

AN EVALUATION OF AZAD KASHMIR LOGGING AND SAWMILLING CORPORATION

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Abstract. *This paper gives a detailed review of working of Azad Kashmir Logging and Sawmilling Corporation since its establishment in 1971. The Corporation has been running short of targets in both extracting timber from forests and its subsequent conversion in the saw-mill at Mirpur. The out-turn of round and sawn timber is also low and sawing operations are highly uneconomical. Since market currently prefers round timber, it is suggested that AKLASC should concentrate on its forest operations, extract all standing timber handed over to it and sell the same in round form. Some changes in current administrative set up are also suggested to improve the efficiency of AKLASC.*

Introduction. A Committee was formed by the Azad Government of Jammu and Kashmir in June 1978 to review the working of the Azad Kashmir Logging and Sawmilling Corporation (AKLASC). The author was a member of this Committee. This paper is based on the data supplied by the AKLASC to the Committee.

AKLASC was conceived in the sixties for the optimum utilization of the forest resources of Azad Kashmir. The original project proposal prepared by foreign consultants consisted of the establishment of an integrated logging, sawmilling and chipboard project for the production of 0.05 million m³ (1.8 million cft) of sawn and seasoned timber and 5,000 tonnes of chipboard annually in a plant at Mirpur. The estimated annual production was based on an annual cut of 0.105 million m³ (3.7 million cft) from Neelam Valley forests in Azad Kashmir. An out-turn of about 150% was forecast with a loss of 20% during conversion in the forest and in transit to the factory at Mirpur (1). These estimates were based on Kulu volume tables for coniferous species, giving out-turn by the quarter girth formula and going up to a maximum diameter breast height of 90 cm.

The chipboard part of the proposal was later dropped and only logging and sawmilling components were executed. AKLASC was established in 1968 with a capital outlay of Rs. 40.1 million including foreign exchange component of Rs. 7.75 million. AKLASC Act of 1969 was enacted to provide legal cover to the Corporation. Machinery for the sawmill and cable rope-way was supplied by a Polish firm, who also supervised its trial running for almost a year after installation. Fellings were started in the forests in 1971-72 on a modest scale by the Corporation and round wood was transported for the first time to the sawmill in Mirpur in the following year.

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The proposal for setting up of AKLASC received criticism from the Forest Department of Azad Kashmir right from the beginning, as early as 1963. According to their estimates, only 0.03 million m³ (1.062 million cft) of timber could be supplied annually from the Neelam Valley forests for conversion into 0.019 million m³ (0.661 million cft) of sawn and seasoned timber. These objections were found correct when AKLASC started forest operations. Thereafter the forest operations of AKLASC were extended throughout Azad Kashmir to provide sufficient timber to the factory at Mirpur.

Forest Operations. Prior to the setting up of AKLASC, Azad Kashmir forest department was extracting round timber through private contractors at an average annual rate of 28, 317 m³ (1 million cft) from the forests under its control between 1966 to 1971. According to the working plans, the current annual prescribed yield of Azad Kashmir forests is estimated to be 169,013 m³ (5.968 million cft) of standing volume from Jhelum Valley, Keran, Sharda, Muzaffarabad and Mirpur Forest Divisions. Since forest operations of AKLASC extend throughout the territory of Azad Kashmir, the prescribed yield is much more than the target set up for AKLASC e.g., 0.105 million m³ (3.7 million cft) in the original PCI scheme. However, the total standing volume marked and handed over to AKLASC since 1971 as well as volume felled, converted and transported by it is given in Table 1. Only coniferous timber species of deodar (*Cedrus deodara*), kail (*Pinus wallichiana*), chir (*Pinus roxburghii*) and fir (*Abies pindrow*) were marked for this purpose.

TABLE 1

Annual marking, felling and extraction of timber in m³ by AKLASC, the values in parenthesis are in cubic feet.

