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1.	GENERAL INFORMATION	1
2.	INDUSTRY	2
3.	MARKET	3
4.	FACTORY	4
5.	FINANCIAL	5
6.	LABOR	6
7.	CONCLUSIONS	7
8.	RECOMMENDATIONS	8
9.	APPENDICES	9
10.	REFERENCES	10
11.	INDEX	11
12.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1/2 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1 MILLION/DAY	12
13.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2 MILLION/DAY	13
14.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4 MILLION/DAY	14
15.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 8 MILLION/DAY	15
16.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 8 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 16 MILLION/DAY	16
17.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 16 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 32 MILLION/DAY	17
18.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 32 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 64 MILLION/DAY	18
19.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 64 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 128 MILLION/DAY	19
20.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 128 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 256 MILLION/DAY	20
21.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 256 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 512 MILLION/DAY	21
22.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 512 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1024 MILLION/DAY	22
23.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1024 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2048 MILLION/DAY	23
24.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2048 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4096 MILLION/DAY	24
25.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4096 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 8192 MILLION/DAY	25
26.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 8192 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 16384 MILLION/DAY	26
27.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 16384 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 32768 MILLION/DAY	27
28.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 32768 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 65536 MILLION/DAY	28
29.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 65536 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 131072 MILLION/DAY	29
30.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 131072 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 262144 MILLION/DAY	30
31.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 262144 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 524288 MILLION/DAY	31
32.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 524288 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1048576 MILLION/DAY	32
33.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1048576 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2097152 MILLION/DAY	33
34.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2097152 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4194304 MILLION/DAY	34
35.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4194304 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 8388608 MILLION/DAY	35
36.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 8388608 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 16777216 MILLION/DAY	36
37.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 16777216 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 33554432 MILLION/DAY	37
38.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 33554432 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 67108864 MILLION/DAY	38
39.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 67108864 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 134217728 MILLION/DAY	39
40.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 134217728 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 268435456 MILLION/DAY	40
41.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 268435456 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 536870912 MILLION/DAY	41
42.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 536870912 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1073741824 MILLION/DAY	42
43.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1073741824 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2147483648 MILLION/DAY	43
44.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2147483648 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4294967296 MILLION/DAY	44
45.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4294967296 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 8589934592 MILLION/DAY	45
46.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 8589934592 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 17179869184 MILLION/DAY	46
47.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 17179869184 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 34359738368 MILLION/DAY	47
48.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 34359738368 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 68719476736 MILLION/DAY	48
49.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 68719476736 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 137438953472 MILLION/DAY	49
50.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 137438953472 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 274877906944 MILLION/DAY	50
51.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 274877906944 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 549755813888 MILLION/DAY	51
52.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 549755813888 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1099511627776 MILLION/DAY	52
53.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1099511627776 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2199023255552 MILLION/DAY	53
54.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2199023255552 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4398046511104 MILLION/DAY	54
55.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4398046511104 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 8796093022208 MILLION/DAY	55
56.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 8796093022208 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 17592186044416 MILLION/DAY	56
57.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 17592186044416 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 35184372088832 MILLION/DAY	57
58.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 35184372088832 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 70368744177664 MILLION/DAY	58
59.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 70368744177664 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 140737488355328 MILLION/DAY	59
60.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 140737488355328 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 281474976710656 MILLION/DAY	60
61.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 281474976710656 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 562949953421312 MILLION/DAY	61
62.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 562949953421312 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1125899906842624 MILLION/DAY	62
63.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1125899906842624 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2251799813685248 MILLION/DAY	63
64.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2251799813685248 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4503599627370496 MILLION/DAY	64
65.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4503599627370496 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 9007199254740992 MILLION/DAY	65
66.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 9007199254740992 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 18014398509481984 MILLION/DAY	66
67.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 18014398509481984 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 36028797018963968 MILLION/DAY	67
68.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 36028797018963968 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 72057594037927936 MILLION/DAY	68
69.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 72057594037927936 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 144115188075855872 MILLION/DAY	69
70.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 144115188075855872 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 288230376151711744 MILLION/DAY	70
71.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 288230376151711744 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 576460752303423488 MILLION/DAY	71
72.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 576460752303423488 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1152921504606846976 MILLION/DAY	72
73.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1152921504606846976 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2305843009213693952 MILLION/DAY	73
74.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2305843009213693952 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4611686018427387904 MILLION/DAY	74
75.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4611686018427387904 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 9223372036854775808 MILLION/DAY	75
76.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 9223372036854775808 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 18446744073709551616 MILLION/DAY	76
77.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 18446744073709551616 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 36893488147419103232 MILLION/DAY	77
78.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 36893488147419103232 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 73786976294838206464 MILLION/DAY	78
79.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 73786976294838206464 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 147573952589676412928 MILLION/DAY	79
80.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 147573952589676412928 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 295147905179352825856 MILLION/DAY	80
81.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 295147905179352825856 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 590295810358705651712 MILLION/DAY	81
82.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 590295810358705651712 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1180591620717411303424 MILLION/DAY	82
83.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1180591620717411303424 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2361183241434822606848 MILLION/DAY	83
84.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2361183241434822606848 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4722366482869645213696 MILLION/DAY	84
85.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4722366482869645213696 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 9444732965739290427392 MILLION/DAY	85
86.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 9444732965739290427392 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 18889465931478580854784 MILLION/DAY	86
87.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 18889465931478580854784 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 37778931862957161709568 MILLION/DAY	87
88.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 37778931862957161709568 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 75557863725914323419136 MILLION/DAY	88
89.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 75557863725914323419136 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 151115727451828646838272 MILLION/DAY	89
90.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 151115727451828646838272 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 302231454903657293676544 MILLION/DAY	90
91.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 302231454903657293676544 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 604462909807314587353088 MILLION/DAY	91
92.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 604462909807314587353088 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1208925819614629174706176 MILLION/DAY	92
93.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1208925819614629174706176 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 2417851639229258349412352 MILLION/DAY	93
94.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 2417851639229258349412352 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 4835703278458516698824704 MILLION/DAY	94
95.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 4835703278458516698824704 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 9671406556917033397649408 MILLION/DAY	95
96.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 9671406556917033397649408 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 19342813113834066795298816 MILLION/DAY	96
97.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 19342813113834066795298816 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 38685626227668133590597632 MILLION/DAY	97
98.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 38685626227668133590597632 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 77371252455336267181195264 MILLION/DAY	98
99.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 77371252455336267181195264 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 154742504910672534362390528 MILLION/DAY	99
100.	LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 154742504910672534362390528 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 309485009821345068724781056 MILLION/DAY	100

APPENDICES

	<u>Page</u>
I. TABLED STATISTICS	1 - 2
II. REASONS WHY MANUFACTURED PIPE-SMOKING TOBACCO IS NOT ACCEPTABLE IN RWANDA	1
III. LIMITATIONS THAT CLASSIFY RWANDA DARK TOBACCO AND CIGARS AS MARGINAL PROSPECTS COMPARED WITH MILD CIGARETTE PRODUCTION	1 - 2
IV. FORECAST OF FARMERS' PRICE FOR BURLEY AND VIRGINIA LEAF	1 - 6
V. LIST OF PLANT AND MACHINERY FOR A FACTORY MAKING 1/2 MILLION CIGARETTES/DAY WITH SPACE AND RESERVE MACHINES FOR ULTIMATE 1 MILLION/DAY	1 - 7

1. CONCLUSIONS AND RECOMMENDATIONS

1.1 The Demand: The rapidly growing demand for the rising dependence on "MILD CIGARETTES" containing mainly Virginia-type and burley tobacco. The consumption in Rwanda, after deducting re-exported cigarettes, was 100 million in 1969, with an increase at the rate of 10 million per year.

