



**GOVERNANCE FOR COMPETITIVENESS
TECHNICAL ASSISTANCE (G4C TA)
PROJECT**
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**CONSULTANCY SERVICE
TO DEVELOP A DOMESTIC
MARKET RECAPTURING
STRATEGY IN RWANDA**

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**BUSINESS CASE FOR
PAPER PACKAGING
PRODUCTION IN
RWANDA**

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SUBMITTED TO

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TABLE OF CONTENTS

1	Executive Summary	4
2	Situational Assessment	6
	2.1 Imports of packaging materials	6
	2.2 Imports of paper packaging products	7
	2.3 Potential strategic paper packaging segments	8
3	Market Considerations	9
	3.1 Corrugated cardboard and boxes	10
	3.1.1 Demand for corrugated boxes	10
	3.1.2 Supply of corrugated boxes	12
	3.2 Paper bags and sacks	14
	3.2.1 Demand for paper bags and sacks	14
	3.2.2 Supply of small and large paper bags	16
	3.3 Paper labels	17
	3.3.1 Demand for labels	17
	3.3.2 Supply of paper labels	19
4	Recommendations	21
	4.1 Investment projects and support to domestic packaging firms	21
	4.1.1 Corrugated cardboard	21
	4.1.2 Large paper bags	23
	4.1.3 Printed paper labels (and non-corrugated cardboard packaging)	24
	4.2 Recommended policy reforms to remove distortions affecting the packaging sector	25
	4.2.1 Removing distortions of tax and tariff regimes	25
	4.2.2 Addressing the distortions caused by the local ban of PE packaging	26
	APPENDIX I: INTERVIEW LIST	27

ABBREVIATIONS

CAGR	Compounded Average Annual Growth Rate	Gsm	Gram per square meter
DMRS	Domestic Market Recapturing Strategy	KWH	Kilowatt-hour
DRC	Democratic Republic of Congo	MINICOM	Ministry of Trade and Industry
EAC	East African Community	PET	Polyethylene Therephthalate
FLEXO	Flexogravure printing technology	PP	Poly Propylene
GDP	Gross Domestic Product	RDB	Rwanda Development Board
GoR	Government of Rwanda	RWF	Rwandan franc
		USD	United States Dollar

1 EXECUTIVE SUMMARY

The objective of this study is to build a business case for local paper based packaging manufacturing in Rwanda. This is part of the Domestic Market Recapturing Strategy under the leadership of the Ministry of Trade and Industry (MINICOM) of Rwanda. This business case follows an in-depth feasibility study for a packaging plant in Rwanda carried out by Karisimbi Business Partners in June 2011, also at the request of MINICOM. Part of the earlier study covered a packaging and print company business plan for paper bags, boxes and labels.

Since then, there have been encouraging signs of local business development. New Rwandan players and entrepreneurs in these three market segments (bags, boxes and labels) have entered the local market and compete with imported goods. On the other hand, a few ventures have failed as the technologies were either outdated or premature. Others are still in the waiting for the domestic market to reach critical volumes.

The market of imported paper packaging is still growing fast, it has doubled in five years, from USD 6.4 million in 2008 to USD 12.8 million in 2013. Given this fast growth, there are still opportunities to capture business, in addition to the ones already initiated, thus substituting paper packaging imports. Yet, for this to happen, some constraints need to be addressed.

The analysis undertaken for the business case was carried out in three steps. First, field research conducted during a week allowed to gather qualitative information on paper packaging users and producers. A total of 22 industry players – users and producers of paper packaging materials – were interviewed. A series of retail and market visits completed the assessment. The second step consisted of quantitative research by application of international trade data and specific packaging sector information. Finally, a careful analysis of constraints and opportunities was made to see how value can be created in Rwanda, thereby decreasing imported packaging materials.

Paper based packaging is a diverse industry ranging from big cement bags to sophisticated cosmetics labels, to printed flat cardboard boxes. Although all products use kraft paper as the main input, they require very different manufacturing technologies. For this limited study, the most promising segments were chosen: corrugated printed cardboard, paper bags and sack, and paper labels and un-corrugated printed cardboard.

The Rwandan Government has an important role to play to guarantee fair competition and lift economical distortions. Firstly, border taxes have to ensure that local manufacturing are not disadvantaged against imported goods. Tax exemptions can be hurdles to local investments and sources of unequal competition. Secondly, the ban on specific material imposed on local producers should apply to imported goods as well, or be lifted all together and replaced by other means (awareness campaigns, multi-material curb-side collection or industry green dot schemes).

In addition, three differentiated types of business support are recommended.

First, assist existing Rwandan entrepreneurs by facilitating access to finance, international business plan methodologies applicable to packaging and provide export expertise. These would particularly be of interest to the bag and printed label industry which faces steep competition from imports.

Second, the Government can act as a facilitator for investment in the production of big high-quality bags by eliminating barriers between potential investors and buyers.

Finally, facilitate the introduction of new but well-known technologies to the country. Even though the domestic and potential export market for corrugated carton is growing at a fast pace it continues to be too small for a complete corrugated carton packaging plant. Therefore, focusing first on the last stage of the conversion process could make sense from a business perspective.

Getting local or regional packaging expertise and investors interested would be the next steps.

2 SITUATIONAL ASSESSMENT

Rwanda only has an emerging domestic packaging production capacity. Therefore, the country currently imports most of the packaging materials needed to meet domestic manufacturers' packaging demand. However, the packaging materials market is diverse grouping together market segments with no substitutability and very diverse production technologies – such as metal, plastics and paper packaging. For an assessment of the domestic market recapturing potential, and the subsequent identification of investment and development prospects, it is therefore important to identify the strategic market segments on which projects and government support activities should focus.

2.1 Imports of packaging materials

Over the period of 2008-2013, Rwanda imported a total of USD 122.3 million worth of packaging material, representing an average annual import value of USD 20.4 million (Table 1). In recent years, growth has picked up significantly: While the growth rate in value terms was relatively low from 2008 to 2011 (ranging from 7% to 13%) it more than doubled since then: the most recent growth rates achieve levels of 28% in 2013, with a combined CAGR of +20% over the last 6 years. What is more, prices increased, as is evidenced by the higher value growth rates compared to volume growth rates.

Table 1: Rwanda's net imports of packaging

	2008	2009	2010	2011	2012	2013	Average (2008-13)
Value in 'ooo USD	13,636	14,603	16,493	18,381	25,914	33,248	20,379
Value growth (%)		+7%	+13%	+11%	+41%	+28%	
Volume in tons	5,704	9,631	10,960	12,289	16,096	18,937	12,270
Volume growth (%)		+69%	+14%	+12%	+31%	+18%	

Source: UN Comtrade/ITC TradeMap

As Table 2 indicates, paper and carton-based packaging imports accounted for close to 45% of all Rwanda's packaging products imports over the same period. Paper-based packaging is thus the most important packaging sub-sector in terms of imports and constitutes a potential area for fostering domestic production.

Table 2: Rwanda's net imports of packaging materials in value (000 USD)

Imported product	2008	2009	2010	2011	2012	2013	Average 2008-13	% of total packaging imports
Paper/Carton	6,378	5,989	7,654	9,319	10,438	12,617	8,732	43%
Plastic	5,291	3,998	4,551	5,103	9,358	9,703	6,334	31%
Glass	1,078	4,018	3,493	2,968	3,484	5,729	3,462	17%
Metal	887	596	793	990	2,632	5,199	1,850	9%
Total	13,636	14,603	16,493	18,381	25,914	33,248	20,379	100%

Source: UN Comtrade/ITC TradeMap

Plastic packaging is the second largest segment, and is used for a variety of products, including packaging of liquids. Domestic production is feasible to a limited extent – it would have to be restricted to biodegradable plastics in order to comply with the plastic law. In this area, an investment project has been under development for the past two years and is expected to be implemented soon. It therefore appears that there is no space for additional investment in this sub-sector for the time being.