Year	Volume taken over		Volume converted		Volume extracted	
1971—72	32,217	(1,137,748)	1,024	(36,185)	—	—
1972—73	57,296	(2,023,379)	16,074	(557,662)	3,067	(108,324)
1973—74	144,108	(5,089,152)	30,566	(1,079,426)	12,907	(455,791)
1974—75	87,471	(3,089,014)	34,906	(1,232,687)	11,149	(393,721)
1975—76	7,727	(272,863)	36,670	(1,294,976)	21,899	(773,349)
1976—77	63,386	(2,238,470)	51,953	(1,834,703)	33,657	(1,188,593)
Total	392,205	(13,886,626)	171,193	(6,054,039)	82,679	(2,919,778)

Though the marking was high during 1973-74, the Forest Department on an average marked 65,367 m³ (2,314,437 cft) annually of standing volume over six years period. AKLASC, on the other hand managed to fell and convert less than half of this timber during this period, i.e., 28,532 m³ (1,009,000 cft). Further, it extracted only half of the material felled by it upto the timber depot at Muzaffarabad and sawmill at Mirpur. Although its efficiency for extraction of timber improved over the years, it fell far short of the targets laid down in the original project proposal and the marking done by the Department.

A number of reasons were advanced by the management of AKLASC for its unsatisfactory working. Foremost among these was the inexperience of AKLASC in forest working. The exploitation of forests by a government agency was the first of its kind in the history of Pakistan and Azad Kashmir. Qualified staff with sufficient experience was therefore not available in the country for this purpose. This was particularly reflected in awarding contracts on piecemeal work basis. In the beginning, all operations of lopping, felling, conversion, extraction and transportation were treated as separate items and their contracts were awarded to different contractors. Slackening of work by one contractor created bottlenecks for the others.

Secondly, the entire project was based on river transportation of timber. The high incidence of theft (upto 50%) along the river Jhelum from 1972 to 1975 compelled the Corporation to switch over to road transportation. The latter however, has its own limitations. Not only the availability of trucks in this region is limited, but also the roads are frequently closed to traffic for repairs and improvement. A limit is also imposed on load a truck may carry in the form of timber. This resulted in the accumulation of large felled stocks in the forests.

Initially, a main 2400 meter long cable ropeway of one sky-line feeder crane was installed for logging operations. This facility was strengthened by installation of three feeder cranes subsequently. Although the main ropeway has the capacity of carrying 9,000 m³ (320,000 cft) of logs annually, the actual average annual carriage was about 2,549 m³ (90,000 cft) due mainly to difficult terrain. In the beginning, the marking was scattered and the ropeway could not be fed enough timber for carriage. Later on it was decided that some concentrated marking should be done to have enough timber within the working distance of the ropeway. When concentrated marking was done in Keran Forest Division, the system did not work again because the contractors engaged in various operations could not deliver enough timber.

The contracts for forest operations were generally awarded to the local contractors who were generally not sound financially. They sometimes offered rates which were very low and unworkable. As far as management of AKLASC was concerned, there was only a part-time Forest Manager for quite a long period assisted by a Deputy Forest Manager and two Assistant Managers to look after the entire forest operations in the territory. As the volume of work increased with years, it was not possible for them to cope with the work. It may also be mentioned here that the switch over from the contractor system to departmental working was a big blow to the former who created all sorts of hurdles to make the AKLASC project a failure.

Sawmill Operations. A sawmill was established in 1972 at Mirpur with the object of converting 0.085 million m³ (3.0 million cft) of round timber into 0.05 million m³ (1.8 million cft) of sawn and seasoned timber. A gang saw and two band saws were installed in the factory. Three seasoning kilns each of 51 m³ (1800 cft) capacity were also installed. The log intake system was designed for delivery from lake to the sawmill through a ropeway.

The supply of round timber to the sawmill at Mirpur was started in 1972-73. Over the years, the quantities of the timber supplied to the sawmill and its conversion annually is given in Table 2.

TABLE 2

Annual receipt of round timber and its conversion in m³ in the sawmill at Mirpur the values in parenthesis are in cubic feet

Year	Timber extracted		Timber received at Mirpur		Production of sleepers, planks and battens	
1972—73	3,067	(108,324)	1,264	(44,653)	—	
1973—74	12,907	(155,791)	12,877	(454,733)	3,924	(138,569)
1974—75	11,149	(393,721)	12,753	(450,358)	7,957	(280,989)
1975—76	21,899	(771,349)	12,493	(441,179)	9,163	(323,577)
1976—77	33,657	(1,188,593)	12,359	(436,464)	7,455	(263,257)
1977—78	Not known		12,442	(439,369)	7,787	(274,987)
Total	82,679	(2,919,778)	64,188	(2,266,876)	36,279	(1,281,379)

Out of 64,188 m³ (2,266,876 cft) of round timber supplied to the factory through river and road transportation, only 36,279 m³ (1,281,379 cft) were converted during six years period. Although the target quantity of 0.085 million m³ (3.0 million cft) of round timber annually was never supplied to the factory at Mirpur, still it failed to convert even the quantity of timber delivered at the factory gate during its period of operation. Seasoning of timber was never undertaken at the factory because logs were mostly converted into sleepers which could not be seasoned due to their large sizes. Market also did not seem to prefer seasoned wood.