1.2 Marginal Side-issues: The only profitable demand for industrialization of the existing dark leaf cured tobacco is to blend a few years of the crop of 1,000 tons grown, into the proposed cigarette brand. Manufactured pipe tobacco is not acceptable and cigars are barely marginal on a commercial scale. Light leaf grown for the cigarettes might also qualify for export to the European market.

1.3 Availability of Raw Materials: Soil and climate are suitable in large areas for the Virginia and burley tobacco required; and Mr. Takats report assures technical feasibility, PROVIDED THAT FOREIGN "CHEMICAL" ASSISTANCE IS GIVEN.

1.4 Market Tests: In very encouraging smoking tests, regular smokers of the favourite imported brand "Belga Legere" each compared a "Belga" with a test cigarette containing Virginia and burley leaf of the quality expected to grow in Butare and Icyanya regions of Rwanda and also containing a little traditional dark leaf. One smoker in three preferred our experimental cigarette and on average those who preferred "Belga" at Fr15.-/pack said they might buy the new cigarette at Fr12.-. Only 1 in 5 failed to recognize which was "Belga Legere".

1.5 Prices of Products: ECONOMIC FEASIBILITY is shown for 120 million cigarettes per year at Fr12.-/pack of 20 (Appendix V). This is based on estimated costs of cured and re-dried leaf (Appendix IV) of Fr70.-/kg which would be \$0.90 to \$1.- in Europe. Leaf price is based on conflicting sources of data, but is low enough to leave a margin of safety in cigarette price.

1.6 Technical Assistance: This is essential in both the AGRICULTURAL AND INDUSTRIAL phases; and \$50,000.- for an agricultural first phase is recommended before deciding on \$50,000.- for the INDUSTRIAL TECHNICAL ASSISTANCE in the second phase which would also involve investment of over \$700,000.-:

First phase: ... (not fully legible) ... organized in detail by a Virginia-
type ... (not fully legible) ... technical assistance ... 1,000...

Second phase: ... (not fully legible) ... the first year of phase I
and ... (not fully legible) ... establishing an investor for the
cigarette factory: ... (not fully legible) ... and 1 year each for
specialists in a) leaf curing and re-irving and b) cigarette manufacture.
Techn. Ass. \$15,000.-. Investments: Drying barns \$45,000.- (paid in Rwanda) -
Re-irving installation, \$12,000.- (including \$5,000.- importation) - Cigarette
factory \$550,000.- (including \$100,000.- importation and \$200,000 Rwanda tobacco
stocks). Calculations include profits to attract an independent investor for
the cigarette factory, but not for the re-drying installation, for which a low
interest loan and non-profit operation are suggested.

1.7 Leaf Development Programme: Phase I is visualized for planting about
1½ hectares the first year, 6 hectares the second, and 50 hectares or more,
the third. The first year would experiment under various conditions in a
number of small areas of both Virginia and Burley. Production costs must be
studied at every step, to confirm or correct estimates tabulated in Appendix IV
page ... of this report.

1.8 Leaf Exports: Export of the resulting leaf is possible but as it has not
yet been grown and estimated production costs are near the limit at which it
could compete for export, it would be unwise to draw conclusions until the end
of the first year's tests.

1.9 Import Substitution: Excluding relatively luxury cigarettes, and the
unreliable contraband re-exports, 1969 imports that might be substituted amount
to 170,000 millions at Fr350.-/1,000, making Fr45 million (\$450,000.-). If
this were substituted by a foreign investor with 12 per cent profit (after the
initial years losses) and 8 per cent interest on capital to be repatriated,
about \$300,000.- of this \$450,000.- would be spent in foreign currency.
\$150,000.- foreign purchasing power would be gained.

1.10 Tax Revenue: Fr100.-/1,000 cigarettes is included for tax in feasibility
calculations (Appendix ... pages ... and ...). This is practically the same rate as
the present 30 per cent import duty, so that customs duty revenue due to import
substitution is balanced by tax.

1.11 Employment: For the immediate target of 100 million cigarettes/year, the cigarette factory and smoking installation would employ 100; and about 1,500 farmers would earn 100 million/year producing the 50 tons of tobacco.

1.12 "Break-Even" Target: In this exceptionally small market, break-evening the output of a single cigarette-making machine operating at much less than 120 million/year will never occur, so that sales must be built up as quickly as possible. Profitable sales of 200 million cigarettes would be 100 million/year; 400 million/year; 600 million/year; 800 million/year; 1,000 million/year. Protection by increased customs duty will encourage fraud. Two alternatives would achieve an early "break-even" goal:

- (a) Co-operation with Burundi in one factory for the double market.
- (b) Co-operation of Tabacongo to make their cigarettes "Belga Rouge" on the same machine in Kigali and sell Rwanda National cigarettes through their existing sales network of retailers. This would avoid the duplication of administrative and selling costs that are disproportionately high in such a small enterprise.

Independent action must hurt both parties; and introduction of a third party, as suggested in Mr. Dukat's technical feasibility report, would split profits, if any, three ways.

1.13 Sources of Machinery: Second-hand machinery can make excellent cigarettes at the low speeds that are adequate here; but they are liable to be shut down for want of replacement parts, either because parts are no longer obtainable, or because parts were wrongly identified when ordered, or for want of strict stock-keeping discipline. No adequate facilities are available in Kigali for manufacturing such parts in an emergency; and such a small factory tends to "have all its eggs in one basket". Long deliveries of out-of-date parts could shut down the plant for several months.

2. STATISTICS AND OBSERVATIONS ON TOBACCO AND CIGARETTE POTENTIAL

2.1 Dark Tobacco quantities, qualities and varieties have been covered in Mr. Dukat's report. The Ministry of Agriculture estimates that production and consumption have remained unchanged somewhere between 600 and 1,000 tons/year for 8 years and are likely to remain the same for at least 5 years. At most, 30 tons/year might be blended into the required mild cigarette. Kwana Mission now uses about 5 tons/year in cigars that accounted for 50 tons/year in 2½ million cigars, 90 per cent sold in the Congo, before 1963. Appendices II and III explain the limitations of cigars and manufactured pipe tobacco.

Government statistics show no change in the traditional retail price selling leaf by leaf in the market places, since 1964. Those familiar with seasonal changes point out that spot-check prices within the 6 weeks of this study, when some of the new crop is coming to the market, cannot be truly representative. A price of Fr50.-/kg is to be expected for stable purchases of more than a ton at a time for cigarette manufacture. No mild varieties of tobacco have been cultivated beyond a research stage.

2.2 Cigarettes imported in the last 5 years constitute 99 per cent of the quantities tabulated in Appendix I page 1, extracted from 24 volumes of Government statistics and from cigarette importers' records.

Cigarette imports of about 20 tons/year through the troubled years increased rapidly when the consumer tax of Fr250.-/1,000 cigarettes (Fr5.-/pack of 20) was eliminated in March 1968, accompanied by reduction of import duty from 30 per cent to 20 per cent. Sales were also improved by better organised distribution to retailers when Tabacongo opened their sales offices early 1968.

Prices per pack of 20 cigarettes for which the Government use "Belga Rouge" as the standard of comparison, are given for each month since 1963 in Appendix I page 1 column 5, showing rise due to scarcity particularly in 1967 when troubles necessitated air transport.

