# KENYA

# INDUSTRIAL WOOD SUPPLY STRATEGY

## World Bank/PROFOR [1] Discussion Paper

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[1] PROFOR ( Program on Forests), is a World Bank hosted multi donor supported Research and Development Facility which carries out research on cross cutting policy issues of importance to World Bank client countries . It also funds Regional Workshops on topics of mutual interest.

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This paper has been prepared as input to a Forest Investment Workshop to be held in Nairobi in April of 2005 as part of a continuing programme of forest related Economic Sector Work in Kenya being supported by the World Bank

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## EXECUTIVE SUMMARY

Following a period of forest related corruption during the 1990's, which allowed illegal encroachment into government forest reserves , resulted in the loss of about a quarter of the plantation estate and closed down many of the country's forest industries, Kenya's current government has taken decisive steps to restore control and effective management of the country's forest resources. A Forest Bill currently being considered by Parliament recommends shifting the emphasis for management of part of the industrial plantation estate to local communities and the private sector. The Kenya government is planning a series of forest inventory and pilot scale schemes for testing alternative approaches to commercialization and participatory management.

To assist government in developing such pilot schemes and to help create an enabling environment for attracting private sector investment, the World Bank and PROFOR agreed to fund several socio-economic studies the first of which [3] identified a range of possible partnership based approaches for engaging wood based forest industries , local communities and small holders in joint arrangements with government for management of selected plantation areas and for stimulating further expansion of farm forestry. During a World Bank sponsored Forest Investment Workshop held in Nairobi in November of 2004, many participants expressed interest in these proposed pilot schemes.

A second study Bank/PROFOR study [4]analysed likely rates of return for various plantation regimes. It concluded that investment in plantation forests and in on farm wood lots in Kenya can be expected to yield attractive financial returns.

To complete the proposed forest inventories and to assess the impact of the pilot schemes could well take another 3-5 years . This Discussion Paper therefore explores the possibility of developing an Interim Industrial Wood Supply Strategy for the period 2006 – 2010 . The objectives would be to provide a framework for decisions relating to the possible scope and geographic location of the pilot schemes that government has in mind. Second to convince private sector investors that long term prospects for recovery of the forest industry and further expansion of the forest estate are good and to assist government in mobilizing both private and public sector funding for forest recovery .

The paper suggests that between now and 2015, industrial wood requirements are likely to rise from their present level of about 2 million m3 to something in the order of 2.5 million m3 of which about 70 per cent will be needed for manufacture of lumber, furniture, joinery and wood based panel products and 30 per cent for manufacture of paper and paperboard.

[3] See Forestry Partnerships in Kenya : James Mayers (IIED) January 2005

[4] See: Kenya Forestry : Economic and Financial Viability : Roger Sedjo (RFF) January 2005

Assuming a total remaining plantation area in the order of 100,000 hectares, preliminary calculations suggest that about 80 per cent could probably be allocated as Sawlog Working Circles primarily for production of lumber and wood based panel products . In order to meet the pulp industry's continuing requirements for long fibre, about 20 per cent of the total government owned plantation area would need to be designated as a discrete Pulpwood Working Circle.

Ongoing research is exploring possibilities for obtaining about 40 per cent of future short fibre pulpwood and biomass needed for energy generation from eucalyptus or bamboo plantations planted by small holders on farm lands and on larger estates.

The paper recommends further research into the economic and financial viability of integrated harvesting operations in some West of Rift plantations to be managed for production of sawlogs and peeler logs with pulpwood being generated as a by product.

Several of the larger agribusiness ( especially tea and coffee ) companies contacted during the course of these studies have expressed interest in developing partnership arrangements with outgrowers especially for production of fuelwood that could substitute for use of diesel oil in their processing plants.

Investment requirements for the period 2006 –2010 might be in the order of $ 30-million. Such investment will be needed to finance rehabilitation and expansion of sawmilling and other wood based enterprises including the pulp and paper industry. Secondly to finance implementation of the proposed pilot schemes including re planting of logged over plantations, further expansion of farm forestry and establishment of new plantation resources.

Various private sector investors , forest industrial companies , NGO's, bilateral donors and the IFC have expressed willingness in principle to provide financial and/or technical assistance support for such a forest investment programme.