Finally, glass and metal packaging materials are characterised by very high economies of scale, and the size of the domestic market in Rwanda is substantially too small to warrant investments in these two sub-sectors.

The remainder of this business case therefore focuses on the identification and analysis of investment opportunities in the paper packaging segment.

2.2 Imports of paper packaging products

To better understand the import movements by paper packaging type, it is important to analyse the disaggregated data. For this, imported values per type of paper packaging have been collected and are summarized in the table below.

Table 3: Rwanda's imports of paper packaging products in value (000 USD)

Imported paper based packaging products	2008	2009	2010	2011	2012	2013	Average 2008-13	CAGR	% of paper packaging imports
Carton boxes and cases of corrugated paper or board	532	926	1,244	1,561	2,652	4,591	1,918	53%	22%
Sacks, bags of paper including cones	1,084	2,509	3,013	3,517	3,237	3,469	2,805	26%	32%
Paper labels of all kinds, not printed	256	314	759	1,204	1,001	2,259	966	55%	11%
Containers, packing of paper ("TetraPak")	42	301	733	1,166	1,284	929	743	85%	9%
Paper labels of all kinds, printed	937	712	548	384	414	427	570	-15%	7%
Sacks and bags of paper having width > 40 cm	340	501	527	552	1,307	414	607	4%	7%
Cartons, boxes and cases, folding, non-corrugated paper	1,029	545	615	685	286	262	570	-24%	7%
Paper and paper articles	249	176	186	197	239	253	217	1%	2%
Moulded or pressed articles of paper pulp	1	1	23	44	4	8	14	34%	0%
Plastic spools, cops, bobbins and similar supports	1	1	2	3	11	1	3	-17%	0%
Trays, dishes, plates, cups and like of paper	1,755						292		3%
Paper, gummed, adhesive cut to size, strip, roll	138						23		0%
Gummed/adhesive paper, in strips/rolls, self-adhesive	8						1		0%
Total imported paper packaging products	6,378	5,989	7,654	9,319	10,438	12,617	8,732	15%	100%

Source: UN Comtrade/ITC TradeMap

By decreasing order of importance, the seven first imported paper packaging categories represent more than 90% of total imported value; these are further analysed in the following section. Imports of the remaining paper packaging products are negligible.

2.3 Potential strategic paper packaging segments

Before determining the segments that would be candidates for domestic manufacturing in Rwanda, it is essential to study their size, growth rates in the past years as well considering the potential for Rwandan exports to neighbouring countries. This avoids putting efforts and money in non-strategic product segments. These figures can be analysed in two ways: either by segment growth or size (Table 4).

Starting by size, the most important segment is **imported corrugated paper or board carton boxes and cases**, representing a value of USD 4.6 million or 2,229 tons in 2013. This is followed by **paper sacks, bags and paper** (USD 3.5 million or 2,431 tons) and **unprinted paper labels**, valued at USD 2.3 million. Imported **paper containers and packing** reached a level of USD 0.9 million consisting mainly of Tetra Pak packaging, followed by **printed labels of all kinds** (USD 427 thousand) and **large sacks and bags of paper for bulk products** (USD 414 thousand). Imports of **non-corrugated folding paper carton boxes** reached a level of USD 262 thousand in 2013.

Table 4: Most important paper packaging segments in Rwanda

Rwanda's imports of paper packaging by potential strategic segment	2013 Import Value (ooo USD)	2008-2013 CAGR (%)
Corrugated paper or carton board boxes and cases	4,591	+53%
Paper sacks and bags < 40cm	3,469	+26%
Unprinted paper labels	2,259	+55%
Container paper packaging ("TetraPak")	929	+85%
Printed paper labels	427	-15%
Sacks and bags > 40cm	414	+4%
Non-corrugated folding cartons, boxes and cases	262	-24%
Total Potential Strategic Paper Packaging Segments	12,351	

Source: UN Comtrade/ITC TradeMap

Taking the average import growth rate as second indicator, one can see the following points: with a 5-year CAGR of 85%, the fastest growing segment of imported paper packaging are paper packaging containers (like Tetra Pak packaging), followed by unprinted paper labels of all kinds with +55% and corrugated carton boxes and cases growing at +53%. Imports of sacks, bags of paper and cones (+26%) and large sacks and bags of paper (+4%) grew slower than average, and imports of printed paper labels of all kinds (-15%) and non-corrugated folding carton boxes and cases (-24%) actually decreased, primarily as a result of increased domestic production. For example, Sorwathé has switched to a domestic supplier for the 1 million non-corrugated carton tea bag boxes from its previous suppliers in Tanzania; hence, the sharp reduction in imports of non-corrugated paper packaging can be considered as a successful case of domestic market recapturing. No further investment in this segment is required at this stage.

In sum, the larger segments also tend to be the faster growing ones – thus, corrugated paper and carton board boxes, unprinted paper labels, small paper bags and sacks, and paper containers would appear to be the most promising market segments on the domestic market. However, of these, paper containers for liquid packaging can be ruled out. First, imports since 2011 have stagnated (even contracted). Furthermore, even adding the market potential of Burundi (1,000 to 18,000 USD per year) and the DRC (43,000 to 119,000 USD/year) the combined market size would not justify the investment in a multi-million dollar facility that would also have to compete with the current production of Tetra Pak East Africa located in Nairobi, Kenya.

The remainder of this business case therefore focuses on the following product groups:

- Corrugated paper and carton board boxes;

- Paper labels (printed and unprinted); and
- Paper bags and sacks (large and small).

3 MARKET CONSIDERATIONS

In addition to quantitative market data, it is important to understand both the current domestic production capacity and the user’s current paper packaging consumption profiles. Therefore, selected companies representing both the emerging Rwandan packaging industry and paper packaging industry users were met during a brief qualitative market research.

Based on the results of this research, the Rwandan market of paper packaging can be divided into different user groups in function of the products commercialized. Their products share the same packaging characteristics which are outlined in the table below. As can be seen, the information provided by users of packaging materials corroborates the quantitative data analysed above, i.e. that the vast majority of packaging materials used in Rwanda are imported.

Table 5: Sources of supply of paper based packaging by user group companies during the qualitative market review (March 2015).

Packaging product	Users of...	
	Locally produced packaging materials	Imported packaging materials
Paper-based		
Corrugated board		Personal care/detergents: Sulfo Confectionary: Adma International Beverage: Inyange, Speranza, Sulfo Edible oil: Mount Meru Tea: Highland Tea
Small sacks and bags	Retail	
Container packaging		Beverages: Inyange
Printed paper labels	Beverages (Speranza, Inyange)	Personal care/detergents: Sulfo Beverage: Bralirwa – beer Edible oil: Mount Meru
Large paper bags		Cement: Cimerwa Tea: Highland tea
Non-corrugated board		Personal care/detergents: Sulfo Tobacco: Premier Tobacco Co Tea: Highland Tea
Other		
PP woven bags		Bulk agro-food: Kabuye, Minimex Coffee: Rwashoscco
Multilayer packaging		Retail agro-food: Sosoma Coffee: Rwashoscco

Source: Meetings between the authors and companies, March 2015

The qualitative analysis made during the visits allowed to specify and address existing and future needs for each of the potential strategic paper packaging segments. Nevertheless, the information and figures summarising domestic demand patterns are mostly, except for import data, based on interviews with stakeholders and therefore constitute estimates.