Real indications of the market start with 1968. At first sight, 22 tons 1967: 165 tons 1968: 395 tons 1969, (Appendix I, page 1) suggests a geometric progression with a multiplying factor of about 3; but frontier

troubles invalidate 1967 figures and when available the increase is not geometric but a basic upward trend of 100 tons (30 million cigarettes) per year. The reasons are the following influences:

(a) Burundi import duty was increased from 10 per cent to 20 per cent in November 1968, which gradually raised Burundi prices to 20.- as low-duty stocks became exhausted. At about the same time Rwanda prices dropped from Fr20.- to 14.- due to eliminating consumer tax. This was followed by reducing Rwanda import duty by Fr1./pack. This was in March 1969, with a 6 months time lag using up old stocks. Appendix I page 1, columns 10 and 11 show that Rwanda sales of brands most popular in Burundi averaged 10 tons/quarter through 3 quarters before the exhaustion of Burundi cheap stocks, (including the first quarter of 1969) and averaged 30 tons/quarter through the three next quarters. This increase, partly due to the reversal of contraband incentive, was 12½ millions per quarter (from 30.0 to 42.5 millions) representing a rate of 50 million cigarettes year more in the second half of 1969 than in that half of 1968. Official sales of these brands in Burundi in 1968 (mainly prior to increasing duty in November) were 109 millions and dropped practically 50 million, to 59 millions in 1969. Part of this drop was certainly balanced by increased contraband direct from the Congo; but 30 million is a reasonable estimate of re-exportation from Rwanda to Burundi in 1969, as indicated in Appendix I page 1.

(b) Uganda increased the consumer tax in July 1969 so that cigarettes exported to Rwanda without this heavy tax and then fraudulently re-exported back into Uganda make a great profit. Rwanda imports from Uganda to the fourth quarter of 1969 are practically double those of the second quarter and six times those of 1968 fourth quarter. (Appendix I page 1, columns 10 and 11). This might suggest that over 80 per cent are re-exported, but allowing for some increase of Rwanda consumption, 65 per cent (70 million 1969) re-exported is considered to be a conservative estimate (Appendix I page 1). Uganda also has 200 per cent duty on imported cigarettes creating an incentive for Rwanda fraudulent re-exports of some of the 25 million cigarettes of luxury brands imported into Rwanda. Policing these frontiers is difficult and expensive and the personnel are not available.

Rwanda cigarette consumption 1969 is thus estimated as 200 million cigarettes (see Appendix I page 1).

Rate of increase of cigarette consumption can only be estimated correctly by eliminating the above mentioned variables. Plotting graphs of Congo, Uganda and total imports and recognizing effects of price changes, taxes and import duty, suggests an isolated step of 26 tons/quarter between second and third quarters of 1968, due to Rwanda tax and duty changes March 1968. This is superimposed on a relatively steady increase of 10 tons/quarter in the two preceding and five subsequent quarters, after one has allowed for contraband re-exports as estimated above, particularly the spectacular increase of Uganda imports in the fourth quarter of 1969. Unfortunately, 1970 first quarter figures were not yet available. In 1969, 40 tons (gross) meant 30 millions increase in 200 millions real consumption, i.e. 15 per cent. Population growth is 3 per cent, but the main smoking age group of 20 to 35 years is increasing at 6 per cent per year according to the 1965 census (published 1968) by 5-year age groups; and whereas most men at 35 were too old or too poor to continue smoking cigarettes, this is changing.

2.3 Pipe Smoking Tobacco: Reasons why manufactured pipe tobacco will be unacceptable are relegated to Appendix II to avoid detracting from the main issue.

2.4 Cigars and Cigarillos: Exports have been negligible since 1962 (1963: Nil. 1964: R' Fr12,265 (\$123.-). 1965: Nil. 1966: Fr3,000.- (US\$30.-). 1967-1969: Nil). Appendix III explains why, **COMMERCIALY**, cigars and cigarillos are a poor marginal prospect that should not detract from the main issue. In 1969, Messrs Tabacongo imported 3,650 cigars and 14,780 cigarillos as against 158,570,000 cigarettes.

3.1.4.1.1. Cigarettes

Half the imported cigarettes consumed in Uganda in 1968 were made by the following three manufacturers: (a) 20% by the British American Tobacco Co. Ltd., (b) 10% by the Imperial Tobacco Co. Ltd., and (c) 70% by the Uganda Cigarette Co. Ltd. The Uganda Cigarette Co. Ltd. is a local company which has been established since 1964. It is a joint venture between the Uganda Government and the British American Tobacco Co. Ltd. The company is currently producing 240 million cigarettes per year. It is expected that the company will be able to increase its production to 480 million cigarettes per year by 1975.

Existing local cigarette production is expected to be insufficient to meet the requirements of the country and it is therefore proposed that a new factory will be built at a cost of about 200 million shillings. The factory will be capable of producing 480 million cigarettes per year. It is expected that the factory will be completed by 1975.

4. Cigarettes are imported at a price of about 100 shillings per pack in Uganda as follows:

100 shillings	200 shillings	300 shillings	400 shillings
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These quantities will be modified in accordance with the price levels in neighbouring countries.

Cigarette importers believe that an increase will be severely limited by purchasing power of the Ugandan smoker. However, 240 million at KSh13.- per pack in 1969 cost the manufacturer 40 million that is at KSh10.- per pack by a factory making at least 240 million per year. This factory would have to attract new smokers by its lower prices to balance those who would continue to smoke imported cigarettes at any price.

On this basis the full output of one cigarette making machine (120 million/year) could supply a reasonable target of half the consumption soon after starting, selling at KSh12.- per pack of 20 cigarettes. As shown below, this could be feasible, with a second machine in reserve and provision for adding a third and additional packing facilities.

1948

1. The first part of the report is devoted to a general survey of the situation in the country. It is followed by a detailed analysis of the economic situation, which shows a steady decline in the standard of living since the war. The report then discusses the political situation, which is characterized by a lack of democracy and the dominance of a few powerful groups. Finally, it concludes with some suggestions for reform.

2. The second part of the report is a study of the social structure of the country. It shows that the majority of the population is poor and that there is a large gap between the rich and the poor. The report also discusses the role of the family and the community in society.

3. The third part of the report is a study of the culture and education of the country. It shows that the majority of the population is illiterate and that the quality of education is very low. The report also discusses the role of the arts and the media in society.

4. The fourth part of the report is a study of the government and the legal system. It shows that the government is corrupt and that the legal system is inefficient. The report also discusses the role of the judiciary and the police in society.

5. The fifth part of the report is a study of the economy and the labor market. It shows that the economy is stagnant and that there is a high level of unemployment. The report also discusses the role of the labor union and the government in the economy.

6. The sixth part of the report is a study of the environment and natural resources. It shows that the environment is being degraded and that natural resources are being overexploited. The report also discusses the role of the government and the private sector in the environment.

7. The seventh part of the report is a study of the foreign relations of the country. It shows that the country is isolated and that its foreign relations are dominated by a few powerful countries. The report also discusses the role of the United Nations and other international organizations in the world.

8. The eighth part of the report is a study of the future of the country. It shows that the country is facing a number of challenges and that there is a need for reform. The report also discusses the role of the citizen and the government in the future.

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(Appendix 1), the price of the product on the market is determined by the

factors of production and the demand.

The price of the product is

fixed by the market, and the farmer

he would be getting the price of the

assured market.

If the farmer has to sell his product on the market, the price of the

would be at \$1.00 per pack instead of \$1.00 per pack.

this would probably be sufficient to keep the farmer from

exports to Europe after paying the cost of the product

and the agent's commission. The present contract is a

limit.

