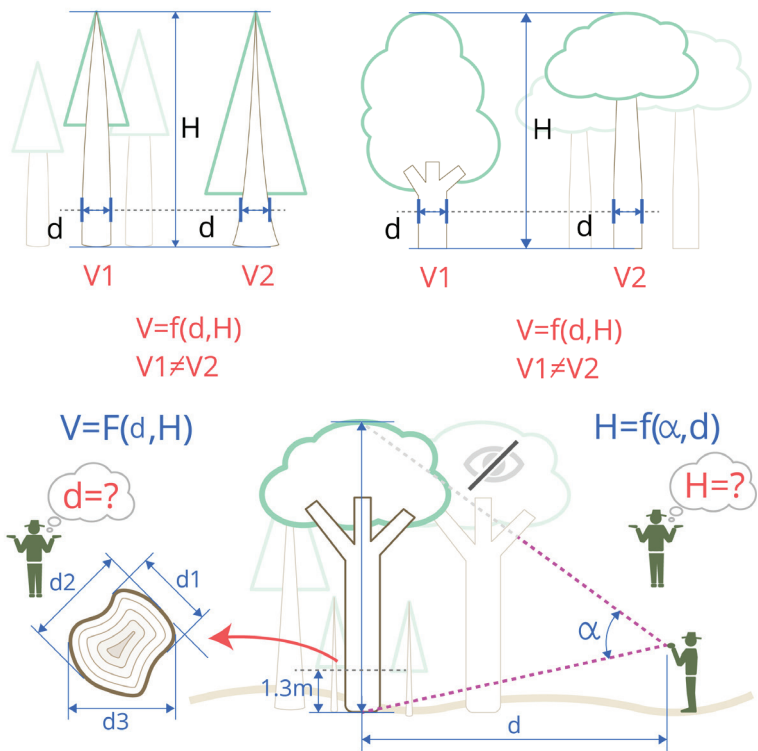
The System for combating illegal logging, begins and is very much influenced by the way we are selling the wood. For decades, the forestry in Romania is selling the forest in the form of a roughly estimated volume of trees in the forest before being harvested and it is not “concerned” on checking the quantities that are shipped out from the forest;



Several dendrometrical models are legally applicable for the volume estimation of the standing timber and therefore for the same tree inventory (diameter and heights) the volume differences can legally exceed 20 % (not including here the operator subjectivity). The irony is that the wood purchase contracts and SUMAL are based on these estimates provided to two decimal places!



Trees, like any living organisms, do not have regular shapes and thus there is no mathematical calculation method that can accurately provide the volume of wood.



© Șerban Niculescu (WWF), Ștefan Balea

The marking hammer - expression of an outdated and inefficient control system.

This ‘stumpage sales system’ corresponds to a control system based on the trees marking procedure — i.e., a hammer stamp applied on wood stump in the forest. But the “hammer stamp” does not constitute a solid evidence in court and it **cannot guarantee anything about the volume of harvested trees**. The same number of marked trees can mean a totally different volume of wood.

The advance payment for an estimated quality and quantity of wood is accepted and the harvested quantities and shipped out from the forest **are not finally verified**. That is the applicable legislation! We therefore consider **that in this way a ‘grey zone’ that cannot be controlled is established in practice.**



WWF Romania,

Bd. Tudor Vladimirescu nr. 29, sector 5, București, 050881, România. Tel. +40 21 317 49 96

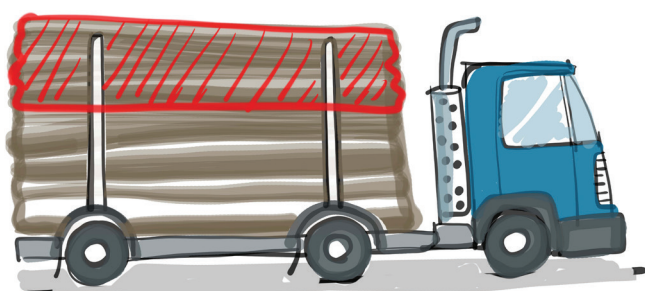
office@wwf.ro | www.wwf.ro

WWF® and World Wide Fund for Nature® trademarks and ©1986 Panda Symbol are owned by WWF-World Wide Fund For Nature (formerly World Wildlife Fund). All rights reserved.