A second World Bank /PROFOR supported Forest Investment Workshop currently scheduled for the latter part of April 2005, would be an opportunity further to discuss these findings and to seek firm commitment from various both private and public sector financing agencies to proceed with implementation of the proposed pilot schemes .

Several other East and southern Africa region countries are also testing approaches to privatization of government forest resources. They include South Africa, Malawi , Zimbabwe, Mozambique, Uganda and Tanzania. It has been suggested that at a later stage, the World Bank and PROFOR might wish to consider sponsoring a Regional Forest Investment Forum that would provide an opportunity to share experiences.

**Background**

Following a period of corruption and illegal forest excisions which took place during the latter half of the1990's, the Kenya government, and especially its Ministry of Environment and Natural Resources, are facing increasing political pressure to re -open part of a now severely depleted plantation estate for industrial use especially for sawmilling. [5] Government is also under pressure to renew long term forest license arrangements with larger existing forest industries such as Pan African Paper Mills (PPM) and RAIPLY who need such wood supply guarantees both for advance planning of harvesting and replanting operations and also for maintaining customer and investor confidence.

With the assistance of several bilateral donors, FAO , the World Bank and PROFOR, government has initiated a series of forest inventory, economic and environmental studies that will help to clarify the area of plantations remaining and provide a basis for defining future forest industrial development strategy.

A Forest Bill currently being considered by Parliament will, if ratified, shift the emphasis for management of part of the industrial plantation estate to the private sector. A Forest Department "Framework for Forest Sector Reform" document ,recommends that the government should introduce pilot scale schemes for commercialization of about 25,000 hectares of government plantations and Participatory Management based approaches in a further 15,000 hectares.

It is likely to take 18 months to 2 years to complete the proposed forest inventories. It may well take 3-5 years before the recommended pilot schemes have demonstrated optimal arrangements for engaging local communities and private sector industry in the sort of partnership based arrangements that will be most likely to ensure socially, environmentally and economically sustainable management of plantation resources.

The objective of this Discussion paper therefore is to explore whether, on the basis of already available information on Kenya plantation growth rates, yields and financial returns and pending the results of the pilot studies, it would be possible to develop an Interim Industrial Round wood (IRW) Supply Strategy for the period 2006-2010 the objectives of which would be:

[5] Between the mid 1960s and early 1990's the World Bank invested about $ 80 million in forest plantations that were intended to provide an alternative to logging indigenous forests and to ensure self sufficiency in forest products . By the mid 1990's about 160,000 hectares had been established . In the latter half of the 1990's a combination of corruption and illegal excisions resulted in clear felling and conversion to agriculture of about 40,000 hectares of this government owned plantation estate.

- To assure potential investors that there are reasonable prospects for long term growth and expansion of the forest sector and for meeting the foreseeable requirements of the saw milling, wood based panel and pulp and paper industries through year 2015.
- Pending clarification of present uncertainties about the size and likely volumes of wood available from remaining plantation resources and emerging results from the proposed pilot schemes , to provide government with a framework for interim decisions on the possible scope and geographic location of pilot schemes and future concession arrangements.

**Proposed Partnership Schemes**

A Forest Investment Workshop hosted by the World Bank and PROFOR in November of 2004 identified several examples of local community/ forest industry partnership based approaches that might be suitable for pilot scale testing: They included:

- An Integrated Natural Resources Management partnership between government and local communities for management of a community owned sawmill and government plantations in the Ukambani region.

- Participatory Management by local communities in the government plantation areas in the Aberdares near Nyeri. This scheme is being supported by Kenya's Green Belt Movement.

- Engagement of small holders in western Kenya as outgrowers of pulpwood and fuelwood required by PanAfrican Paper Mills (PPM).

- Engagement of small holders as outgrowers of fuelwood required by small tea growers and tea factories.

- Investment by larger scale tea and coffee companies in timber and pole outgrower and community schemes.

- Concession partnerships under discussion between sawmilling companies and local communities for rehabilitation of existing sawmills and management of specified areas of government plantations under long term concession arrangements.