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The cigarettes proposed to be produced from 100 per cent of leaf that has been re-dried. The production per year would require about 115,000 kg of leaf to be re-dried. This proposal is based on the fact that slight differences of leaf moisture content produce large differences of quantities from rain- and dry-leaf. For example, 115,000 tons from the rainy season, which would require 400 hours, say 2 months of full-shift work per year.

An Italian offer for such a plant is available in Appendix IV, Venice, and Appendix IV, par. 3 and 4 estimates capital investment and operating costs.

Amortising \$5,500.- installed value of the plant and amortising \$40,000.- for buildings in 10 years, say \$4,500.- (Pr755,000.-) for 115,000 kg/year of iried leaf (Pr12.-/kg of dried leaf). Operating costs as shown in appendix are about Pr12.-/kg of iried leaf. This does not include interest as this is an item for which foreign aid might be sought, at least at a low interest loan to the leaf co-operative, as a non-profit organization independent of the cigarette factory.

4.2.2. DRYING OF CIGARETTE LEAF IN A DRYING PLANT

... 4.2.2.1. Drying of cigarette leaf in a drying plant of somewhat conventional design ... arrangements to arrive at the price of 7.00 per ... type of barley leaf, ... damage ... Selected ... is expected at ...

... 4.2.2.2. Drying of cigarette leaf in a drying plant as Appendix V page 1 ... including ... and since the problem ... The minimum ... to provide cut ... that additional making and ... would only increase the ...

... 4.2.2.3. Supply of "dry" leaf tobacco: Appendix V page 2 lists the costs per ... of all the main materials for ... hlophane wrapping. ... Paper parcels of ...

... 4.2.2.4. Capital Investment Requirements of Drying Plant: In Appendix V page 3 and 4, ... for "aging" the leaf, to ... for maintaining a more uniform ... Interest at 8 per cent on all the capital ... A foreign investor for the cigarette factory would probably not want to be involved in the leaf re-drying installation. The latter has been proposed as a separate non-profit co-operative organization.

5.5 Operating Expenses and Cigarette Prices: Appendix V, page 5, indicates the per month extracted from data of the previous months, and extends data to show the minimum price per pack of 20 cigarettes that would provide Price - tax per 1,000 cigarettes and 12 per cent profit on capital, and working one cigarette machine at full capacity. Price - per pack of 20 cigarettes is an acceptable price now and in one or two years when the plant is fully in operation, this output of 120 million cigarettes/year would suffice to meet the true basic consumption.

5.6 Capital Required for 60 million, 120 million and 240 million Cigarettes/year: Appendix V page 6 summarizes the items of page 5 after recalculating to provide for proportionate tobacco and materials stocks and appropriate labour and expenses, also for an additional Making, Packing and Cellulose machine for 240 million per year. The heavy item for administration remains unchanged. This page contributes to the more important comparison of page 7 (Appendix VI).

5.7 Cigarette Prices for 60 million, 120 million and 240 million Cigarettes/year: Appendix V page 7 recalculates data of page 5 and shows that for the same tax (Price - /1,000 cigarettes) and 12 per cent profit on the capital (different in each case) prices would be respectively Price $\frac{1}{2}$, Price - and Price - . Alternatives at the bottom of the 60 million/year column suggest ways to build up sales without profit, with or without tax, in the early months of operation.

MARKETING STRATEGY

1. Introduction: Appendix I provides a good general indication of imported cigarette brands with which the new cigarette would compete. On page 1, Congo is referred to as "Belga Legere" containing a predominant amount of Virginia, with some other imported tobacco. Belgian imports are mainly Virginia leaf and are regarded as the most desirable cigarette from other sources. The other brands of Belgium and Congo imports represent cigarettes of the lower quality. The average price per cigarette is 15 per cent to 20 per cent of the price of the new cigarette.

2. Smoking Tests: An interesting reaction was noted in an experimental smoking test of the new cigarette. The experimental cigarettes were expected to be smoked in quantities to be expected in the market. However, a number of smokers smoked the new cigarette. About 10 smokers, the majority were regular smokers and they were regular smokers of "Belga Legere" and "3" imported in new cigarette, usually because they found it better than the local cigarettes or too mild. Others detected the sharp, pungent odor of "Belga Legere" to be credited to the few smokers of brand "Belga Legere" and "3" imported. This marked the difference **that** it made. The new cigarette brand was found to irritate the throat and probably the alkaline nature of the smoke was neutralized this; and in this respect the new cigarette brand was not "strong" enough for others. The new cigarette brand was "stronger" referring to the physiological effects of the smoke. Very few failed to recognize which was the "Belga". Perhaps the more important result of these tests is that at Fr12.- in competition with Fr10.- for "Belga Legere", there would be a very good chance of winning over half the market. A lower initial price would give the impression of inferiority, but once the brand was established, the price could be reduced to Fr11.- for 140 million/year and Fr10.- for 240 million/year.