BUT HOW CAN “EXTRA VOLUMES” BE TRANSPORTED OUT FROM THE FOREST, BY USING SUMAL?

The “*modus operandi*” has evolved over time from transports without documents, to multiple shipments using the same documents. Today the most common method is “overloading” — representing the fraud of wood volumes declaration of delivering documents that are registered in SUMAL.



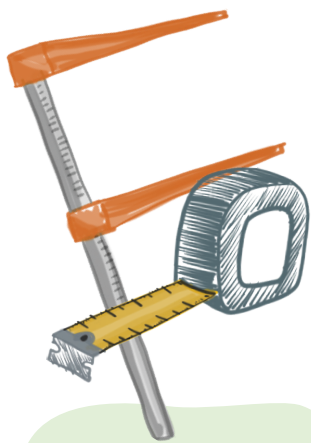
Thus, the ‘extra volumes’ (resulting from underestimating the volume of standing timber) or illegally harvested wood can be mixed and placed on the market right in front of our eyes, by transporting larger volumes of timber than those declared in SUMAL. If the transport is checked by the “forest inspector”, we may find that the transport has legally issued approval/valid code, but we cannot assess whether the volume of timber transported corresponds to the declared volume.

THE EVOLUTION OF “MODUS OPERANDI” REQUIRES VERIFICATION OF THE VOLUMES TRANSPORTED AT THE FIRST PLACING ON THE MARKET

Without effective and objective control of the wood quantities transported and registered, SUMAL remains rather a tool that can only ensure the documents traceability, which is ineffective in combating illegal logging.

OVERLOADED VOLUME





CUMBERSOME AND OUTDATED PROCEDURES FOR CHECKING WOOD QUANTITIES TRANSPORTED

Today, in the era of digitalization, **legal procedures for measuring and verifying the quantities** of timber transported require the same methods and tools as those in the Middle Ages: just the caliper and roulette. Thus, checking the legality of shipments of timber in terms of volumes must follow a legal, cumbersome and costly procedure that nullifies any efficiency of the entire system.



The **police officer** (who has legal authority to stop transports on public roads) must involve a **forestry staff** (the ones who have competence in measuring timber according to the norms) and summon the **legal representative of the operator** (that must be present during the whole process).



Today if, as a result of the check by the “**Forest Inspector**”, suspicions about a shipment of wood arise and 112 is dialed, an entire control procedure is triggered, which involves enormous resource consumption.



Together they must “get” a **certified wood handling machine and qualified worker** (for wood handling - unloading & loading) and identify an available wood depot where the measurement and storage of timber would be carried out (N.B. wood cannot be unloaded and stored on public roads, nor can other properties be affected).



Thus, the transport must be accompanied to the warehouse where the unloading and measurement of every single log begins, using the classic tools (caliper and roulette). The entire operation is finally concluded with the drawing up of a statement of findings.



In all this, there is a lot of downtime before the identification of the available warehouse (ideally) within the nearest forest unit, the acquisition of the machine with all the qualified workers and the arrival of the legal representative of the operator.

CHECKING A WOODEN TRUCK ON PUBLIC ROADS INVOLVES AT LEAST 4 PEOPLE AND ABOUT ONE FULL WORKING DAY

Overall, we can calculate an equivalent of about 32 man-hours plus the travel costs of all those involved, including the operating costs of the machine.

8h x 4 persons
32 man-hours



Without following this legal procedure, control staff can only check on public roads the validity of the code issued in SUMAL — NOT the volume!



