TECHNISCHE UNIVERSITÄT DRESDEN

# Conventional logging in natural forest of Vietnam: issues and way forward

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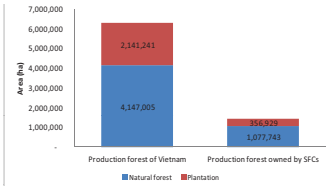
## Introduction and Objectives

Vietnam's total natural forest is 10.34 million ha; in which 4.15 million ha is production forest and State Forest Enterprises (SFE) manage about 26% of this forest for timber production. Conventional loggings are carried out by SFEs or associated with logging contractors. After logging, many forest areas have been degraded, un-commercial future crops trees are left for next cutting cycle. Intensive logging happened between 1976 to 1980 with 1.62 million $m^3$/year. From 2005 up to date, logging quota are set down to 0.2 million $m^3$/year.

The objectives of the study is to assess the implement of the conventional and partially mechanized logging operations in natural forest of Vietnam to the standards of Reduce Impact Logging (RIL) method. Also, some proposals will be given to improve the logging operations forwards more sustainability in Vietnam.




*Source: FPD, 2010*

## Case studies and Methodology

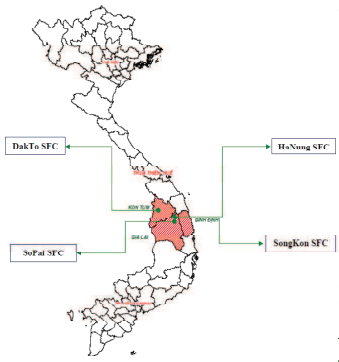
The study examines conventional logging techniques with machines applied in the SFEs. Four SFEs which manage natural forests are investigated, namely So Pai, Ha Nung, Dak To, Song Kon State Forestry Companies as case studies approach.

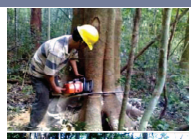
A list of core elements in pre-harvesting, harvesting and post-harvesting activities of conventional logging in these case studies is evaluated and compared with Reduced Impact Logging (RIL) standards. Moreover, key informant interview, group discussion and observation are complemented to have better understanding and evaluation.

**Table 1. General information about case studies**

| General information | Ha Nung | Dak To | So Pai | Song Kon |
|---|---|---|---|---|
| Total managed area (ha) | 9,089 | 16,329 | 9,399 | 12,000 |
| Tree growth rate (%/ha/year) | 2.7 | 2.6 | 2.7 | 2.7 |
| Annual allowable cut ($m^3$/year) | 5,908 | 8,000 | 4,674 | - |
| Cutting cycle (year) | 35 | 30 | 35 | 35 |
| Harvesting quota ($m^3$) in 2010 | 3,500 | 2,651 | 2,500 | 3,590 |
| Felling intensity ($m^3$/ha) | 30.5 | 46.4 | 32.5 | 32.5 |
| Market | Domestic | Domestic | Domestic | Domestic |

*Source: Current SFM Plans of Ha Nung, Dak To, So Pai, Song Kon; Fieldworks*



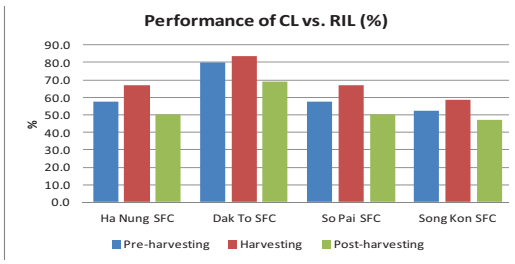



## Results and Discussions

The results indicate that conventional logging practice in the SFEs accounts for 61.5% compared to RIL practice. In four case studies, Dak To shows the best demonstration of logging practice which reached 77.4% of RIL standard as the result of RIL introduced in this case by GIZ project. Compared to pre-harvesting and harvesting, post-harvesting activities appear to less satisfy the standard of RIL with only 53.9%.

The study also reveals that the conventional logging has some problems such as insufficient and unspecific mitigations of negative impacts; in-proper attention on exclusion areas; no development of proper logging evaluation of harvesting operations and its impacts; lack of well-trained workers; improper health and safety consideration; use of inappropriate machineries, improper attention on harvesting monitoring; low rate of tops and branches utilization; and sketchy implementation of post-harvesting activities.

