

IRINGA DISTRICT

Uctoma
LIBRARY

HIMA IRINGA LIBRARY
ARCHIVE COPY
DO NOT REMOVE
FROM LIBRARY

EXECUTIVE SUMMARY

INTRODUCTION

METHODOLOGY

HIMA IRINGA IMPACT STUDY

RESULTS

- Tree planting data 1984-1995
- Tree density and diameter distribution
- Firewood production from *P. patula*
- Firewood production: Traditional firewood collection patterns
- Firewood production
- Firewood production: King's village
- Firewood production: Production from *P. patula*
- Production in village
- Production in village

PART III

OTHER FORMS OF IMPACT

- Negative impacts
- Positive impacts

OVERALL FARM FORESTRY IN KILOLO

CONCLUSIONS AND RECOMMENDATIONS

APPENDIX

LIST OF TABLES

- TABLE 1: *P. patula* Area
- TABLE 2: *P. patula* Area
- TABLE 3: *P. patula* Area
- TABLE 4: *P. patula* Area
- TABLE 5: *P. patula* Area
- TABLE 6: *P. patula* Area
- TABLE 7: *P. patula* Area
- TABLE 8: *P. patula* Area

BY R. MINJA
F. NIKATA
M. MASSAM
P. KERKHOFF

HIMA IRINGA LIBRARY
LIBRARY COPY

- GRAPH 1: Tree planting King's village
- GRAPH 2: Diameter distribution of *P. patula*
- GRAPH 3: Firewood production from premises and traditional
- GRAPH 4: Firewood production via consumption
- GRAPH 5: Production in village's labor

I/2/Forest/95/3

TABLE OF CONTENTS

EXECUTIVE SUMMARY	the NIMA (Kising'a) Phase I impact study concerns forest forestry impact. The broad overview is presented in	
INTRODUCTION	Impact study indicates that NIMA 3 far forestry impact is concentrated on <i>P. patula</i> planting in Kising'a	3
METHODOLOGY	Due to time constraints, the forestry 4 impact study team has surveyed only <i>P. patula</i> impact in a few villages in	4
RESULTS	and concentrated on Kising'a village. 6	6
	Tree planting data 1984-1995	
	Tree density and diameter distribution	
	Fuelwood production from <i>P. patula</i>	
	Fuelwood production: Traditional firewood collection pattern	
	Timber production	
	Standard <i>P. patula</i> model, Kising'a village	
	Total fuelwood production from <i>P. patula</i>	
	Reduction in women's labour burden due to <i>P. patula</i>	
	Timber production estimates, 1993-1999	
OTHER FORMS OF IMPACT		
	Negative impacts	15
	Positive impacts	
OVERALL IMPACT		16
DISCUSSION AND RECOMMENDATIONS		17
ANNEXES		20
	1. Fuelwood collection from natural forests, Kising'a	
	2. Assumptions and modelling	
	3. References	
LIST OF TABLES		
TABLE 1	<i>P. patula</i> seedling production 1984-1994	
TABLE 2	Sylvicultural characteristics, Kising'a/Masege	
TABLE 3	Diameter distribution for a plantation model	
TABLE 4	Projection of total firewood production, Kising'a	
TABLE 5	Projection of women's labour reduction, Kising'a	
TABLE 6	Projection of timber production 1993-1999, Kising'a	
TABLE 7	Overall impact	
TABLE 8	Firewood production model, assumptions	
LIST OF GRAPHS		
GRAPH 1	Tree planting Kising'a village	
GRAPH 2	Diameter distribution <i>P. patula</i>	
GRAPH 3	Fuelwood production from pruning and final harvest	
GRAPH 4	Firewood production vs consumption	
GRAPH 5	Reduction in women's labour	

EXECUTIVE SUMMARY to the ...
compared to the natural forests, reduction in women's labour
burden is very considerable. Modelling indicates that by
The third part of the HIMA (Iringa) Phase I impact study,
concerns farm forestry impact. The broad overview presented in
part I of the impact study indicates that HIMA's farm forestry
impact is concentrated on *Pinus patula* planting in Kilolo
Division. Due to time constraints, the forestry impact study
team has surveyed only *P. patula* impact in a few villages in the
Kilolo and concentrated on Kising'a village.