COMPLICATED LEGAL PROCEDURES BLOCKING THE PERFORMANCE OF A RELEVANT PERCENTAGE OF ANNUAL CHECKS

In these circumstances, it is NOT surprising that there is no 'appetite' for the exercise of such thematic controls. So, here we have an explanation why less than **1 %** of timber shipments leaving the forest are controlled.

RESOURCES OBTAINED BASED "ON LITTLE ARRANGEMENTS"

If conformity is established, there is no regulation on who bears the costs of handling and measuring the timber. This will be then the responsibility of the person who coordinates the control and the matter will be therefore solved based "on a small arrangement".

As a *bona fide* operator, there is a risk of activity being blocked if there are several referrals and controls over the course of one year.



Imagine only the impact of a single control operation, in terms of CO₂ emissions.



WWF Romania,
Bd. Tudor Vladimirescu nr. 29, sector 5, București, 050881, România. Tel. +40 21 317 49 96
office@wwf.ro | www.wwf.ro

WWF® and World Wide Fund for Nature® trademarks and ©1986 Panda Symbol are owned by WWF-World Wide Fund For Nature (formerly World Wildlife Fund). All rights reserved.

“DIGITAL FINGERPRINT OF WOOD SHIPMENTS”

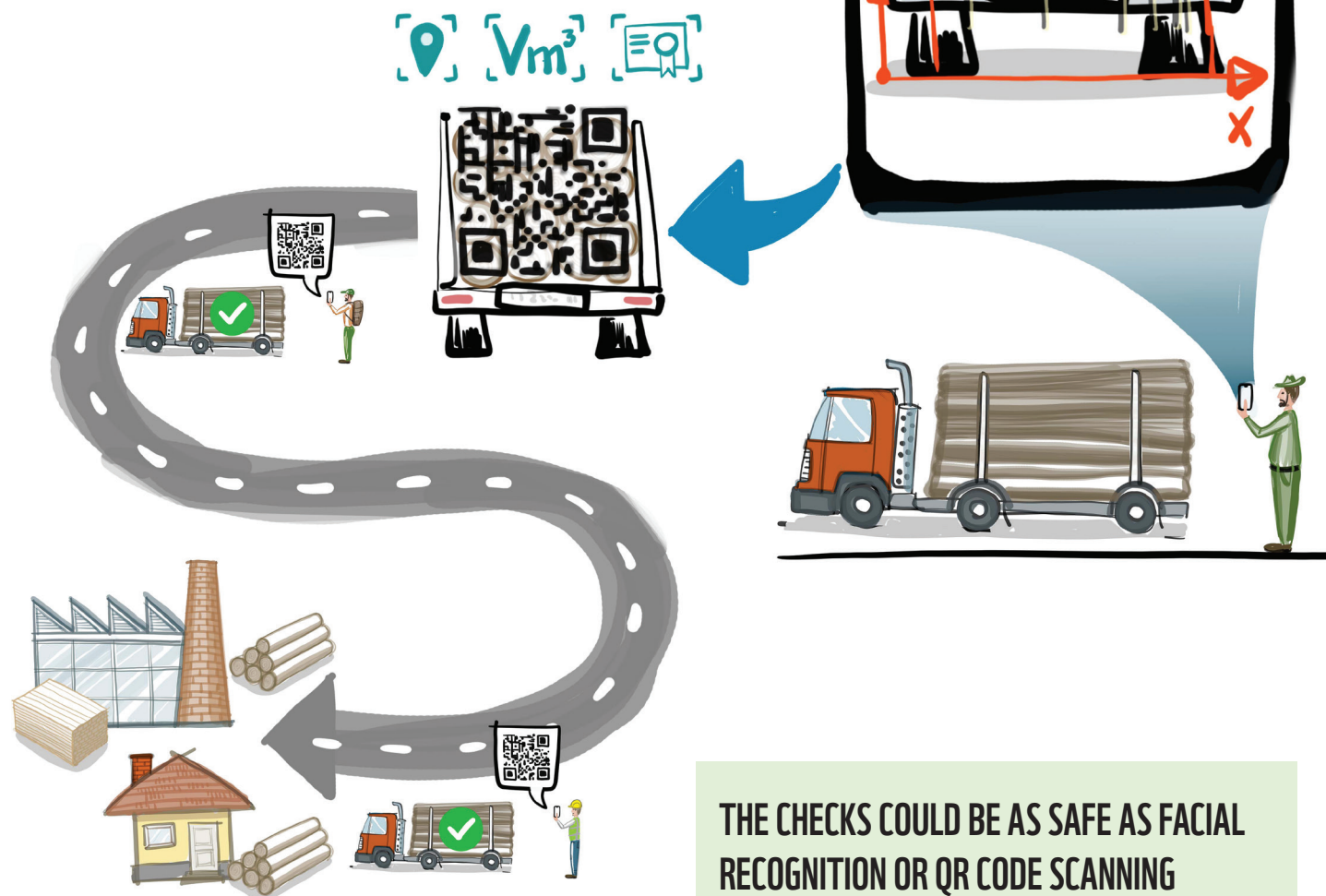
The Gordian Node in the traceability of wood today, is the expeditious measurement of wood and the assumption of the declaration of the quantities transported by registering them in SUMAL.