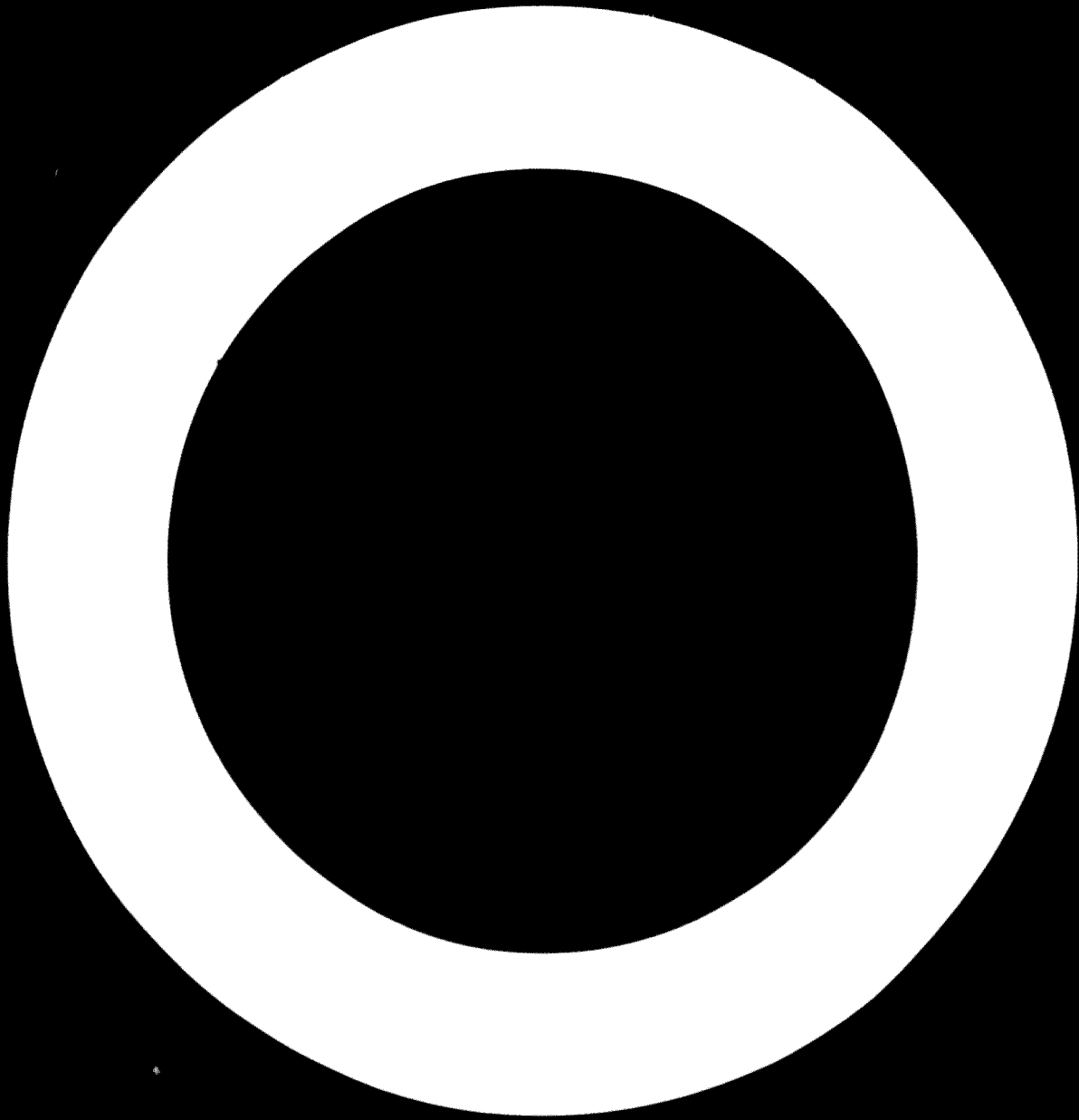
SALES CHANNELS

It is noted that the... (text is very faint and difficult to read)

REQUIRE EXPANSION

1. Leaf - It is noted that... (text is very faint)

2. Cigarettes - It is noted that... (text is very faint)



Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
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60 per cent
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 60 per cent
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5.650
 7.244
 9.544
 14.816
 33.244

RECONSTITUTION OF 390 TONS NET IMPORTED WITH 20 MILLION CIGARETTES SMOKED

Net Tons Imported

	Congo Kinshasa (Belga)	Uganda (Sports- man)	U.K.	Belgium Luxembg.	Belga France	U.S.A.	Holland	Burundi	TOTAL
1968 I	6.0	2.5	3.5	1.1	-	-	-	1.0	14.1
II	15.9	-	0.0	4.2	-	1.0	-	-	21.1
III	42.1	1.1	1.1	0.2	-	-	1.1	0.5	46.1
IV	55.0	10.4	2.1	1.1	-	-	-	-	69.6
Total	120.0	14.0	6.7	6.6	-	1.0	0.1	1.5	160.9
Per cent	73.5%	11.2%	4.4%	5.1%	-	1.1%	0.1%	4.5%	100.0%

*There are small discrepancies between different sources of information collected.

1969 I	46.7	26.6	1.2	0.6	-	1.7	-	-	76.8
II	35.2	33.0	10.3	2.2	-	1.0	-	-	81.7
III	46.8	38.6	2.0	3.0	4.1	-	-	-	94.5
IV	64.4	62.4**	8.1	2.1	-	(0.9)	-	-	137.2
Total	193.0	160.6	21.6	7.9	4.1	2.6	-	-	390.5
Per cent	49.4%	41.2%	6.1%	2.0%	0.8%	1.5%	-	-	100.0%

**This figure is largely due to re-exportation. The Uganda consumer tax was increased in July 1969 and "Sportsman" cost 4 times Rwanda price.

Totals of all imports other than Congo Kinshasa (Belga) and Uganda (mostly Sportsman):-

1968: 25.3 Tons Net = 15.2%

1969: 36.2 Tons Net = 9.4%

Cigarettes Imported 1969 (Burundi contraband incentive increased November 1968)	Tons Net	Tons Net/ Million	Millions Imported	Approximate Millions Re-exported	Real Rwanda Consumption
"Belga" (Congo)	193	1.2	160	30	130
Uganda (Mostly "Sportsman")	160	1.4(?)	107(?)	70	50
All other	37	1.5(?)	25(?)	5	20
Totals here	390	-	293(?)	105	200 millions
Statistics Office Totals	390.5	1.51	257.7***	-	-

***The Statistics Office makes this 257.7 and gives Tons "Brut" = 1.05 x Tons Net.

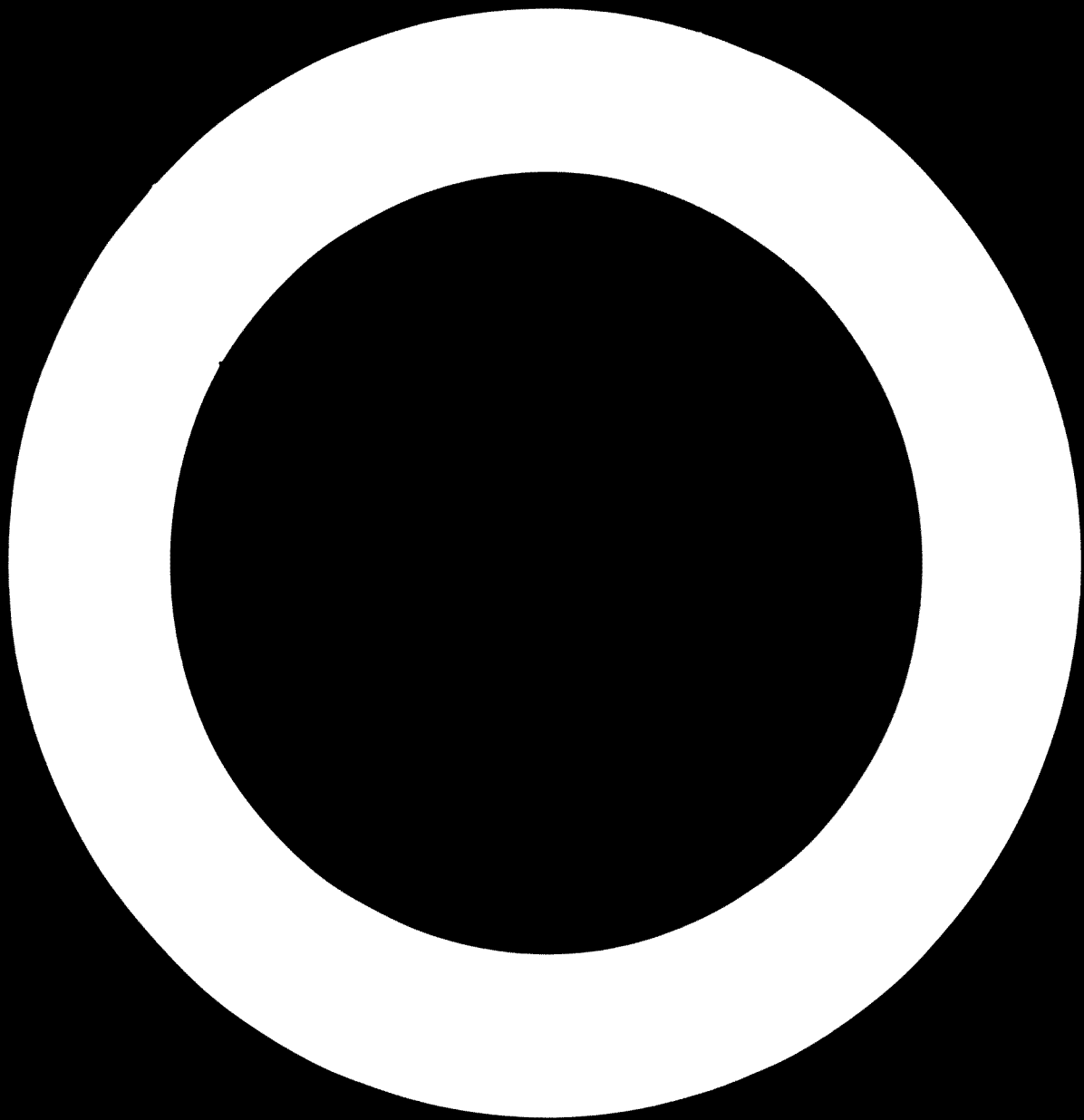
20 "Belga" cigarettes with pack and cellophane weigh 24.0 gr. 1 million = 1.20 T.Net.
 20 "Sportsman" " " " " " " " " 26.4 gr. 1 " = 1.32 T.Net.