In addition to an analysis of the Rwandan domestic market, for each of the segments a brief review of potential export markets, notably Eastern DRC and Burundi, is also presented.

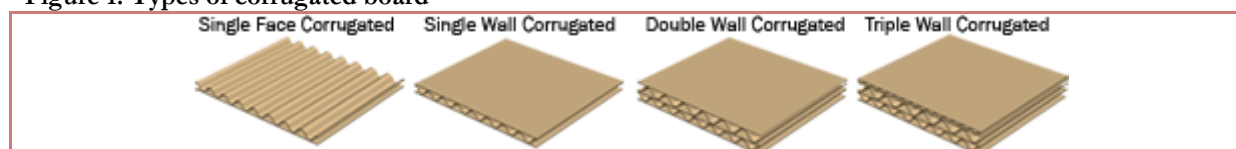
3.1 Corrugated cardboard and boxes

3.1.1 Demand for corrugated boxes

Three essential characteristics of corrugated boxes are important to understand in the Rwandan context:

1. Corrugated cardboard boxes are used as secondary packaging and do not come in direct contact with food. They consist of boxes and trays, printed between one and six colours using flexographic technology;
2. This paper packaging segment is essential for the fast moving consumer goods industry as the Government has banned the use of shrink-film, making the transport of goods virtually impossible without this alternative solution;
3. To better understand corrugated paper, a distinction has to be made between the different number of plies (walls) which are used depending on the application and strength required (see Figure 1).

Figure 1: Types of corrugated board



3.1.1.1 Imports

Table 6 shows the key source countries for Rwanda's imports of corrugated paper boxes, taking the top 3 importers into account. Not surprisingly, **Uganda takes the lion's share** providing almost 50% of Rwanda's imports, with a huge value increase of 645% between 2009 and 2013. The main reasons behind this are Uganda's large production capacity, rock bottom prices and stocks offer. **India**, the second most important source, has maintained a similar market share of imports between 2009 and 2013, implying an increase of import values of 569%. As this segment is very price sensitive, it must be assumed that India's produce is also price competitive. **Kenya** is the third most important import source but has lost market share (from 27% to 16%); in absolute terms, the import value has still increased by 304%, thanks to geographic proximity.

Table 6: Rwanda's imports of corrugated paper boxes by top 3 source countries

Product	Source country	2009		2013	
		ooo USD	% imports	ooo USD	% imports
Corrugated paper or carton board boxes and cases	Uganda	345	38%	2,224	49%
	India	249	27%	1,418	31%
	Kenya	245	27%	745	16%
	Total imports	919	100%	4,571	100%

Source: UN Comtrade/ITC TradeMap

3.1.1.2 User profiles and key data

This subsection summarises information gathered during the visit to Rwanda. It does not cover all potential customers for packaging producers.

Inyange Industries use 100-150 tons of corrugated board per year as secondary packaging for their dairy products packed in Tetra Pak packaging and for their water and soft drinks business: 5-ply boxes for Tetra Pak milk in 500 ml and 3-ply boxes for 1l milk, juice and water boxes. Corrugated board is sourced from Kampala/Uganda and decorated with up to six colours. No minimum order quantities are needed and the delivery schedule is about one day, meaning that

the supplier in Uganda has stock available for them. For a local producer to be competitive, it will have to be significantly cheaper (20–25%) than current suppliers because the cardboard box only accounts up to 3-5% in the final consumer price. Based on estimates, the weight of a 3-ply 12 x 1 l Tetra Pak secondary full covered tray is 220-300 gr.

Based in the Special Economic Zone, **Adma International** produces biscuits and confectionary and uses 50,000 boxes per month on average. The company is risk conscious as they prefer to have 6 months of packaging in stock as buffer against any potential disruption in the supply chain. Boxes are sourced from two suppliers in Uganda (one of which is East African Packaging Solutions) who produce and deliver only one type of corrugated board. With both supplies a long-standing business relationship has been established. As a result, the company would be reluctant to switch to a new supplier: For the same quality, they would therefore stick to the current supplier even with a 10% reduction in price. Buying in RWF or USD would not make any difference for the company. One of the suppliers has plans to invest in Rwanda to build a corrugated board plant.

With a presence of more than 50 years in Rwanda producing bottled water, cosmetics and soap, **Sulfo** consumes 200,000 corrugated cardboard boxes per month in different dimensions but all 3-ply printed in two colours. Previously, the company produced its own corrugated boxes; however, due to the aging 25-years old equipment, this was stopped recently. It now sources from Kampala with two months credit and 2-3 months purchase notice. They would be willing to source locally in Rwanda at the same price.

Soyco Mount Meru Ltd manufactures and distributes edible oil in polymer jerry cans. As from early 2015, they started importing close to 150,000 corrugated cardboard boxes per month from Riley Packaging, Uganda to pack their 5l jerry cans. They anticipate their business to double in the next five years and will need 3.6 million corrugated cardboard boxes by 2020. The company would be ready to pay a slight premium on the price if they could pay in RWF and buy locally to reduce the size of their stocks.

Speranza Group Ltd commercializes alcoholic beverages in glass and plastic packaging. It consumes 1,800 cases per day and buys corrugated packaging from Nairobi (Nampack for cardboard boxes and Statpack for labels).

Finally, brewer and soft drinks producer **Bralirwa** intends to install a self-blowing PET manufacturing soft drinks line for 0.5l, 1l and 1.5l bottles by the end of 2015 for launch in Q1 2016. This packaging type might necessitate the use of cardboard trays for secondary packaging.

3.1.1.3 Export potential

Table 7 summarizes the imports of paper packaging and corrugated paper/carton boxes by Burundi and the DRC. Burundi's total market of imported paper packaging is valued at USD 3 million – about one quarter of Rwanda's market. Over the period 2008 to 2013, it grew at a CAGR of 26% (considerably faster than Rwanda's market), although the market has stagnated since 2011. The market size is therefore estimated at about USD 3 million.

The total DRC import market of paper packaging materials is about the size of Rwanda's market but has grown less (at 4% since 2008 and not at all since 2010). Taking into account that Rwanda could probably supply the Eastern part of the DRC, the relevant market size for Rwanda's

exports is estimated at approximately USD 1.3 million.¹ The most promising segments are, like in Burundi, carton boxes and paper labels.

For **carton boxes and cases of corrugated paper or board**, both markets have grown but substantially slower than Rwanda’s domestic market: Burundi’s import market is eight times smaller in value than Rwanda’s and growing at half the pace, while the Eastern DRC market is slightly bigger than Burundi’s but has grown even less – nevertheless, market growth has been consistent and is expected to continue; therefore constituting an attractive target for Rwandan production.