To deal with that we need new modern tools and procedures for wood measurements and verifications.

The volume of wood transported can be determined automatically by scanning and digitizing timber shipments, using IT solutions and artificial intelligence.

Thus, together with the automatic calculation of the volume, the unique way in which the wood is placed in the truck can also be encrypted, and so generating an ‘electronic seal’ of transported wood materials.

If this “digital fingerprint of wood transport” were recorded in SUMAL, any other way of placing the timber in the truck, be it another transport or subsequent loading, will be automatically flagged in the case of checks.



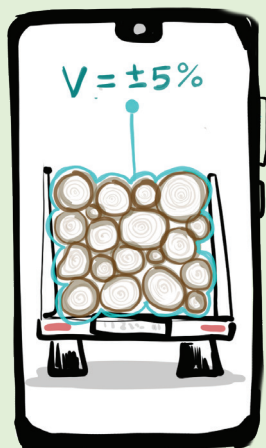
THE CHECKS COULD BE AS SAFE AS FACIAL RECOGNITION OR QR CODE SCANNING

Checks and receipt of transport by the buyer in relation to the legality of the declared volumes should be carried out on the basis of this “electronic seal” operable in SUMAL. Subsequently, if a much more accurate measurement of wood is to be achieved (including qualitatively), this acceptance could be done according to the contractual arrangements between the parties and updated in SUMAL.

- **Procedures for carrying out on-the-spot checks** should be **reviewed** so that the “fingerprint” is used as a pre-assessment tool, acting as an **objective and transparent filter** to identify shipments with potential non-conformities (exceeding the legal tolerance of $\pm 5\%$).
- Subsequently, for these situations, the classic procedure should be continued, in which **all legal evidence** should be obtained, in the event that the case is brought to court.

HOW WOULD THE “DIGITAL FINGERPRINT OF WOOD TRANSPORT” CONTRIBUTE TO INCREASING THE EFFICIENCY OF THE CONTROL SYSTEM:

Technological advances offer new opportunities for modernising methods for measuring, monitoring and controlling timber shipments. Designed to complement SUMAL, the “digital fingerprint of wood transports” brings multiple benefits.



Objectivity and Productivity

- 🌲 Enables automated measurement and rapid verification of the quantities of transported timber.
- 🌲 Reduces the subjectivity of the human factor.

Transparency and Efficiency

- 🌲 Provides transparency and objectivity to controls (eliminates the subjectivity of the operator)
- 🌲 Enables to generate and list a QR code in the offline recording situation.



Removes the possibility of fraud

Generates clear indications in case of multiple shipments or overloading.