Companies that have so far expressed interest in such sawmill /local community partnership schemes include:

- Gachagua Sawmill in Elburgon
- Kinale Sawmills near Nairobi
- Kamburi Sawmill in Meru
- Mt Kenya Sawmills in Nanyuki

- Sembi Sawmills in Kakamega.
- RAIPLY in Eldoret
- TimSales in Elburgon
- Comply in Kericho

The above is a very preliminary listing of potentially interested companies. Further analysis and discussion will seek to identify other possibly interested sawmilling or wood based enterprises.[6]

**Industrial Roundwood Production Targets**

The main conclusion of this Discussion Paper is that it should be possible for Kenya to achieve long term self sufficiency in industrial wood requirements .The factors that will make this possible are a combination of fast growth rates, potentially attractive financial rates of return to investment ( particularly in short rotation industrial plantations) , the already well demonstrated potential of farm forestry, the growing interest that is being shown by potential private sector investors in new plantation investment, and anticipated strong domestic market growth for forest products.

Between now and 2015, industrial wood requirements are likely to rise from their present level of about 2 million m3 to something in the order of 2.5 million m3 of which about 70 per cent will be needed for manufacture of lumber, furniture, joinery and wood based panel products and 30 per cent for manufacture of paper and paperboard.

Possible long term plantation development targets that would be needed to ensure a sustainable industrial roundwood supply of this order of magnitude are suggested in Tables 2 and 3 below .

Table 2 suggests possible long term targets for production of sawlogs and peeler logs and Table 3 for pulpwood and wood based energy for pulp manufacture .

Annexes 1 and 2 provide further details of the assumptions made in this paper about possible future sources of industrial roundwood supply.

These very tentative targets are intended only as a possible starting point for discussion . They would need to be adjusted as further information becomes available from updated forest inventories and from ongoing and proposed research into the technical, financial and economic viability of alternative industrial wood supply strategies.

[6] For further details of the above suggested schemes see Chapter 2 of the World Bank/PROFOR financed IIED study "Forestry Partnerships in Kenya"

## TABLE 2

## SAWLOG SUPPLY STRATEGY
## Target Wood Production by Year 2015
## 1,760,000 cubic meters per annum

| Region | Assumed sawlog supply<br>Cubic meters | Area required<br>Hectares | Assumed supply from private farmlands<br>Cubic meters | Total sawlog/peeler log supply<br>Cubic meters |
|---|---|---|---|---|
| **EAST OF THE RIFT VALLEY** | 1,000,000 | 50,000 | 100,000 | 1,100,000 |
| **WEST OF THE RIFT VALLEY** | 600,000 | 30,000 | 60,000 | 66,000 |
| **TOTALS** | 1,600,000 | 80,000 | 160,000 | 1,760.000 |

## TABLE 3
## PULPWOOD AND INDUSTRIAL BIOMASS SUPPLY STRATEGY
## Target production by year 2010:
## 750,000 cubic meters per annum

| Type of Fibre | Volume from Pulpwood Working Circle<br>Cubic meters | Pulpwood Working Circle area required<br>Hectares | Volume from famlands<br>Cubic meters | Volume from integrated sawlog harvesting operations<br>Cubic meters | Total fibre supply<br>cubic meters |
|---|---|---|---|---|---|
| **Long fibre pulpwood** | 264,000 | 13,200 | Nil | 66,000 | 330,0000 |
| **Short fibre pulpwood** | 88,000 | 3,520 | 132,000 | Nil | 220,000 |
| **Short fibre Biomass** | 40,000 | 1,600 | 160,000 | | 200,000 |

| | | | | | |
|---|---|---|---|---|---|
| **Totals** | 392,000 | 18,320 (1) | 292,000 | 66,000 | 750.000 |

(1) *Rounded to 20,000 ha. to allow for roads , firebreaks , worker housing , nursery sites*

To summarise, preliminary calculations suggest that of a total remaining plantation area in the order of 100,000 hectares, about 80 per cent could probably be allocated as Sawlog Working Circles primarily for production of lumber and wood based panel products. Such plantations would need to be regularly pruned and thinned and managed on 25 –30 year rotations. Further research is recommended into the economic and financial viability of integrated harvesting operations in West of Rift plantations being harvested for production of sawlogs and peeler logs with the possibility of producing pulpwood as a by product.

Further research will be needed to test an assumption in this paper that about 40 per cent of future short fibre pulpwood and biomass needed for energy generation by the pulp and paper industry could be obtained from eucalyptus or bamboo plantations planted by small holders on farm lands or on larger estates. In order to meet the pulp industry's continuing requirements for long fibre, about 20 per cent of the total government owned plantation area would need to be designated as a discrete Pulpwood Working Circle in which long fibred softwood plantations would be managed on short ( about 15 year), rotations.