Table 7: Imports by Burundi and DRC of corrugated paper packaging in value (000 USD)²

	2008	2009	2010	2011	2012	2013	Average 2008-13	CAGR	% of country's paper packaging imports
Burundi									
Cartons, boxes & cases of corrugated paper or board	157	146	223	420	550	557	342	29%	16%
Total imports of paper packaging	672	1,271	1,897	3,018	2,838	2,829	2,110	26%	100%
DRC									
Cartons, boxes & cases of corrugated paper or board	1,759	1,159	2,080	1,910	2,647	3,133	2,115	12%	36%
Total imports of paper packaging	5,040	4,066	7,400	6,278	5,958	6,066	5,801	4%	100%

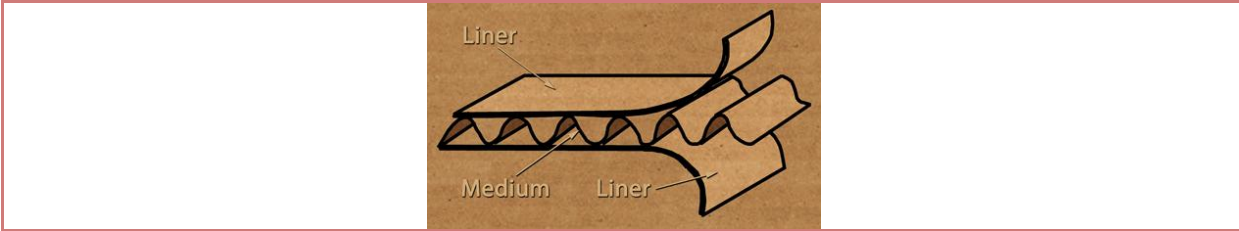
Source: UN Comtrade/ITC TradeMap.

3.1.2 Supply of corrugated boxes

3.1.2.1 Production process

The wavy paper inside the corrugated board is called the corrugating medium (see Figure 2). The flat sheets outside are called liners. Liner paperboard can be brown, mottled white or all white. Most corrugated boxes are made with about 35% recycled fibre, but recycled content can be up to 100%.

Figure 2: Composition of corrugated cardboard



Corrugating medium glued between two flat liners forms a single wall corrugated board. Most of the boxes are made of this material and about 90% of corrugated board is **single wall**. Adding another corrugating medium and a third flat liner creates a **double wall** corrugated board. There are also **triple wall** corrugated boards with three layers of corrugating medium and four flat liners used for very heavy products.

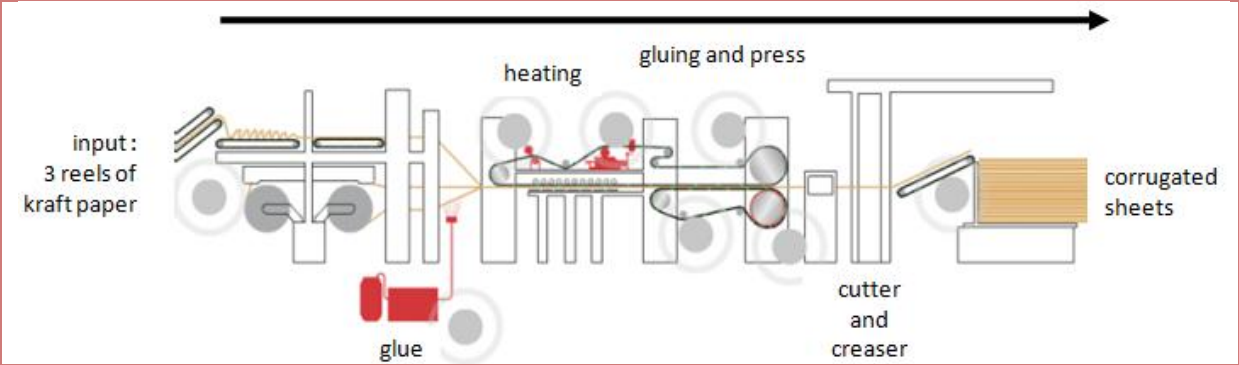
¹ This has been estimated by taking DRC imports from EAC and African Horn countries which are assumed to indicate consumption in the Eastern parts of DRC.

² Data for the DRC are mirror data, i.e. export data, which tend to be underreported.

For the production of corrugated cardboard (Figure 3), the corrugating medium is pre-heated and steamed so that its temperature nearly reaches the boiling point of water. This softens the natural ingredients in the paperboard, making it easier to form into flutes. The web, or long sheet of paper unwinding from the roll, is drawn between a pair of gear-like cylinders called corrugating rolls. This shapes the paper into a series of precise waves. Glue is applied to the tips of these flutes on one side and the flute tips are pressed against a flat liner.

Other parts of the corrugating line press creases into the corrugated board so that later it will fold on these creases to create a three-dimensional box. The continuous web of corrugated board is now so stiff it cannot be rolled up. Instead, it is cut into flat sheets, just the right size for making the boxes that have been ordered. The sheets are then stacked and set aside so the glue can dry properly.

Figure 3: Schematic corrugating process



Source: Cape Decision

Converting machines convert flat corrugated boards into boxes. The most common kinds of converting machines are flexo-folder gluers and die cutters (Figure 4 and Figure 5).

Flexo-folder gluers print, crease, slot, trim, fold and glue the box so that it can be shipped flat and then be easily formed by the customer and packed.

Figure 4: Flexo-folder gluer and die cutter



Source: Cape Decision

Die-cut machines cut the corrugated board into a pattern the customer will fold and glue into the box shape. A rotary die cutter uses cutting edges called dies and creasing rules on a big roller to cut and score the corrugated board as it moves beneath it. A flat die cutter presses knives and creasing rules against a stationary board.

Figure 5: Die-cut machine



Source: Cape Decision

3.1.2.2 Local production of corrugated boxes

Currently, there is no confirmed production of corrugated cardboard in Rwanda, although some form of corrugated packaging for tobacco products apparently takes place. As mentioned above, Sulfo used to produce corrugated boxes but stopped production inter alia due to ageing equipment and available packaging from Uganda.

3.2 Paper bags and sacks

3.2.1 Demand for paper bags and sacks

3.2.1.1 Imports

Rwanda's key suppliers of small (<40 cm) and large bags or sacks (>40 cm) are shown in Table 8.

The **small bags segment** is supplied by Kenya and Uganda. Kenya has lost ground, from being an almost monopoly supplier in 2009, but remains the most important provider of these low value bags with 54% of the total import value. Uganda now provides 38% of the imports, while in 2009 it only counted for 2%.

A similar development can be observed for the **large sacks segment**, which is mainly use to export bulk tea, coffee and to a smaller extend pyrethrum and minerals, as well as in the cement industry. These bags known for their robustness and strength are slowing decreasing in value in the last years at -17%. They are mainly imported from regional suppliers in Kenya (50%) – which used to dominate the market as recent as 2009 –, Uganda (16%, up from 3% in 2009), and the new market entrant Tanzania (15%).

Table 8: Rwanda's imports of paper bags and sacks by top 3 source countries

Product	Source country	2009		2013	
		ooo USD	% imports	ooo USD	% imports
Paper sacks and bags <40 cm	Kenya	2,316	92%	1,885	54%
	Uganda	50	2%	1,335	38%
	Tanzania	0	0%	32	1%
	Total imports	2,509	100%	3,469	100%
Large sacks and bags	Kenya	387	77%	206	50%

	Uganda	13	3%	65	16%
	Tanzania	0	0	63	15%
	Total imports	502	100%	415	100%

Source: UN Comtrade/ITC TradeMap

3.2.1.2 Large paper bags user profiles and key figures

The company **Cimerwa** was established 30 years ago and is 49% owned by the Rwandan government and 51% by PPP Ltd. operating in South Africa, Botswana, Zimbabwe and starting operations in DRC, Ethiopia, Algeria. The company commercializes two cement ranges: “42.5N” which is a higher grade for the industry and “32.5N” for general purposes. The company produces 100,000 tons of cement per year with the existing plant. This is equivalent to 2 million bags/year or 170,000 bags monthly.