**Chart 1. Summary of Conventional Logging performance in case studies**




*Source: Fieldworks, 2012; Discussion results, 2012*

**Table 2. Assessment of Pre-harvesting elements' performance**

| Pre-harvesting elements | Conventional logging performance vs. RIL (%) | | | | |
|---|---|---|---|---|---|
| | Ha Nung | Dak To | So Pai | Song Kon | Average |
| Planning of exclusion areas | 50.0 | 75.0 | 50.0 | 50.0 | 56.3 |
| Mapping of individual crop trees | 0.0 | 100.0 | 0.0 | 0.0 | 25.0 |
| Planning of optimized skid trails, landings and camp site | 75.0 | 100.0 | 75.0 | 50.0 | 75.0 |
| Marking of trees with felling direction | 100.0 | 100.0 | 100.0 | 75.0 | 93.8 |
| Construction of planned skid trails, landings and camps | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Cutting of vines | 75.0 | 75.0 | 75.0 | 50.0 | 68.8 |
| Well-trained employees | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Provision of safety equipment & first-aid kit | 50.0 | 75.0 | 50.0 | 25.0 | 50.0 |
| Necessary safety equipment mounted on machines | 25.0 | 50.0 | 25.0 | 75.0 | 43.8 |
| Supervision of operations | 50.0 | 75.0 | 50.0 | 50.0 | 56.3 |

*Source: Fieldworks, 2012; Discussion results, 2012*

**Table 3. Assessment of Harvesting elements' performance**

| Harvesting elements | Conventional logging performance vs. RIL (%) | | | | |
|---|---|---|---|---|---|
| | Ha Nung | Dak To | So Pai | Song Kon | Average |
| Control of felling direction | 75.0 | 100.0 | 75.0 | 75.0 | 81.3 |
| Minimizing of stump height | 50.0 | 100.0 | 50.0 | 75.0 | 68.8 |
| Tractor operating on prepared skid trails | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Crosscutting of long logs to reduce skidding damage | 100.0 | 100.0 | 100.0 | 75.0 | 93.8 |
| Using of winches to pull trees to skid trails from stump | 75.0 | 75.0 | 75.0 | 50.0 | 68.8 |
| Well-trained employees | 75.0 | 100.0 | 75.0 | 75.0 | 81.3 |
| Provision of safety equipment & first aid kit | 75.0 | 75.0 | 75.0 | 25.0 | 62.5 |
| Necessary safety equipment mounted on machines | 25.0 | 50.0 | 25.0 | 25.0 | 31.3 |
| Supervision of operations | 50.0 | 75.0 | 50.0 | 50.0 | 56.3 |

*Source: Fieldworks, 2012; Discussion results, 2012*

**Table 4. Assessment of Post-harvesting elements' performance**

| Post-harvesting elements | Conventional logging performance vs. RIL (%) | | | | |
|---|---|---|---|---|---|
| | Ha Nung | Dak To | So Pai | Song Kon | Average |
| Clearance of tops, branches and "hang-up trees" | 50.0 | 75.0 | 50.0 | 25.0 | 50.0 |
| Cleaning of landings and temporary camps | 50.0 | 75.0 | 50.0 | 50.0 | 56.3 |
| Roads and skid trails closure | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Well-trained employees | 50.0 | 75.0 | 50.0 | 50.0 | 56.3 |
| Provision of safety equipment & first-aid kit | 75.0 | 75.0 | 75.0 | 25.0 | 62.5 |
| Necessary safety equipment mounted on machines | 50.0 | 50.0 | 50.0 | 75.0 | 56.3 |
| Supervision of operations | 25.0 | 50.0 | 25.0 | 50.0 | 37.5 |
| Conducting of post-harvesting assessment | 25.0 | 75.0 | 25.0 | 25.0 | 37.5 |

*Source: Fieldworks, 2012; Discussion results, 2012*

## Recommendations

For improvement of natural forest management towards sustainability, it shows urgent needs to have a RIL code of practice for timber harvesting for the country that specifies and puts into mandatory regulations to national wide performance, higher level of mechanization with more suitable machines and equipment should be considered for responsible forestry and sustainable forest management of Vietnam.

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