**Assumptions**

The assumptions on which the above conclusions are based and possible outcomes of the proposed pilot schemes are as follows:

- Ongoing field surveys and proposed forest inventories to be supported by FAO will hopefully confirm the Forest Department's estimate that the remaining area of existing plantations and potentially plantable land in government forest reserves. is in the order of 100,000 hectares .Probably about one half of this area is located East of the Rift and half West of the Rift Valley. Of that total plantation area at least 20,000 hectares have been logged over and not yet replanted.

- Further consultation with local communities and forest industrial enterprises and the outcome of the proposed pilot schemes should ,within the next 3-5 years, have been able to demonstrate that more responsible sawmilling companies and larger industries such as RAIPLY and PPM can manage government owned plantations in a socially , environmentally and economically sustainable way. Management plans developed jointly by industrial companies in collaboration with local communities will need to incorporate safeguard policies for protecting adjacent indigenous forest and for ensuring equitable benefit sharing.

- Potential financial returns from short rotation forestry will have proven attractive enough to secure significant private sector investment in both short and longer

rotations industrial plantations.[7] Within a period of ten years it should have been possible to eliminate the current backlog of logged over areas that have not yet been replanted and to re- introduce already well-proven silvicultural practices. Further research is recommended into incentive schemes for encouraging private sector investment in longer-term sawlog crops.

- Engineering and financial studies will have confirmed the potential for recovery of the saw milling industry and private sector investment secured for bringing back into production and modernizing some of the already existing sawmills and other forest industrial enterprises that have been either closed down or operating at a very low level since the late 1990's.

- PPM will have completed an ongoing energy switching programme under which it intends to replace about 70,000 tons of imported fuel oil with locally grown fuel wood . Further engineering and financial studies will have confirmed the possibility for PPM to shift within the next 5-10 years from its past almost 100 per cent dependence on long fibred softwood from government plantations to use of fast growing short fiber eucalypts or bamboo to meet about 40 per cent of its combined pulpwood /biomass needs. Ongoing farm surveys will have confirmed that a substantial proportion of PPM's short rotation pulpwood and biomass needs could be derived from farm forests .

- Further research will have clarified the economic and financial viability of integrated harvesting operations in some West of Rift plantations being harvested for production of sawlogs and peeler logs with pulpwood being generated as a by product.

- With the support of a Task Force being spearheaded by WWF Kenya, there will have been put in place multi stakeholder representative institutional mechanisms for independent monitoring of private sector and local community forest performance.

- The Interim Strategy being suggested above would give special emphasis to incorporating safeguard polices needed to ensure that important forest related environmental services provided by indigenous forests such as water resources, biodiversity and forest carbon are adequately protected. Further research will have clarified the potential of emerging market mechanisms to pay for such environmental services.[8]

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[7] Experience of introducing incentive schemes such as Uganda's Sawlog Production Grants Scheme could be of special interest. ( See recent studies by LTS Consultants of the relative merits and limitations of various incentive schemes).

[8] The second Forest Investment Workshop being proposed for April of 2005 will give special attention to this topic .

This paper has focused on industrial roundwood and fuelwood needed for generation of the industrial power requirements of forest based industries. However it will be important that the strategies discussed be closely integrated with parallel strategies that government is developing to meet essential fuelwood/charcoal needs for domestic heating and cooking. About 70 per cent of Kenya's population are highly dependent on fuelwood and charcoal.

**Investment Requirements : Possible Sources of Finance.**

Investment requirements for the five year period 2006 –2010 could well be in the order of $ 30 million . Investments needed for rehabilitation of the sawmilling and wood based panel industries and to improve the efficiency PPM are likely to be about $ 15 million . A further perhaps $ 15 million would be needed for replanting of already logged over forest plantations , for silvicultural management of existing stands plus establishment of new plantations on farmlands.

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Various bilateral donors including FINNIDA , DFID, JICA, Belgium, USAID, the EU and NGO's such as WWF , KFWG and the Forest Action Network are already supporting forest sector programmes which , in some cases include experimental approaches to participatory management of government forest lands .