To pack their products, the company currently uses 50kg bags in 3 or 4 plies with one flexo colour sourced from Kenya, Egypt and South Africa. The specification for the 4-ply is 70 gsm and 90 gsm for the 3-ply. Quality is crucial as breakage is considered a lost sale. One container can ship 115,000 bags. The price is USD 270 per 1,000 bags without transportation or USD 400 landed. Payment is done upon receipt with 2 weeks delivery time as suppliers keep stock. At present, annual market size is thus in the range of USD 0.8 million

To satisfy growing demand, Cimerwa is currently investing in a new plant with a future installed capacity of 600,000 tons per year; this would translate into 1 million bags per month or 12 million within 1 year. Cimerwa is in contact with a local supplier to identify local sourcing solutions. New packaging dimensions will be 64 x 49 x 10 cm with 2-3 coloured 3-ply brown kraft paper of 80 gsm. If prices remain constant, this would increase the total market demand created by Cimerwa (i.e., excluding other users of large paper bags) by USD 4.8 million.

3.2.1.3 Demand characteristics for small paper sacks and bags

Paper sacks and bags < 40 cm consist mostly of small brown paper bags. They are widely used by a vast range of users from small supermarkets to street and market sellers. This is specially the case since 2008, when the Rwandan government instituted a national ban on non-biodegradable plastic bags. Informal supplies of these polyethylene bags have reappeared due to shoppers’ demand, but paper bags have gained volume in the process.

The total domestic market for small paper bags is estimated to be about 100 tons per month (or 1,200 tons per year), 40% of which is produced locally and 60% from imports.

3.2.1.4 Export potential

Based on past import patterns of paper bags and sacks in Burundi and the DRC (Table 9); the export potential for Rwandan production in this market segment appears to be quite limited: not only are imports limited in value, they have also fluctuated strongly and shown no growth..

Table 9: Imports by Burundi and DRC of paper bags and sacks in value (000 USD)³

	2008	2009	2010	2011	2012	2013	Average 2008-13	CAGR	% of country's paper packaging imports
Burundi									
(Small) Sacks and bags of paper including cones	11	21	27	374	259	102	132	57%	6%
Sacks and bags of paper having width > 40 cm	271		285	1	138	0	139	-70%	7%
Total imports of paper packaging	672	1,271	1,897	3,018	2,838	2,829	2,110	26%	100%
DRC									
(Small) Sacks, bags of paper including cones	328	125	500	183	219	222	263	-7%	5%
Sacks and bags of paper having width > 40 cm	1,305	721	559	109	405	424	587	-20%	10%
Total imports of paper packaging	5,040	4,066	7,400	6,278	5,958	6,066	5,801	4%	100%

Source: UN Comtrade/ITC TradeMap

3.2.2 Supply of small and large paper bags

3.2.2.1 *Local production of small bags*

There is currently one domestic producer of paper bags, manufacturing single layer small size (< 40 cm) paper bags from size 1 (1 pound) up to 25 (25 pound) and have been in operation for the last four years. They produce waxed paper for bread, grease proof paper and flexo-printed bags up to four colours for supermarkets.

Out of a monthly installed capacity of 200 tons, the company produces 100 tons per month with four machines: one for flat bottom/millinery bags and three for square bottom bags. They are equipped with 4-colour capability but there is no demand for it as 80% of the local market only needs commoditized unprinted small paper bags at the same price of imports.

The main competition comes from Uganda and Kenya. The Rwandan company has no advantage over these competitors on price as it uses the same raw material from Georgia/Russia. It also uses same transport route but needs to absorb higher raw materials transport costs (estimated 25%). It also needs to win the battle of under-invoicing practices with importers which declare 20% less value to pay less VAT, and pay the other 20% under the table, even if the authority is now fixing minimum prices to collect VAT.

To compensate for more expensive transportation costs, it offers smaller order sizes (10,000 units flexo compared to 50,000 units from Kenya), additional customization with a larger number of colours and improved service level due to proximity (small quantities delivered from stock within 24 hours). However, the market generally is very price sensitive.

The company has proven local knowledge of paper bag manufacturing and spare space available to expand further in their area of packaging specialty.

³ Data for the DRC are mirror data, i.e. export data, which tend to be underreported.

3.2.2.2 Local production of large bags

Currently, there is no domestic production of large bags in Rwanda; domestic demand is entirely met by imported bags.

3.3 Paper labels

As a preliminary note, it is important to mention that several categories coexist on the market of decorative labels: pressure sensitive, wet-strength or wrap-around. They are based on different printing technologies, have different applications and advantages in function of the users. Also, printed and unprinted paper labels segments are normally distinguished, with the latter covering the rolls of paper which need to be printed and cut to become labels. Unprinted paper labels are thus a key input for the production of printed labels.

3.3.1 Demand for labels

3.3.1.1 Imports

Table 10 presents Rwanda's key suppliers of unprinted and printed labels.

For **unprinted paper labels**, one can notice a strong growth of 717% in value terms since 2009. In just three years, Georgia has taken the lead with 54% of the import market, pushing the former leader Kenya into the third position today. In the same period, Germany has slightly increased its value of paper label exports to Rwanda while its share has fallen from 31% to 6%. The remaining exporting countries to Rwanda in this segment are all small players.

With respect to **printed paper labels**, flexo-gravure and offset printing are now available in Rwanda, allowing a few local players to deliver paper labels for local producers of mineral water, juice and soft drinks. In terms of imports, Uganda, a very small player in 2009, has evolved to become the market leader, providing 37% of the imported labels. India, a new entrant, holds a share of about 24%, and Kenya 18%, mainly in the beverage sector. However, imports of printed paper labels have decreased by 60% over the period 2009 to 2013 due to increased domestic production.

Still using returnable glass bottles, the Coca-Cola Company franchise bottler Bralirwa has no need of paper labels today but this might change. On the brewery side, Bralirwa and Skol are the biggest importers of paper labels for their beer products manufactured in returnable glass bottles.

Table 10: Rwanda's imports of paper labels by top 3 source countries

Product	Source country	2009		2013	
		ooo USD	% imports	ooo USD	% imports
Unprinted paper labels	Georgia	0	0%	1,221	54%
	Germany	99	31%	127	6%
	Kenya	141	45%	74	3%
	Total imports	315	100%	2,259	100%
Printed paper labels	Uganda	24	3%	157	37%
	India	0	0%	103	24%
	Kenya	178	25%	79	18%
	Total imports	712	100%	427	100%

Source: UN Comtrade/ITC TradeMap

3.3.1.2 Users of printed labels

The brewery operations of **Bralirwa** use imported beer labels for its returnable beer bottles. This elaborated decorative packaging is printed and finished in Germany with high quality heliogravure technology using 4+ colours like blue, yellow, red and gold. The Heineken group is keen on sourcing raw materials locally but wants to keep the following packaging purchasing criteria in balance: quality (product and management systems), service, price and sustainability. While some initiatives and tests have started to source crown closures and labels from East Africa (Nairobi), the company considers that local sourcing of beer labels is not ready so far.

The second largest Rwandan beverage company **Inyange** sources labels locally on a basis of 2.5 million per month. The 90 gsm paper labels are made by Select Kalaos, applying flexogravure technology.

On the bottled water and personal care side, **Sulfo** states that labels are still expensive in Rwanda and sources them cheaper in Uganda or India, even with 25% import duty as a non EAC country.⁴

Soyco Mont Meru sees local manufacturing of labels as a second opportunity; the company currently sources labels from Uganda, using 6 colours flexogravure with varnish.

Finally, the **Speranza Group** also uses flexo printed paper pressure sensitive labels sourced from Kenya. According to their requirements, Rwandan solutions are too expensive and not meeting their quality standards. For example, the average unit price of a label sourced from Kenya is 3.5 RWF compared to 8 RWF of a locally produced one. A drawback of sourcing in Kenya remains the long transportation time of one week and the requirement to keep sizable quantities in stock (on average, 3 months).