CLASSIFICATION OF TOBACCO TYPES

1. TOBACCO TYPES

1. In what is known as the black tobacco, the leaves are very dark and they are packed in a very tight pack. When the customer buys a pack of black tobacco he turns up the lid and finds that the leaves are very dark and they are packed in a very tight pack, leaving a lot of air in the pack. This is the reason why the customer will not buy it. He will buy a pack of black tobacco, which is a very dark tobacco.
2. They take great delight in their tobacco. They are very conservative and getting a lot of pleasure out of it. They are very conservative and they contain.
3. They like the black tobacco resulting from the black tobacco and with this as a result, they are very conservative and they are very conservative before reaching the customer.
4. Another characteristic is that they are very conservative and they are very conservative in their tastes.
5. The keen pipe smoker, reading this, will want to know to what to buy their pipes, but experience says that smokers are very conservative and proud of their traditions. "The customer is always right".
6. These traditional tastes are expected to die out but only because more and more of the rising generation start their smoking with mild cigarettes. To them the black tobacco is not acceptable either in cigarettes or in a pipe.

An importer of cigarettes intended to launch a brand of cut tobacco in packets, until the market economist and blender made a market test on 200 smokers that resulted in these conclusions.



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... to improve the appearance of whether it makes a profit or loss. They make good money selling traditional leaf to pipe smokers.

7. Swasa cigars sold in Europe as a novelty have to compete with the new generation of cheap "little cigars" made on high-speed cigarette-type cigarillo machines using "reconstituted tobacco sheet" as binder and wrapper. Moreover changed moisture content, loss of aroma, or other damage in tropical transport are risks liable to frighten off European commercial buyers. The number of "old hands" from the Congo, now in Belgium who smoke Swasa cigars for sentimental reasons hardly make a commercial market.

CONCLUSION: A market for Swasa cigars could be marginal by-product of the cigarette leaf cultivation and the old cigar exports might be revived into the Congo if the postal service on which they depend, if revived.

1. The first part of the report discusses the
 2. background of the project and the
 3. objectives of the study. It also
 4. describes the methodology used in the
 5. research and the data collected.
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A-shaped structures built with
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to their shorter life.

FLUE-CURING PANS are used for
be much smaller. Adding K16,000.- for firing shelter, furnace, flues,
and chimney to the K100,000.- for board construction
4m x 4m x 4.5m walls, comes to less than K100,000.-. Investment for
6 cures x 175 kg/season (= 1,050 kg) is 5750.- per ton/season.
Amortise in 3 years x 2 seasons x 6 cures x 175 kg = 10,500 kg: K575.0/kg.

RE-DRYING INSTALLATION COST ESTIMATE

Capacity:

150 kg/hour.

Duty:

For 120 million cigarettes/year, 40 per cent x 111 days/year
 60 per cent Rainy season 49 tons/15 kg/h = 160 hours = 17 days
 40 per cent Dry season 46 tons/15 kg/h = 147 hours = 16 days

Building area:

Receiving store	10m x 20m	200 m ²
Grading and stick hanging	10m x 30m	300 "
Machine in x 17m	10m x 20m	200 "
Bale forming and pressing	10m x 10m	100 "
Total machine building	20m x 40m	800 m ²

Tobacco aging store:

2 years stock is charged to the cigarette factory.

FIXED CAPITAL

Buildings:800m² @ 50.-/m²

40,000.-

Land:2,500m² @ 8.-/m²

20,000.-

Plant:

Re-drying machine	13,000.-	
Baling press	1,000.-	
Boiler installation	9,000.-	
Shipping	200.-	
Installing engineer	1,500.-	
Electrical, Steam, Water, fittings and coating noise	1,800.-	55,500.-

TOTAL FIXED CAPITAL

119,500.-

WORKING CAPITAL

Months:

Direct labour: including all allowances, social security etc.

2 foremen Pr500./day 1,000

4 graders Pr300./day 1,200

30 general Pr100./day 3,000

1 fitter Pr500./day 500

5,700/day x 30 = Pr171,000./month:

171,000.-

Materials:

Months:

Covering for bales 1. bale x 1/2 ton x 30/month: 1. 1. \$ 600.-

Manufacturing overheads:

Months:

Spare parts, repairs and renewals,	3	\$1,000.-	
Fuel oil: 1kg steam/kg leaf x 7.1			
litre/kg of steam x 26,27 kg/month			
x Fr12.- = Fr31,000/month	3	930.-	
Electricity: 1,000kwh/day Fr4.- x 22	1	90.-	
Water: 50m ³ /month Fr15.- = Fr900.-		1.-	
Total purchases and contingencies		<u>160.-</u>	\$ 2,190.-

Administration:

The general manager will be a foreign specialist initially and a counterpart after 1 year. 1 200.-

TOTAL WORKING CAPITAL 5,700.-

TOTAL CAPITAL \$120,000.- \$120,000.-

Amortizing \$55,500 in 10 years and \$40,000 in 20 years

= Fr5,550/year. Fr155,000/115,000kg/year = Fr6.5/kg of dried leaf.

Operating costs per month: \$1,710.- labour, \$600.- materials, \$80.- spares,

\$570.- fuel, electrical, etc., \$200.- administration = \$3,160.-

x 315,000/26,400kg per 22-day month = Fr12.-/kg of dried leaf.

BASIS: 1,000kg/h of dried leaf	M. DUKAT		INPAC		FAO - ISABU - KUKUNCI			TAPA- COMGO	SWANDA PROPERT	ICE PAR-			
	Hours/ Ton	Men	Man- Days/ha	Pr/kg	Man- Days/ha	Pr/kg	Man- Days/ha	Pr/kg	R. Pr/kg	R. Pr/kg	DEF IN Pr/kg		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Seed beds	-	-	-	31	2.5	-	3.84	1.12	-	-	1.12	1.12	1.12
Seed bed chemicals	-	-	-	-	-	-	3.00	1.00	1.12	1.12	-	-	-
Field labour	-	-	-	22	1.7	-	5.54	2.23	17.12	-	13.2	1.12	1.12
Field chemicals	-	-	-	-	-	-	11.82	1.12	17.12	1.12	13.2	1.12	1.12
Amortise tools	-	-	-	-	-	-	-	-	-	-	-	-	-
Harvest	-	-	-	2	1.2	-	-	-	-	-	-	-	-
Harvest transport	-	-	-	-	-	-	11.82	1.12	-	-	-	-	-
Buying	0.74	-	0.24	-	-	-	-	-	-	-	-	-	-
Sticks for leaf	-	-	-	-	-	-	-	-	-	-	-	-	-
Curing labour	-	-	-	12	1.7	1.12	1.12	1.12	-	-	-	-	-
Curing other costs	-	-	-	-	-	-	-	-	-	-	-	-	-
Grading	-	-	-	14	1.4	-	1.78	1.12	17.81	-	-	-	-
Farm baling labour	-	-	-	-	-	1.12	1.12	1.12	-	-	-	-	-
Farm baling material	-	-	-	-	-	-	1.12	1.12	-	-	-	-	-
Transport	-	-	-	-	-	1.12	1.12	1.12	-	-	-	-	-
Final grading	16.57	2	0.32	-	-	-	-	-	-	-	-	-	-
Re-drying labour	20.9	7	1.00	-	-	-	-	-	-	-	-	-	-
Re-drying supervision	7.9	2	-	-	-	-	-	-	-	-	-	-	-
Re-drying other	-	-	-	-	-	-	-	-	-	-	-	-	-
Administration	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest	-	-	-	-	-	-	-	-	-	-	-	-	-
Amortise c.barns	-	-	-	-	-	-	11.82	1.12	-	-	-	-	-