Conservation of natural forests. By 1998, about 100 ha. of
Historic data were analysed and various silvicultural characteristics of
characteristics of the farmer's plantations were measured. Time
studies were done to assess women's labour involved, comparing
traditional firewood collection with the alternatives offered
by the plantations. Some basic physical and monetary parameters
were established for timber production, and an analysis of other
(negative and positive) impacts has been included.

The results, valid for Kising'a village, show that pine tree
planting was popularised from 1984, when the District Council
provided a modest level of support. HIMA supported central
nurseries provided free seedlings in 1989 and 1990 which lead
to massive tree planting. This may have lead to reduced village
based production. However, support to central nursery
production was phased out and HIMA increased support to
farmer's nurseries. Tree planting returned to more modest, but
significant levels since that time. To date, almost one
thousand ha. has been planted in this village alone.

Silvicultural characteristics of farmer's plantations were
found to be quite different from those of prescribed forestry
practice (e.g. Sao Hill). Stand density is lower, pruning
begins earlier, harvesting also begins earlier with trees
harvested for timber production as soon as 10 years after
planting. Prunings and all other wood not used for timber are
used for firewood.

The oldest woodlots are 11 years at the time of the survey, and
it seems that farmers are not going to clearcut their
plantations at a given time, but gradually harvest the larger
trees as time goes by. It is envisaged that the subsequent
diversification of the plantations will allow farmers,
including women, to obtain a steady flow of benefits over a
sustained period of time.

Based on the outcome of the survey, a production model has been
devised to quantify the flow of products up to 1999. For
Kising'a village, this indicates that several hundred thousand
pieces of timber and slabs will be produced by 1999,
representing a gross income of 64 mio.TSh/yr (1999) at mid 1995
price levels. Since a considerable amount of paid labour is
required for harvesting, some redistribution of income would
take place.

Potential firewood production by 1999 is estimated at 10,700
tonnes, which is more than the estimated demand. By 1997/98
firewood production from *P. patula* in Kising'a would be able to
meet demand, so that extraction of firewood from natural
forests is no longer necessary.

Since the woodlots are located very close to the village as compared to the natural forests, reduction in women's labour burden is very considerable. Modelling indicates that by 1997/98, some 150,000 hours/yr would be saved in Kising'a, equivalent to about 5 hours/household/week. This would be a sustained effect for as long as the plantations exist and pine firewood is the main source of household energy.

Other impacts, positive and negative, have been assessed in the case of Kising'a:

- Conservation of natural forests. By 1998, about 100 ha. of Protea woodlands would be conserved annually as a result of Protea/pine substitution, if no other detrimental effects will occur.
- Employment in the village will increase very considerably.
- An estimated 50,000-100,000 tonnes of atmospheric CO₂ will be fixed.
- Some reduction of livestock production (relatively minor).
- Flow of streams in the subcatchment reduced by 5-10%.

The team feels that for other villages in Kilolo the nature of impact is the same, but at lower levels, since widespread farm forestry adoption has started later.

The team recommends that, whilst the present study is a useful pointer, a thorough Cost:Benefit analysis and market study is carried out to reveal how a Government support system should be designed. It would also assist Danida's support to the agricultural sector, of which farm forestry is a subsector. Farmer training, seed, market information and minor roads infrastructure are probably key ingredients of an effective and efficient support system.

It is further recommended that HIMA strengthens awareness and public debate to improve women's access to the pine plantations. Irrational attitudes unnecessarily limit women's access to firewood in the woodlots. Also, training and other support should be provided to improve the cooking process.

An improved and complementary monitoring system should be put in place. If District Council staff are too busy with day to day operations, the Regional Office should assume this responsibility.