3.3.1.3 Users of unprinted labels

Demand for unprinted labels is mostly derived from the demand for printed labels, as they constitute a key input for the final labels. As such, Rwandan printers of labels constitute the demand side of the unprinted label market – these are described in section 3.3.1.4 below.

3.3.1.4 Export potential

The markets of Burundi and DRC for paper labels are quite different but present notable export opportunities for paper labels printed in Rwanda (Table 11): In Burundi, printed paper labels constitute by far the largest segment of the paper packaging market – this is also different from Rwanda. With a value of USD 2 million in 2013 (five times as big as Rwanda's market), it represents 62% of Burundi's paper packaging imports; the average annual growth over the period 2008 to 2013 was 21% (while Rwanda's imports decreased by 15% per year over the same period). There seems to be **no production of paper labels in Burundi; this could therefore be a good export opportunity for Rwandan label converters**. In the DRC, the market for printed paper labels is also sizable, but less so than in Burundi – at approx. USD 1 million per year for the total of the DRC – and has been stagnating since 2009.

Conversely, printed non-corrugated paper cartons and boxes are an important paper packaging import in the DRC, accounting for 25% of paper packaging imports, while Burundi's imports

⁴ Sulfo's market of still water using wraparound paper labels is stable with 60% market share. Their cosmetics market using pressure sensitive paper labels is growing at 8% per year.

have been low at USD 160,000, which is one fourth of Rwanda’s equivalent market. What is more, this segment is volatile in both markets; it thus presents limited export potential.

Table 11: Imports by Burundi and DRC of paper labels and printed non-corrugated cardboard in value (000 USD)⁵

	2008	2009	2010	2011	2012	2013	Average 2008-13	CAGR	% of country's paper packaging imports
Burundi									
Paper labels of all kinds, not printed	2	61	21	24	26	26	27	67%	1%
Paper labels of all kinds, printed	1,018	944	1,107	2,079	1,631	2,037	1,300	21%	62%
Cartons, boxes & cases, folding, non-corrugated paper	213	94	221	107	216	106	160	-13%	8%
Total imports of paper packaging	672	1,271	1,897	3,018	2,838	2,829	2,110	26%	100%
DRC									
Paper labels of all kinds, not printed	530	315	225	303	342	344	343	-8%	6%
Paper labels of all kinds, printed	372	1,009	910	908	1,705	858	960	18%	17%
Cartons, boxes and cases, folding, non-corrugated paper	688	618	3,075	2,822	518	996	1,453	8%	25%
Total imports of paper packaging	5,040	4,066	7,400	6,278	5,958	6,066	5,801	4%	100%

Source: UN Comtrade/ITC TradeMap

3.3.2 Supply of paper labels

3.3.2.1 Local production of unprinted labels

Currently, there is no domestic production of unprinted labels; domestic demand is entirely met by imported paper for printing of labels. Also, given the economies of scale involved in paper production, domestic production of unprinted labels appears unfeasible economically.

3.3.2.2 Local production of printed labels

Several domestic printers currently operate in Rwanda. However, only one of them, **Select Kalaos**, has sufficient capacity and a business focus on packaging printing. Select Kalaos is a local commercial and packaging printer offering services from concept development to manufacturing. Their services also cover graphic design, digital prototype printing, offset printing and large format printing for point of sales applications. It currently employs 50 permanent and 20 temporary workers. The company has sufficient staff for operating 24 hours a day if needed. Clients include commercial printing users like books and magazines as well as paper-based packaging.

In the packaging business, as it is now matching import prices, Select Kalaos produces paper labels for Inyange who used to import from Nairobi before. It is in discussion with other beverage manufacturers to produce their labels.

⁵ Data for the DRC are mirror data, i.e. export data, which tend to be underreported.

The company can also print pressure sensitive labels which are currently imported by local packaging users. As an example it imports Adestor Kris-line material for the “Fresh Real Chicken” label for a local poultry company.

The company also produces uncorrugated boxes for Sorwathe, Rwandaair, a larger foreign NGO and others. They currently outsource their orders on corrugated printing.

On the export side, the company has customers in Gabon and Burundi and is looking into Western Uganda and Congo Brazzaville.

Presently, capacity utilisation is only 20%. Due to lack of financing capabilities, the company is short of raw materials and has to limit its marketing efforts because it cannot satisfy additional potential clients.

3.4 Summary

The findings in this chapter are summarised in Table 12, along with a preview of recommendations as further described in the following chapter. As mentioned, six different key paper packaging segments were identified. Given the technical complexity and high investment requirements, no single plant could produce all these packaging products, thereby making the “single project” not feasible; hence smaller projects might be required concentrating on individual segments. Therefore, the feasibility of domestic market recapturing projects must be assessed for each segment. Of the six segments, one (paper container for liquid products) is not feasible due to market size requirements. In three (small bags, labels, and non-corrugated cardboard) Rwanda already has paper packaging producers, and additional investment would likely crowd out the existing producers. Therefore, in those three segments selected support to the existing industry is recommended where required (essentially, for printing of labels). For the two remaining segments, large sacks (essentially for packaging of cement) and corrugated cardboard boxes, investment opportunities exist.

Table 12: Summary assessment of opportunities for domestic market recapturing project in key paper packaging segments

Market segment ⁶	Feasibility assessment Requirements	Constraints	Proposed action (see section 4 for details)
Corrugated cardboard	Finishing line only; local (and neighbouring) market too small for complete production line	<ul style="list-style-type: none"> Limited size of domestic market Import duties on raw materials 	Investment in finishing line
Small sacks and bags	Local producer in operation	Higher transport costs for raw materials than regional competitors (compensated by smaller orders, proximity to clients)	None
Labels	Local producer in operation	Working capital shortage	Support to existing producer and flanking policy measures: investment or soft loan
Paper container	No. Much larger volume output is needed than provide by domestic (and neighbouring) market	<ul style="list-style-type: none"> Local market too small Competition from TetraPak in Kenya 	None
Large sacks and bags	Feasible with: <ul style="list-style-type: none"> 5 Mio bags yearly 	<ul style="list-style-type: none"> Depends on sales to Cimerwa Import duties on raw 	<ul style="list-style-type: none"> Government to guarantee uptake of

⁶ Ordered by import size in 2013.

	(Cimerwa order) • Elimination of 25% custom duty on raw material and capital investments	materials	output by Cimerwa • Revise import duty regime
Non-corrugated cardboard	Local producer in operation; imports already sharply reduced	Domestic production already in place	None

The proposed projects and accompanying measures are presented in the following chapter.

4 RECOMMENDATIONS

The market for paper-based packaging cannot be assessed as one unique market: different technologies and customer requirements apply to each potential product. Therefore, the recommendations in this section separately propose interventions for three most promising paper packaging products: corrugated cardboard, large bags and printed uncorrugated cardboard and paper labels (section 4.1).

In addition, a necessary condition for any project in the packaging sector to be successful is that attractive long term business conditions need to be implemented. Only this guarantees that investors (local or foreign) can be attracted into the sector. The business community needs to see adequate returns on investment to be rewarded for the risks it is willing to take. In this context, a number of recommendations are made to remove regulatory distortions affecting the packaging sector in general (section 4.2); these are applicable across the three priority market segments.