A study was undertaken by the Forest Economist of the Pakistan Forest Institute, Peshawar, in 1975, for the economic evaluation of the sawmill operations when it had completed one year of regular working (2). Its annual production was found to be only 11860 m³ (418,800 cft) of round timber. However, the total annual capacity of the mill with three shifts of band saw and one shift of gang saw line was estimated to be 65,129 m³ (2,300,000 cft). Due to low production, cost of conversion was also found high e.g., Rs. 247.20 per m³ (Rs. 7.00 per cft). A number of suggestions were made by the Forest Economist to improve sawmill operations. Amongst others, he suggested that annual production should be immediately increased from 11,859 m³ (418,800 cft) to 48,139 m³ (1.7 million cft) and later to about 65,129 m³ (2.3 million cft) when material for gang saw line becomes available. Secondly the factory should be kept running if the annual production is more than 22,653 m³ (0.8 million cft); with lower production, the loss will be minimised by closing the factory.

The main reason for inefficient operation of the sawmill is its faulty design. The main sawing line in the mill is the gang saw which can only take logs of 35 to 60 cm (14 to 24 inches) diameter whereas about 66% of the logs received at the Factory are of large size. Difficulties are also experienced in handling large size log at the factory. Originally the log in take system was designed for delivery of logs from Mangla lake. These are presently carried by road and thrown into the Mangla lake for carriage to the sawmill through ropeway which does not operate during winter because of recession of water level in the lake.

There are frequent breakdowns and slow-downs in the factory. It was estimated by the Forest Economist that the actual working time of the factory was only 24 to 29 percent during two shifts of its operation over 16 hours period. This situation is continued to-date. Difficulty is also experienced in procurement of spare parts for the machinery supplied by a Polish firm which have presently become almost obsolete. Due to low production and inefficient sawmill operations, the conversion of round timber is highly uneconomical.

Out-Turn and Wastage. *Round timber:* The data provided by AKLASC showed a highly variable log out-turn from different forests. It is summarised in Table 3.

TABLE 3

Out-turn values for different timber species on Hoppus measure of logs, the values in parenthesis are based on actual volume of logs

Species	Out-turn %		Division
Deodar	50-113	(75-169.5)	Keran and Sharda
Kail	50-85	(75-127.5)	Keran and Jhelum valley
Fir	69-86	(103.5-129)	Keran and Sharda
Chir	40-81	(60-121.5)	Mirpur and Kotli

Whereas standing volume of the tree is estimated as true volume with the help of new volume tables prepared by the Pakistan Forest Institute, Peshawar (3), the round timber is measured in quarter girth or Hoppus measure. The volume in Hoppus measure is 127% of the true volume. Therefore, the above values of out-turn should be increased by 27% to get the actual values which are given in parenthesis in Table 3. Since the out-turn upto 169.5% (corrected values) has been obtained in deodar and more than 100% in other species, it seems that the new volume tables are not under-estimating the standing volume. However, lower values of out-turn in chir pine, are too low and indicate the possibility of considerable forest wastage or defective volume tables. In most of the estimates of the out-turn of round timber from standing volume, a loss of 15-25% is anticipated if there is no utilization of lops, tops, etc., (4). The original project proposal envisaged a loss of only 10% wood in the form of forest waste which was rather on the lower side.

As mentioned before that out of a total volume of 171,193 m³ (6,054,039 cft) felled and converted by the AKLASC over 6 years period, from 1971 to 1977, only 82,679 m³ (2,919,778 cft) was extracted. Considerable quantity of this timber was felled before 1977 and a major portion of it must have rotten by this time especially those logs which were taken from over-mature fir trees with hollow bole. Rotting of timber would result in low out-turn and high forest wastage.