APR 1971

BASIS: 1,000kg/ha of dried leaf	Hours/ Ton	M. DUKKAT		M. BUKKAT		M. BUKKAT		M. BUKKAT		M. BUKKAT Machinery Cost	M. BUKKAT Machinery Cost	M. BUKKAT Machinery Cost
		Men	Frags	Men	Frags	Men	Frags	Men	Frags			
1	2	1	4									
Amortise grading building	-	-	-	-	-	-	-	-	-	-	-	-
Amortise re-drying installation	-	-	-	-	-	-	-	-	-	-	-	-
General expenses	-	-	-	-	-	-	-	-	-	-	-	-
Infrastructure	-	-	-	-	-	-	-	-	-	-	-	-
Vehicles	-	-	-	-	-	-	-	-	-	-	-	-
Selling costs	-	-	-	-	-	-	-	-	-	-	-	-

A.S.S. = AID SPRINKLER SYSTEM

LIST OF PLANT AND MACHINERY FOR A FACTORY MANUFACTURING 240 MILLION CIGARETTES PER YEAR

WITH SPACE AND RESERVE MACHINERY FOR ULTIMATE 240 MILLION CIGARETTES PER DAY

working days/year: 300

	Cost	Operator 1	Operator 2
Leaf moistening cabinet 150 kg/h	1,000		
Strip moistening cylinder 1.8m x 2m	1,000		
Stem steaming cylinder 1.25m x 2m	1,000		
Stem Flattener 50 kg/h (150 kg/h capacity)	1,000		
40cm Strip Cutting machine 20.6mm cut	1,000		
40cm Stem Cutting machine 11.5mm cut	1,000		
Knife Grinder	1,000		
Steam heated cut tobacco dryer 1.2m x 1.5m with roller	1,000		
Cigarette making machines**	1,000		
Cigarette Packing machine 120 "latin type" packs min.***	1,000		
Cellophane wrapping machine 125 packs min.***	1,000		
Weighing machines	1,000	3	1
Contingencies	1,000		
Total for main plant items:	10,000	3	1
Labour for hand stemming		12	15
		15	16
Steam Boiler Installation	5,000		
Laboratory Equipment and Moisture Control Instruments	1,000		
Electric cables, switch fuses, etc.	1,000		
Steam, water and fire protection, pipes and fittings	1,000		
Maintenance tools	1,000		
Transport equipment	1,000		
Shipping approximately 30 tons at \$100. for locally fabricated elevated water tank	3,000		
Locally made tables, trolleys, tobacco boxes, racks, etc.	1,000		
Installing engineer	1,000		
Contingencies	1,000		
	47,000		
	\$217,000		

*One Cigarette Making machine would be sufficient until at least half the million cigarettes/day capacity were reached.

**For fully 240 million/year, a third Maker, a second Packer and a second Cellowrapper would be required, adding \$64,000.-

REQUIREMENTS FOR MATERIALS

Based on 100% recovery and 100% efficiency
of the process

REQUIREMENTS

REQUIREMENTS FOR MATERIALS, 1 MILLION/MONTH

Wholesale price @ 100% = \$0.56/kg

Wholesale price @ 100% = \$0.66/kg

\$ per year \$ per month Months
Stock

Tobacco

20,000 kg x 100% = 20,000 kg 24 190,000.-

Packet material

100,000 packets x 14 mg x 100% = 1,400 kg 6 1,400.-

Cigarette paper

100,000 packets x 14 mg x 100% = 1,400 kg
@ \$0.34/kg = 476 6 4,800.-

Cellulophane

500,000 sheets x 100% = 500,000 sheets
@ \$0.008/kg = 4,000 6 2,400.-

Adhesives and glue

100,000 kg x 100% = 100,000 kg 6 600.-

Parcel paper

20,000 x 100% = 20,000 kg/month
@ \$0.075/kg = 1,500 6 1,500.-

Corrugated carton

1,000/month each for 100,000 cigarettes
@ 3,000kg = 3,000 6 3,000.-

Total Direct Materials

\$1,830,000 \$206,690.- \$206,700.-

SUPPLIES

Spare parts 4% of \$175,000 \$ 7,000 \$ 7,000.-

Maintenance materials \$300/year
land tools \$200/year
office supplies \$100/year 600.- 50.- 2 100.-

\$ 7,600.- \$ 600.- \$ 7,100.-

Fuel, light, power and water

200 kg/h steam, 20 l/h oil x 2,000 h/yr
@ \$0.12/litre \$ 4,800.- \$ 400.-

30k x 2,000 h/yr @ \$0.04/kwh 2,400.- 200.-

100m³ feed and 1600m³ washing @ \$0.15 300.- 25.-

Contingencies 900.- 75.-

\$ 8,400.- \$ 700.-

CAPITAL REQUIRED TO MANUFACTURE 120 MILLION CIGARETTES/YEAR ($\frac{1}{2}$ MILLION/HOUR DAY)
WITH SPACE AND RESERVE MACHINERY FOR ULTIMATE 240 MILLION/YEAR

FIXED CAPITAL

Buildings:

350m ² Factory with 1 month's leaf stock, 340. /m ²	\$ 14,000
Land: 1,500m ² @ \$8.-/m ²	12,000

Plant:

Imported plant items as listed above	\$170,000	
Imported Steam Boiler Installation	0,000	
Imported Laboratory equipment and moisture control instruments	1,000	
Imported Electrical cables, switchgear, etc.	3,000	
Imported Steam and water pipe and fittings	3,000	
Imported Maintenance tools	1,000	
Imported Transport equipment	5,000	
Shipping approximate 30 tons @ \$100.-/ton	3,000	
Locally fabricated elevated water tank	5,000	
Locally made tables, trolleys, tobacco boxes, racks, etc.	8,000	
Installing engineer	6,000	
Contingencies	4,000	\$217,000
TOTAL FIXED CAPITAL		<u>\$243,000</u>

WORKING CAPITAL

Direct Material's:

Tobacco: 24 months'	190,000	
Paper, cellophane, etc. as listed 6 months	16,700	\$206,700

Direct Labour: (including all allowances and "charges sociales")

3 @ RwFr500 = Fr1,500/day		
45 @ RwFr300 = Fr13,500/day		
6 @ RwFr100 = Fr600/day Fr15,600 x 30 = 468,000/100 =	4,680	\$ 4,680

Manufacturing Overheads:

	Months		
Spare parts, Repares and Renewals	12	7,000	
Maintenance materials, tools, etc.	2	100	
Fuel oil, \$400.-, Electricity, \$200.-, Water, etc. \$100.-	1	700	
Truck maintenance and fuel	1	100	
Indirect labour: Superintendent Fr50,000 Account't 20,000	1	700	
Phone, cables, postage, stationery, etc.	1	40	
Rates and taxes on land and buildings	1	200	
Amortising \$230,000 in 8 years	1	2,300	
Interest: 8% on \$550,000	1	3,700	
Insurance: 3 per mille on \$440,000	1	110	\$ 14,950