Among potential private sector investors, some of Kenya's tea and coffee companies have been financing plantation establishment on larger estates and are proactively seeking opportunities to develop outgrower schemes for production of fuelwood and/or poles. During a meeting with the Hon. Minster for Environment and Natural Resources held in November of 2003, members of the East African Business Community also expressed strong interest in possibilities for investment in plantation forestry .

Larger scale forest industrial companies such as PPM and RAIPLY have been financing plantation establishment in logged over government plantation lands for the last 10 to 15 years. PPM has the nursery capacity and experience needed to support a major expansion of farm forestry and to ensure systematic replanting of the softwood plantations located within its Pulpwood Working Circle . RAIPLY has a particular concern to ensure adoption of improved plantation silvicultural management practices needed to produce high quality peeler logs.

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IFC is already playing a leadership role in helping its client company PPM to mobilise additional investment that will be needed for the company to recover from a series of setbacks, one of which has been serious disruption of the mill's wood supply as a consequence of the illegal excisions of plantation forests that occurred during the 1990's.

Subject to further discussion IFC's Corporate Citizenship Facility and its Private Enterprise Partnership Facility could be potential sources of technical assistance for further development of this programme and for mobilising financial support for revitalisation of the sawmilling and other solid forest product industries and for establishment of associated plantation resources.

**Potential Contributions to Employment and Economic Growth**

Very preliminary calculations suggest the potential of this Interim Industrial Roundwood Strategy to engage something in the order of 2,500 families in joint partnership arrangements between sawmilling, wood based panel companies and local communities and perhaps a further 5,000 – 6,000 families as pulpwood or biomass tree crop farmers under outgrower contractual arrangements with PPM , and with tea or other agribusiness companies . By 2015 the annual value of production of lumber . plywood, paper and paper board products is likely to be in excess of $ 175 million and exports of paper and paper board ( mainly to Uganda) in the order of $ 20 million. Including the multiplier effect of forest industrial development, earlier studies have suggested that about 30,000 persons could benefit from forest and forest industry related employment.

**Risks of Failure**

The greatest risks of failure of the above suggested Strategy are :

- The risk that politically motivated pressures will adversely influence future forest concession allocation processes and a rational distribution of plantation forest resources between local communities, existing and proposed new forest industries.

- Ongoing surveys of farmlands available for new plantation establishment may conclude that, given the density of Kenya's rural populations and competing claims on agricultural land needed for food production it may prove difficult to find adequate farmland for tree planting within an economic haulage radius of the various forest industrial and agribusiness companies to be supplied .

- The risk that farm gate prices for industrial wood (especially for lower value industrial woody biomass) may be too low to attract some smallholders. Much of the current wood output from farms is being sold into higher priced building or transmission pole markets. That highlights the need to establish new plantation and on farm tree resources as close as possible to the industrial enterprises to be supplied.

As further work proceeds , special attention would need to be given to strategies for addressing those issues and to ways and means of minimizing the potentially negative impacts of such factors.

**Regional Implications**

The issues currently being addressed in Kenya of how to achieve an effective transition from government to a combination of local community and private sector management of part of the government plantation forest estate could benefit from the experiences of several other East and southern Africa region countries that have been testing approaches to privatization of government forest resources. They include South Africa, Malawi ,

Zimbabwe, Mozambique, Uganda and Tanzania. It has therefore been suggested that at a later stage the World Bank and PROFOR might wish to consider sponsoring a regional Forest Investment Forum that would provide an opportunity to share these experiences.

**Next Steps**

Chapter 4 of the IIED "Forestry Partnerships in Kenya" study suggests a process of further investigation, design and support of a range of partnership initiatives that would produce wood or fibre on a sustainable basis whilst bringing improvement to local livelihoods. To do this, several main steps will be needed:

1. To expand the list of other promising existing or potential initiatives not covered in this discussion paper, and to get basic information together on these
2. To generate criteria for fine-tuning and reducing the list to a manageable size
3. To further investigate the initiatives on the list
4. To identify which initiatives would benefit from targeted external support
5. To design appropriate interventions in support of a selected number of initiatives that need it

Whilst these steps are under way, a process of securing potential support for the initiatives that make it through to step 5 would also need to be initiated . Terms of reference for a working group to take these steps forward are outlined in the IIED study together with check lists of key questions which would need to be answered in the course of development of each of the proposed partnership schemes.