4.1 Investment projects and support to domestic packaging firms

The objective of the domestic market recapturing strategy is to create value and stimulate local entrepreneurs. This means that projects in segments where domestic producers are already present should focus on support of the existing producers, rather than creating new players which would crowd out incumbents, destroying local value and having neighbouring countries' companies benefit from it. Domestic producers are in any case already subjected to competition from imports, so that there is no risk of creating monopolies. In view of this, the projects recommended below are mostly based on assisting existing firms in expanding their production capacity.

4.1.1 Corrugated cardboard

4.1.1.1 *Market opportunity*

Rwanda's market for corrugated cardboard packaging has grown from 295 tons (USD 533,000) in 2008 to 2,229 tons (USD 4.6 million) in 2013, all of which is imported. This corresponds to average annual growth rates of 50% in volume terms and 54% in value terms, implying an average annual price increase (USD per kg) of 2.7%.

Burundi and the DRC are also importers of corrugated cardboard from neighbouring countries sourced from similar countries as Rwanda. Today, these two markets are estimated one third of Rwanda's market. This could be a small export market for Rwanda if products are price competitive.

The combination of both opportunities gives an attractive perspective. Today, this combined market represents a tonnage of 4,000 tons for a value of USD 9 million, while in 2021 the market is estimated to represent 14,000 tons valued at USD 36 million, under conservative growth assumptions, i.e. assuming growth rates which are substantially lower than actual growth over the period 2008 to 2013 (Table 13).

Table 13: Market and demand projections for cartons, boxes & cases of corrugated paper or board, 2016-2012

	CAGR 2008- 2013	Assumed annual growth rate 2014-2020	2016	2017	2018	2019	2020	2021
Import value in USD 'ooo (=market size)								
Rwanda	53.9%	25%	8,967	11,208	14,011	17,513	21,892	27,364
Burundi	28.8%	20%	962	1,155	1,386	1,663	1,996	2,395
DRC	12.2%	10%	4,170	4,587	5,046	5,550	6,105	6,716
Total	27.6%		14,099	16,951	20,442	24,727	29,993	36,475
Import volume (tonnes)								
<i>Price (USD/tonne)</i>	2.7%	3%	2,231	2,291	2,352	2,416	2,481	2,548
Rwanda	49.9%		4,020	4,893	5,956	7,250	8,824	10,741
Burundi			431	504	589	688	805	940
DRC			1,869	2,002	2,145	2,298	2,461	2,636
Total			6,321	7,400	8,690	10,236	12,090	14,318
Market share of Rwanda's production								
Rwanda			10%	20%	30%	40%	50%	50%
Burundi				5%	10%	15%	20%	20%
DRC				5%	10%	15%	20%	20%
Demand for Rwanda's production (value in USD 'ooo)								
Rwanda			897	2,242	4,203	7,005	10,946	13,682
Burundi			0	58	139	249	399	479
DRC			0	229	505	833	1,221	1,343
Total			897	2,529	4,846	8,087	12,566	15,504

4.1.1.2 Option 1 - complete corrugated cardboard production plant

A complete corrugated cardboard production plant could reasonably be in operation in 2017 as investors, funds and location must be identified, factory needs to be designed, built, equipment selected and commissioned. The initial investment for such a production plant is estimated between USD 20 million and USD 30 million.

With regard to the plant's potential sales, industry experts would estimate a market penetration rate of 5-10% per year for locally sourced corrugated cardboard in Rwanda, Burundi and Eastern DRC. Thus, domestic production of boxes and cartons gradually could expand its share on the domestic market from 10% in 2016 to 50% in 2021, and exports to Burundi and the DRC would start in 2017, remaining at relatively low levels (reaching 20% in 2020 and 2021). This takes into account the competitive environment with over capacity in neighbouring countries, relatively unstable tax environments and existing commercial ties based on long term contracts and existing commercial relationships and deals.

Based on these assumptions, the company could reach USD 13.6 million domestic sales and USD 1.8 million export sales in 2021 (Table 13 above). This would not allow for a profitable full-scale corrugated cardboard production plant, given the high investment costs required: the calculated net margin is -2.7% and the average annual loss per year USD 1.2 million (see appendix II).

4.1.1.3 Option 2 – domestic folding, gluing and printing of corrugated cardboard boxes

Another option would consist of installing the last stage of the production process in Rwanda, while supplying it with corrugated unprinted board from outside the country. This would have the advantage of limiting the investment costs to a flexo-folder gluer and die cutter estimated to cost USD 5 million. This limited investment could be a good start but the return on the investment would also be limited to the value created by the finishing process. A tentative profitability analysis shows that the project could be profitable, breaking even in the third year of operation, with average gross and net margins over the 6-year project period of 28.9% and 16.1%, respectively, an average annual profit of USD 1.97 million, and an FIRR of 28% (see appendix III).

The scenarios to progress in this direction should be challenged by potential investors. In this situation, three cases can be considered:

- a joint venture with two local partners: one active in the packaging sector (e.g. Select Kalaos, who already have a standing large order for corrugated boxes which it is currently outsourcing to a manufacturer abroad) and a financial investor;
- a joint venture with a local financial investor and a regional industry operator;
- or a single well-financed company with relevant packaging sector introductions that would be ready to take this challenge further.

4.1.2 Large paper bags

4.1.2.1 Market opportunity

The market trend of imported large sacks and bags of paper was rather flat in the past (over the period 2009 to 2013), valued at USD 0.4 million to USD 0.5 million per year. The market is essentially a monopsony, with the vast majority of paper sacks being bought by Cimerwa (cement bags). With the major expansion work of Cimerwa (increasing Rwanda's annual output of cement six-fold) as well as the new production of Kigali cement factory, the domestic demand for large paper bags is expected to increase drastically in the near future. At the same time it will continue to be dominated by one buyer, and hence the viability of any investment project will depend on the continuity of sales to that buyer.

4.1.2.2 Proposed investment project

As mentioned previously, there is currently no domestic production of large paper bags in Rwanda. However, located in the Special Economic Zone, SRB Investments is the only local operator producing smaller paper bags, successfully competing with imported bags produced in Uganda and Kenya. It is interested in starting the production of cement bags in Rwanda for Cimerwa. Both parties are in discussion as SRB Investments have space, know-how and capital available for this new venture. According to the Chairman, the business opportunity study they have made showed that technical skills used for small bags related to printing and gluing can easily be applied to large bags production and that they can match the prices that Kenya offers.

The business case prepared by SRB has been reviewed by the consultant and is considered to be sound. This shows that the project would break even after three years and is profitable: over the plan period of seven years, it has a cumulated profit of approx. USD 380 thousand.

Constraints

However at this stage, two constraints have been identified for the project. First, as Cimerwa will be by far the dominant client in Rwanda in the large bag segment, a guaranteed minimum yearly

uptake would be needed to limit the investment risk and start running the process. Discussions have already taken place with Cimerwa. In these, Cimerwa has stated that they are not able to guarantee yearly uptakes, nor willing to sell or lease the paper bag making machine which is available for SRB to produce the required quantities and qualities.

Second, under current market conditions, domestic manufacturers of paper bags are put at a competitive disadvantage compared to foreign suppliers and hence cannot compete on price; as a result, importing paper bags is cheaper than producing domestically, which de facto prevents domestic manufacturing. At present, Rwanda imposes a 25% duty on raw materials needed for paper bag production (essentially, kraft paper) while the import of large paper bags by Cimerwa is exempted from import duties. Given that the paper needed for paper bag production accounts for 60% of the cost of a producing a paper bags, the current import regime puts domestic producers at a 15% cost disadvantage – which is prohibitive, in particular in view of the commoditised nature of the product.