	Months	
<u>Administration: salaries, expenses, housing, insurance</u>	1:	
Director General (Possible foreign aid first year)		3,000
Commercial Manager		2,200
Technical Manager		2,200
Secretary		<u>300</u>
		\$ 7,700
Contingencies 5% approximately		\$ 12,970
<u>Sales Revenue receivable: $\frac{1}{2}$ million packs Fr12.- x</u>	1:	\$ 60,000
		<u>\$307,000</u>
TOTAL WORKING CAPITAL		
		<u>\$550,000</u>
	TOTAL CAPITAL	

OPERATING EXPENSES AND DEPRECIATION PER CIGARETTE

EXPENSES/UNIT

<u>Direct Materials:</u>	
Tobacco leaf, etc. at 1000/1000	1000.00
Other materials	100.00
<u>Direct Labour:</u>	
<u>Manufacturing Overheads:</u>	
Spare parts, renewals and repairs	100.00
Maintenance materials, tools, etc.	100.00
Fuel, electricity, water	100.00
Truck maintenance and fuel	100.00
Indirect labour	100.00
Phone, cables, postage, stationery	100.00
Rates and taxes on land and buildings	100.00
Amortizing 3230,000 in 10 years	323.00
Interest at 3% on 1500,000	450.00
Insurance at 3 per mille on 500,000	150.00
<u>Administration:</u>	
Ex-factory cost of 1,000,000 cigarettes	
Ex-factory cost of 1,000,000 cigarettes = 33,197 = Fr 33.197	
Bank charges at 1%	331.97
Tax	100.00
2% p.a. yield on 3300,000 invested	660.00
Publicity and selling expenses	24.30
Retailer's 1% mark-up	331.97
Retail price per 1,000 cigarettes	377.46
Retail price per 20's pack:	Fr 11.75 say Fr 12.-/20's pack

\$ 1,700.-
23,197.

N.B. This is for operating at 100% capacity of 1 cigarette making machine.

OPERATING COSTS PER 1,000 CIGARETTES

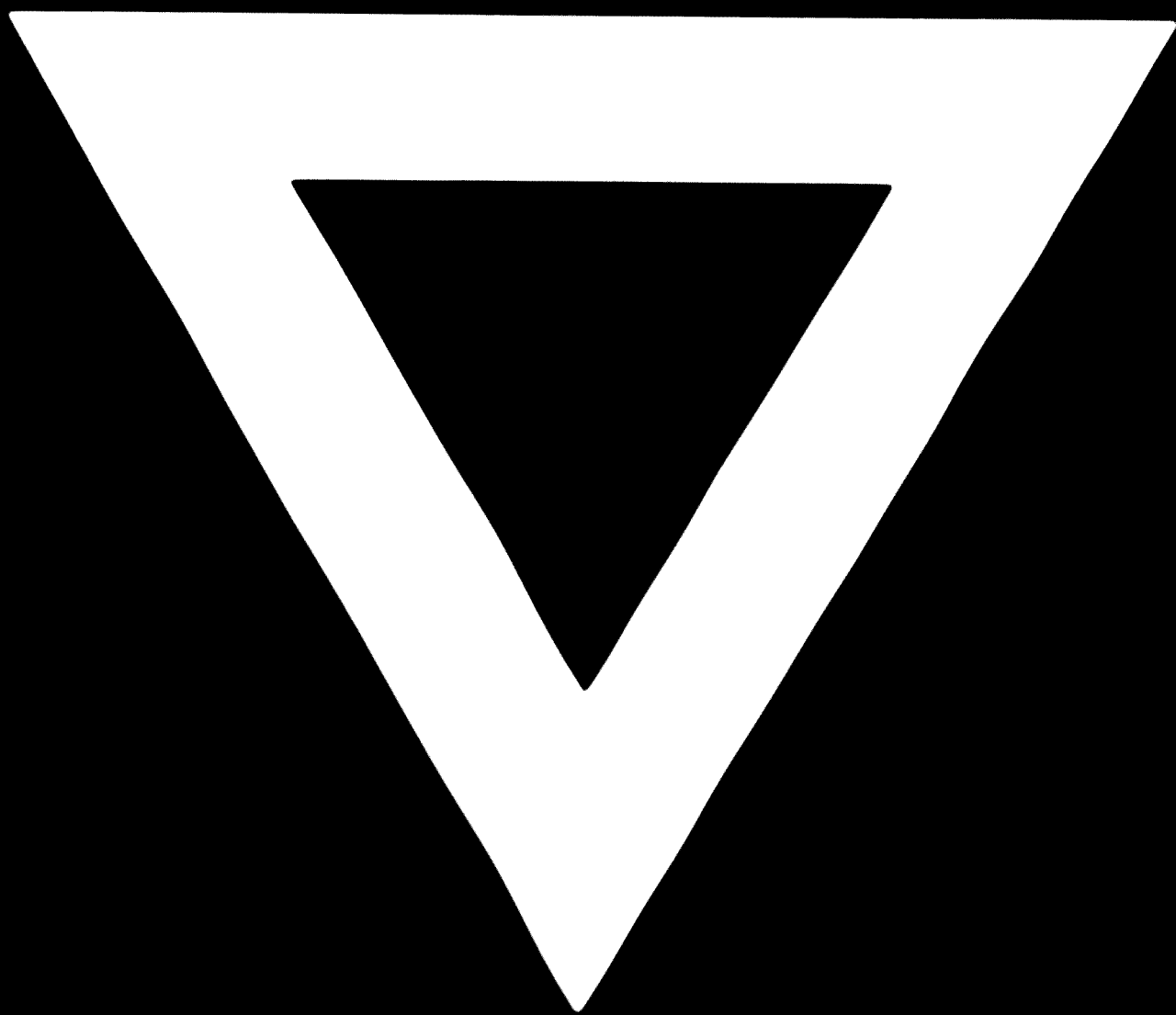
1961 (1st 6 months) 1962 (1st 6 months) 1963 (1st 6 months)

Tobacco				
Other material				
Labour Skilled \$12/mo				
Semi- 3 X/mo				
Unskilled 2 X/mo				
Manufacturing Overheads:				
Spare parts				
Tools				
Fuel, Electr, Water				
Truck				
Indirect Labour				
Office expenses				
Land and Bldg taxes				
Amortisation				
Interest at 10%				
Insurance				
				13,390
Administration	7,700	7,700	7,700	7,700
Ex-factory cost				
cost/1,000 cigs.				

Ex-factory cost/1,000	447.7	477.0	477.0		
9% bank charges	23.6	23.6	23.6		
Tax	1.0	1.0	1.0		
12% yield on capital	77.3	77.3	77.3		
9% publicity and selling	33.7	33.7	33.7		
13% retailer's commission	101.2	101.2	101.2		
Price for 50 packs of 20	794.2	794.2	794.2		
Price for 20's pack	Pr 16.3	14.4	12.0	Pr 11.7	Pr 11.7

Clearly, it is important to reach a capacity of 120 million/year as quickly as possible either by co-operation with Burundi, or by inviting the co-operation of Tabaco Congo to manufacture the "Belga Legere" cigarettes. This second alternative would probably realise factory operation two years earlier than as an independent project dependent on the tobacco cultivation project.





76. 02. 12