TFL-PD 037/13 REV. 2 (M)

Implementing a DNA timber tracking system in Indonesia

PROJECT INFORMATION

- Host Government: Government of Australia
- Executing Agency: University of Adelaide
- Collaborating Agencies: Centre for Forest Biotechnology and Tree Improvement (CFBTI) and Thünen Institute – German Federal Research Institute for Rural Areas, Forestry and Fisheries (TI)

Total budget approved for the project:

- ITTO: USD 518,833
- EA : USD 30,930
- TOTAL: USD 549,763

Approved project duration – 24 months

- Started – 15 August 2015
- Completed – 31 October 2018 (38 months including about 6 months project suspension)

PROBLEM ADDRESSED

The two key problems addressed by the project were the inefficient tree species identification and control of timber origin in Indonesia. It was reasoned by the project proponent that the key problems would perpetuate illegal timber cases with manipulated documents claiming legality on the market. The cost of illegal timber is significantly lower, there will also remain a market disadvantage for legally harvested timber.

DEVELOPMENT OBJECTIVE

To contribute to the strengthening of forest law compliance and governance through improved national policy and legal frameworks, strengthened enforcement and other institutions improved data and knowledge, strengthened partnerships and improved cooperation among the private sector, civil society organisations and other stakeholders

SPECIFIC OBJECTIVE AND OUTPUTS

Specific objective of the approved project was: the development and implementation of species identification and timber tracking system with DNA fingerprints for two commercial timber tree species.

The expected outputs, as defined in the original project document, were:

- Output 1 : 50 tree species from the meranti group have been identified by DNA barcoding
- Output 2 : Genetic reference data to control the country of origin for two important timber species have been created
- Output 3 : Indonesian personal trained for timber species identification and control of origin
- Output 4 : Demonstration of control of chain of custody with one meranti species and stakeholders have been involved

REALIGNMENT TO THE PROJECT OUTPUTS AND ACTIVITIES WERE PRESENTED IN THE INCEPTION REPORT

Amendments were made to the project activities and refinement of the project outputs during the project inception as presented below.

- Output 1 : Generation of DNA barcodes for 50 Dipterocarpaceae species by the end of the project
- Output 2 : Provision of training and information sharing to Indonesian timber stakeholders including government, industry and certification bodies for timber species identification and control of origin of Indonesian timber, by the end of the project
- Output 3 : Development of genetic markers for control of chain of custody of one Indonesian Dipterocarpaceae timber species by the end of the project
- Output 4 : Project coordination

PROJECT ACTIVITIES

- 17 project activities
- All these activities were carried out and generated the targeted project outputs

ACHIEVEMENT OF OUTPUTS

OUTPUT	INDICATORS	ACHIEVEMENT
1	(1) By the end of the project, the DNA barcode sequences of at least 100 timber species is completed (2) By the end of the 2nd year, sampling of wood probes, cambium or leaves is completed (3) By the end of the project, a spatial genetic reference database of important timber species is available online	Partially achieved (DNA barcode data generated for 70 Dipterocarpaceae species) Fully achieved (A total of 1841 cambium, 277 wood core and 308 leaves samples were collected) Partially achieved (A spatial genetic reference database available but not reported if available online)
2	(1) up to 30 forestry officials of mid and top management have received sufficient information of the potential of DNA markers for timber tracking (2) enabling condition for implementation of timber tracking using DNA markers identified (3) recommendations on policy formulation for implementation are available	Fully achieved (43 forestry officials participated in the first workshop held on 10-11 March 2015 and 95 forestry officials participated in the final workshop held on 28-29 Aug 2018) Fully achieved Partially achieved

ACHIEVEMENT OF OUTPUTS

OUTPUT	INDICATORS	ACHIEVEMENT
3	(1) timber of individual trees can be traced back with DNA-fingerprints to their exact position of origin along the chain of custody	Partially achieved: genetic markers for control of chain of custody of *Shorea laevis* was developed but blind testing was not conducted.
4	(1) Successfully achieve Project targets, Report to ITTO, Disseminate to industry and research base	Partially achieved

SPECIFIC OBJECTIVE: DEVELOPMENT AND IMPLEMENTATION OF SPECIES IDENTIFICATION AND TIMBER TRACKING SYSTEM WITH DNA FINGERPRINTS FOR COMMERCIAL TIMBER TREE SPECIES

INDICATOR	ACHIEVEMENT
A species identification based DNA barcode is available for 50 Indonesian timber species	Fully achieved DNA barcodes for timber species identification were developed for 70 timber species.
A DNA fingerprints timber tracking system is ready for use for three timber species	Partially achieved DNA fingerprints timber tracking system was available for *Shorea laevis*.
Partners are doing independently timber tracking with DNA fingerprints in Indonesia	Not achieved No record/evidence was presented during the course of evaluation that the partner is independently conducting timber tracking with DNA fingerprints in Indonesia.

DEVELOPMENT OBJECTIVE: CONTRIBUTE TO THE STRENGTHENING OF FOREST LAW COMPLIANCE AND GOVERNANCE THROUGH IMPROVED NATIONAL POLICY AND LEGAL FRAMEWORKS, STRENGTHENED ENFORCEMENT AND OTHER INSTITUTIONS, IMPROVED DATA AND KNOWLEDGE, STRENGTHENED PARTNERSHIPS AND IMPROVED COOPERATION AMONG THE PRIVATE SECTOR, CIVIL SOCIETY ORGANIZATIONS AND OTHER STAKEHOLDERS

INDICATOR	STATUS
Cost-effective and non-paper based timber tracking systems developed and implemented in Indonesia.	No evidence of a cost-effective and non-paper based timber tracking systems has been implemented in Indonesia
By 2016, certification standards have integrated DNA as additional audits	For the certification of Indonesian timber under SLVK, DNA tools have yet to be included as alternative means of timber species and timber tracking verifications

CONCLUSION

- The project has achieved significant progress in developing DNA-based tools for timber species identification and tracking in Indonesia, there are areas that require further attention and enhancement. It is important to deposit the DNA reference databases with the responsible agency in Indonesia to further expand the databases to cover more wood species traded.