Strengthens the preventive role of the control system

- 🌲 Ensures better traceability of wood while also compatible with blockchain technology
- 🌲 Simplifies verification procedures. With the same staff resources allocated today 100 times more timber shipments could be checked.



Cost reduction

Supports competitiveness by reducing the costs of timber measurement and operation in SUMAL.



NRRPs provides resources and a framework for action

- The reform of the forest management and governance systems through the development of a new National Forest Strategy and subsequent legislation (C2.R1), aims to: “adoption and entry into force of the normative acts amending and supplementing the current forestry legislation” and “full implementation of SUMAL”.
- Involves amending the Forestry Code & subsequent legislation (e.g. Forest Protection Regulation; Rules on the provenance, movement and marketing of timber materials; Organisation and operation of Forest Guards).
- The Environmental Digitalisation Investment (C7.I5) aims to: “Development of infrastructure necessary for the monitoring, control and assurance of forest integrity and timber transport (integrated into SUMAL)”.

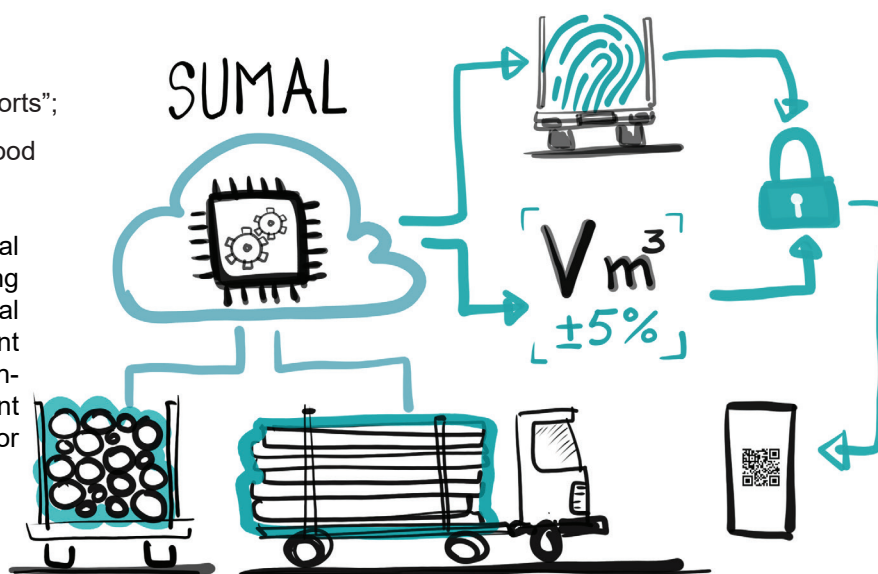


GOVERNMENT PLAN

Provides for continuous improvement of the SUMAL IT system and the use of the latest technologies to ensure forest integrity and digital timber volume measurement systems.

STEPS TO FOLLOW

- 1** Development of IT & AI solutions needed to provide:
 - generation and verification of the “digital fingerprint of wood transports”;
 - reasonable tolerance in digital wood measurement (less than $\pm 5\%$)
- 2** Standardization of the operational method of measurements including the apparatus used; the ideal solution would be the procurement by the competent authority of a high-performance and unitary equipment and handing over into custody for professionals.
- 3** Adaptation of SUMAL and control procedures.



© Vlad Radu (WWF Romania), Ștefan Băleac

The fight against illegal logging can only be made sustainable through an **integrated approach** of the root causes. For over 10 years, we have been supporting the development and promotion of innovative **tools** based on **simplicity — transparency — efficiency**.



WWF Romania,

Bd. Tudor Vladimirescu nr. 29, sector 5, București, 050881, România. Tel. +40 21 317 49 96

office@wwf.ro | www.wwf.ro

WWF® and World Wide Fund for Nature® trademarks and ©1986 Panda Symbol are owned by WWF-World Wide Fund For Nature (formerly World Wildlife Fund). All rights reserved.