## ANNEX 1

## INDUSTRIAL WOOD SUPPLY STRATEGY FOR SAWLOGS AND /PEELER LOGS
## Total Annual Supply Required by Year 2015 : 1,760,000 cubic meters

| REGION | Target area for Sawlog Working Circles for production of saw logs and peeler logs (1)<br>Hectares | Sustainable log Supply from sawlog working circles<br>Cubic meters | Target sustainable log supply from farmlands (2)<br>Cubic meters | Total Sawlog/peeler log supply<br>Cubic meters |
|---|---|---|---|---|
| **EAST OF RIFT VALLEY** | 50,000 | 1,000,000 | 100,000 | 1,100,000 |
| **WEST OF RIFT VALLEY** | 30,000 | 600,000 | 60,000 | 660,000 |
| **TOTALS** | 80,000 | 1,600,000 | 160,000 | 1, 760,000 |

**(1)** These sawlog -working circles would be managed either by local communities or jointly by industrial companies in partnership with local communities . They would cover about 80% of an assumed government plantation estate of about 100,000 hectares. Procedures for decision-making on which communities and /or companies would be granted such long-term concession rights are still being discussed . Given the keen competition that exists for access to government plantation resources it is assumed that a transparent competitive bidding process would be adopted under which prospective bidders would submit Management Plan proposals for specific plantation areas . Criteria to be used by government for decision making on choice of communities or companies might include, in addition to financial considerations, assessment of the social and environmental merits of different bids.

(2) This is a conservative estimate of potential on farm production of sawlogs pending further research into the sort of financial incentive policies that might be needed to persuade farmers to take up planting of long rotation timber crops).

**ANNEX 2**

**INDUSTRIAL WOOD SUPPLY STRATEGY FOR PULPWOOD AND BIOMASS.**

**Target Annual Supply required by year 2010**

**750,000 cubic meters**

| **Target volume for long fiber pulpwood from a Pulpwood Working Circle (1)** **Cubic meters** | **Target volume for long fibred pulpwood to be supplied from integrated harvesting operations in Sawlog Working Circles (2)** **Cubic meters** | **Total long fiber supply** **Cubic meters** | **Target volume for short fiber pulpwood from small holder woodlots and , larger farms (3)** **Cubic meters** | **Target volume for short fiber pulpwood from Pulpwood Working Circle plantations** **Cubic meters** | **Total short fiber pulpwood supply** **Cubic meters** | **Target volume for short fiber biomass from small holder woodlots and larger farms** **Cubic meters** | **Target volume for short fiber biomass from pulpwood working circle plantations** **Cubic meters** | **Total short fiber biomass supply** **Cubic meters** |
|---|---|---|---|---|---|---|---|---|
| 264,000 | 66,000 | 330,000 | 132,000 | 88,000 | 220,000 | 160,000 | 40,000 | 200,000 |

(1) Government concession policies and criteria to be used for demarcation and allocation of a Pulpwood Working Circle plantation area of something in the order of 20,000 hectares are still under discussion . The draft report by PROFOR Consultant Dr. Roger Sedjo on "Economic and Financial Viability of Kenya Forestry" compares possible procedures for selection and allocation of multiple Sawlog Working Circles such as those suggested on page 14 above with procedures for defining a single Pulpwood Working Circle. To quote from his report :"*For pulpwood, concessions, unlike saw logs conditions are inadequate for a well functioning market there being only one pulp mill in Kenya. Further more forest management for pulpwood would be different ( Shorter rotations , mass production , minimal thinning regimes). Thus the pulp mill would require its own pulpwood concession with payments to government made wholly through the payment of land use rents for the area under concession"*

(2) This modest target reflects uncertainties about the economic viability of integrated harvesting operations. Earlier integrated harvesting studies carried out during the 1980's suggested fairly high costs for pulpwood thinning operations. Further analysis is needed.

(3). Ongoing surveys of farmer receptivity to pulpwood and biomass planting and of land availability for expansion of farm forestry will provide a basis for re assessment of these tentative targets . The above table assumes that of a total pulpwood /biomass requirement of 750,000 m3 a year about 458,000 ( approximately 60% ) would be obtained from a Pulpwood Working Circle covering about 20,000 hectares of government plantations and from integrated harvesting operations in adjacent Sawlog Working Circles. About 40% would come from farm forestry. Those tentative targets will need to be revisited as the results of on farm surveys and of land availability for private planting becomes available.