Sawn Timber. The question of out-turn of sawn timber was also examined in connection with the working of sawmill at Mirpur. Logs of different species are generally converted into sleepers, planks and battens and wastage is generated in the form of pharas (slabs), saw-dust and scrap. A summary of the conversion data over five years period is given in Table 4.

TABLE 4
Out-turn of sawn timber

Item	Out-turn
Sleepers, planks and battens	67—79
Pharas	6—14
Saw-dust	5—10
Scrap	6—11

The out-turn percentages are based on calculations of round timber in Hoppus measure. If the logs are also measured in true volume, the out-turn of sleepers, planks and battens would be reduced to 52.7 to 62.2 % of log volume. If out-turn of round wood is also considered then the out-turn of sawn timber from standing volume is reduced to only about 45 to 50 %. Of the remaining wood volume of the standing tree, 5-11 % (corrected values) volume are sold at nominal price as pharas. The balance of 39-50 % is wasted in the form of saw-dust and scrap in the factory and lops and tops in the forest. Recently reconversion sawing units have been installed in the factory and a total of 143 m³ (5050 cft) of sawn timber was obtained from pharas during 1977-78.

The original project proposal of efficient utilization of forest resources of Azad Kashmir through reduction in waste and its economic utilization both in the forests and the sawmill has not materialised so far, because chipboard factory was not established along with the sawmill and presently there is no scope of economic utilization of the waste. Sawdust and scrap is either sold as firewood or supplied to the sawmill employees at nominal cost for use as fuel. The future plans of AKLASC regarding setting up of small sawmill units at various places e.g., Muzaffarabad and Islamabad also are not promising since waste generated at these units would be too small in quantity and scattered for its economic utilization.

Economics of Forest and Sawmill Operations. *Forest Operations.* The rates for felling, conversion, extraction and transportation are lowest possible because these are obtained by calling for lowest bids and are therefore economical. However, the lowest

bids for various items of work are sometimes too low to be workable. In this connection it may also be mentioned that the lowest rates may or may not be economical as the economics of various operations depend upon out-turn. AKLASC have rather mostly followed the age-old methods of felling, conversion and extraction with generally low out-turn of round timber. It would have certainly affected economics of forest operations favourably, had the AKLASC adopted modern techniques of taking maximum out-turn from forest with minimum of waste and loss. However, this would involve mechanisation of felling, conversion and extraction operation and road construction requiring considerable capital investment, which is not presently possible.

Sawmilling Operations. As an example, the calculations were done for deodar only to determine the economics of timber conversion on the basis of current rates of round and sawn timber and the cost of conversion. Similar calculations could be done for other species. The sale price of deodar timber at Muzaffarabad during 1978 was Rs. 2,457.20 per m³ (Rs. 69.58 per cft). The cost of transportation of round timber from Muzaffarabad to Mirpur is Rs. 97.12 per m³ (Rs. 2.75 per cft). The sale price of deodar timber at Mirpur is Rs. 2,771.85 (Rs. 78.49 per cft) and the sawing charges at the factory were Rs. 479.92 per m³ (Rs. 13.59 per cft) inclusive of all the charges. Allowing for an out-turn of 77% during conversion there is a net loss of Rs. 594.15 for every m³ (Rs. 16.90 per every cft) of round timber brought from Muzaffarabad to Mirpur and converted at the latter stage. The calculations are given in Table 5.

This clearly shows that the sawmill operations are totally inefficient and instead of adding value to the timber these result in huge losses to the Government of Azad Kashmir. The total annual loss to Azad Kashmir Government is estimated to be Rs. 5,902,286.10 for converting 9,934 m³ (350,821 cft) of round timber at the factory annually.

In this connection, the working of a small sawmill unit at Muzaffarabad was also examined. This unit has been set up to feed Islamabad market and has produced 187 m³ (6603 cft) of sleepers of deodar and kial during two months of its operation. The cost of sawing at this unit was only Rs. 66.04 per m³ (Rs. 1.87 per cft). Even with this low cost of sawing, it was found that some loss in value still occurs in deodar during conversion from round to sawn timber. This suggests that market prefers logs to sawn timber.

The main reason for inefficient operation of sawmill at Mirpur is its faulty design, frequent breakdowns and slow-downs, non-availability of spare parts, etc. Since production is very low, the cost of sawing becomes very high due to high indirect and depreciation charges. The breakup of sawing charges in sawmill at Mirpur is given below.

Direct sawing charges	Rs. 144.08 per m ³	(Rs. 4.08 per cft.)
Indirect sawing charges without depreciation	Rs. 72.75 per m ³	(Rs. 2.06 per cft.)
Depreciation	Rs. 263.09 per m ³	(Rs. 7.45 per cft.)
Total:	Rs. 479.92 per m ³	

This breakup shows that even direct sawing charges are very high. In the open market sawing is generally done at Rs. 70-100 per m³ (Rs. 2.00 to Rs. 2.30 per cft).

TABLE 5

Economics of sawmill operations for deodar

Item	Quantity m ³	Rate Rs/m ³	Amount Rs.
<i>Cost items</i>			
Price of round timber	100 (round)	2,457.20	245,720 00
Cost of transportation from Muzaffarabad to Mirpur	100 (round)	97.12	9,712.00
Conversion charges (out-turn 77%)	77 (solid)	479.93	36,954.61
			292,386.61
<i>Revenue items</i>			
Price of converted timber	77 (solid)	2,771.85	213,432.45
Value of waste	50.3 (solid)	388.46	19,539.54
			232,971.99
Loss for 100 m ³ (round)			59,414.62
Loss per m ³ (round)			594.15

Administrative and Management Aspects. AKLASC was constituted as a Corporation in 1969. It was made a constituent part of Mineral and Industrial Development Corporation (AKMIDC) when the latter was established. This was done due to the fact that AKLASC did not have requisite managerial personnel at that time rather than on the consideration of relative merits of the Corporation functioning as an independent entity viz-a-viz its amalgamation with AKMIDC. The Chairman, AKMIDC is ex-officio Managing Director of AKLASC by virtue of AKLASC Act. A Board of Directors was also constituted for policy decisions. A full time General Manager is employed for day-to-day management of the Corporation, who has a Forest Manager and a Mill Manager. Sufficient staff is available for forest operation. However, there is considerable overstaffing in the sawmill. The Sales and Accounts Sections of AKLASC have remained weak over the years due to non-availability of suitable persons for the available posts.

All the provincial forest departments in Pakistan have taken up departmental extraction of wood during last few years. They have created units within the departments, whose sole responsibility is extraction of wood from forests. A Forest Development Corporation has also recently started working in N.W.F.P. for this purpose. This Corporation remains under the overall administrative control of the N.W.F.P. Forest Department. This is not the case as far as AKLASC is concerned. Its working is independent of Azad Kashmir Forest Department, though it depends upon the latter for its senior staff, extent

and distribution of marking and fixation of royalty of timber marked for felling. Consequently there is lack of co-ordination and close liaison between AKLASC and Forest Department of Azad Kashmir. Matters relating to fixation of royalty have been kept pending between these two organizations for many years.

Conclusion. AKLASC has not been able to achieve the objectives for which it was set up. The Corporation was able to extract less than one fourth of the timber volume marked and handed over to it during last six years even though the marking was less than the prescribed annual yield of Azad Kashmir forests as well as less than the targets of original Project proposed. Its inefficient working has not only resulted in the accumulation of large quantity of felled stocks of timber in the forests but also in substantial revenue losses to Azad Kashmir Government. Considering AKLASC working during past six years, it may be stated that the Corporation would not be able to exploit full potential of Azad Kashmir forests, equivalent to prescribed annual yield, in foreseeable future with its present facilities. As far as sawmill working at Mirpur is concerned, it has proved to be highly uneconomical involving considerable annual expenditure without any returns. Therefore, drastic changes are needed to improve the working of AKLASC.

Since market seems to prefer round timber instead of sawn timber, and that sawing charges in the sawmill at Mirpur are very high and uneconomical, it would be better if AKLASC concentrates on forest operations only and gives up sawmilling entirely. However, the Corporation facilities will have to be considerably strengthened in order to enable it to extract all timber marked for felling. Further, efficient working of AKLASC would also depend upon close liaison and co-ordination of its activities with those of Forest Department. AKLASC should retain its autonomous and commercial status but be brought under the overall administrative control of the Azad Kashmir Forest Department. It should also immediately plan for strengthening of its facilities for forest operations and establishment of its own cadres of staff with specialized training in logging, conversion, transportation, engineering, marketing and sales.

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