Proposed solutions

In order to overcome these two constraints, the following is **recommended**: First, as a starting point and essential condition, the import duty regime needs to be amended. For this, two options are available: Either, the government should consistently impose import duty for goods produced outside of Rwanda by removing exemptions on import duties for large companies (such as Cimerwa). Alternatively, it should be ensured that duty exemptions for the purchase of raw materials granted to producers of paper bags are enforced. Either of these two options would equalize the playing field in term of import taxes and hence remove the cost disadvantage currently preventing a price-competitive domestic production of large paper bags.

Second, the government should act as a facilitator for Cimerwa's guaranteeing yearly volume uptakes for paper bags, and selling or leasing the production equipment to SRB Investments. This will create the right conditions for SRB Investments to finalize their business plan and make the necessary investments. The best alternative to move the project of domestic production of big paper bags would be to create a joint venture between SRB Investments and a local partner. SRB Investments would represent the manufacturing and know-how side of the venture while the other local partner would look at representing the interests of Cimerwa to ensure its expansion is taken care of.

4.1.3 Printed paper labels (and non-corrugated cardboard packaging)

4.1.3.1 Market opportunity

Imports of printed paper labels and flat cardboard show a decreasing trend. To a large extent, this is due to the success of domestic production, which has partially replaced imports – thus, while imports of printed labels have decreased, imports of unprinted labels have been increasing. The domestic market for paper labels and non-corrugated cardboard is, however, expected to grow further (due to rising demand for domestically sold packaged consumer products and packaged exports, such as tea bags). As a result, there is a clear opportunity for further expansion of domestic production of such packaging materials.

4.1.3.2 Proposed project and actions

Select Kalaos is an important player whose business is in line with the outcome of Karisimbi's feasibility study of 2011. They are in the market since 2011 with capability to produce printed labels, un-corrugated board and primary packaging graphic design.

As part of the current 5-year business plan, the company's management is dedicated to growing the business by:

- moving to the Special Economic Zone in the next 5 years;
- entering new packaging market applications as corrugated board and coffee bags;
- investing in additional label printing capacity if needed;
- entering new geographical markets to serve customers in Eastern DRC and Burundi;
- addressing international requirements needed for clients such as Bralirwa.

In January 2015, the company acquired, at a price of USD 700,000, a Heidelberg (Germany) offset printing unit "Speedmaster 74" with 5 heads and 74 mm width, producing 15,000 sheets per hour. It is able to print 4 CMYK primary colours with one extra including metalized ink. This gives them wide access to the decorative printing industry of Rwanda and Eastern Africa, in direct competition with Uganda, the "region printer" serving 40 million consumers. Kampala being far away, Select Kalaos believes that proximity to clients is an added value. Indeed, Ugandan and Kenyan competition will never have the luxury to invite their clients to validate the first production runs in their operation which is common practice in the industry.

Recommendations

To avoid internal competition in the marketplace, an additional investor is not recommended. It would only jeopardize his development and a price battle due to over-capacity. Rather, it is recommended that the company be supported in the implementation of the business plan. Currently, the main constraint is working capital, which is expensive and keeps capacity utilization down to 20%. Access to liquid assets would speed up the process of executing the business plan and increase capacity utilization to about 80% without investing in fixed capital. Support could be in the form of:

- a soft loan at a lower rate to pay out the existing bank loans; or
- equity investment from the government aiming at divesting at some future point.

The specific scope, terms and conditions would have to be negotiated between the government and the company management.

This company specific support should be complemented with the creation of a general environment favouring export conditions so that the company (and others in the sector) can enter the Burundi and DRC market in the same operating and tax conditions as their regional competitors (see below).

4.2 Recommended policy reforms to remove distortions affecting the packaging sector

4.2.1 Removing distortions of tax and tariff regimes

The import and export tax on raw materials and finished goods is a complex topic. According to the Rwanda packaging converters and users, rules and exemptions are unevenly applied – the case of large paper bag production described above (section 4.1.2) is but one example. This is causing severe distortions, discouraging local entrepreneurs and favouring imports.

In response there are unexploited options to favour domestic production: Firstly, EAC regulations permit Rwanda to impose the CET on EAC producers that receive exemptions for their raw materials. Enforcement of EAC regulations would enhance domestic production and increase revenue collection. The HS codes under carton would be relevant.

Secondly, importation of large (cement) bags is currently exempted from the CET although imported from outside EAC or COMESA. This exemption inhibits domestic production.

4.2.2 Addressing the distortions caused by the local ban of PE packaging

Some locally manufactured packaged consumer goods are clearly disadvantaged against their imported equivalents. Examples are described in Box 1. The main consequence is that the ban creates extra costs for domestic producers which are bound by the ban as opposed to producers abroad, which are not: By avoiding PE material in some applications, local companies have to use more expensive alternatives which have to be imported. For example, printing un-corrugated cardboard boxes is three times more expensive as shrink wrapping.

To remedy this situation Rwanda needs to impose the same environmental regulations to imported packaged goods if it wishes to protect its local market, or it will continue to erode its local competitiveness. Before implementing new legislations, it is advisable to consult the private sector and engage in feasibility and risk analysis. Failing to address this will discourage the private sector to invest in local production facilities because of the lack of visibility in future legislation. More details are provided in the DMRS (section 7.4.2).

Box 1: Examples of the negative consequences for domestic manufacturers of the PE packaging ban

Example 1: Secondary Packaging

Beverages produced in PET bottles or in Tetra Pak cartons can enter Rwanda with shrink filmed secondary packaging. Their locally produced counterparts need to find alternative secondary packaging which is more expensive and cannot be produced locally because not present in critical mass to justify local production. This reinforces imports of printed corrugated cardboard packaging and increase the process of value creation outside Rwanda.

Example 2: Dry consumer good products

The second example applies to dry product applications as cereals, flours and porridge. To bring legal solutions on the market and meet the ban of PE packaging, local companies need to use alternatives solutions which are over-engineered. Being more expensive as well, they make the cost structure uncompetitive compared to imported goods. The Rwandan porridge is packaged in a legal PET/ALU/PE complex used by a higher-end product (coffee), while an importing competitor is using a simple PE bag inside a paper bag which is good enough for this application.

Example 3: Tamper-proofed mineral water bottles

The third example comes from a local mineral water bottler, facing competition from an imported brand. The imported water featured tamper-evident bands in the form of plastic shrink-seals on their closures to show the proof of product integrity. To counter it, the domestic company – which must not use plastic shrinks as a result of the ban – had to print a logo on the closure as a sign of quality. The company lost market share and profitability as the solution provided was not equivalent to a tamper-evident band.

Example 4: Plastic bottle liquors

The last example concerns the different treatment of products by the ban: thus, plastic bottles for liquors are banned but allowed for juice and water. This weakens the domestic producers in this sector that have made investments and now have to compete with imports not affected by the ban and therefore being accorded a cost advantage.

APPENDIX I: INTERVIEW LIST

Name	Institution / Organization
Mr. Alex RUZIBUKIRA	DG Industry, MINISTRY OF TRADE AND INDUSTRY
Mr. Sam KASULE	Commercial Manager, CIMERWA Ltd
Mr. Bernard O'CONNELL	MarketLinked Programme Implementation Manager, RWANDA DEVELOPMENT BOARD
Mr. Kazoora NAPHTAL	Head of Special Economic Zone, RWANDA DEVELOPMENT BOARD
Ms. Hope MPANGARE	CEO, SPERANZA GROUP Ltd
Mr. Prosper Murama	Finance Director, SPERANZA GROUP Ltd
Mr. Suchir BHATNAGAR	Managing Director, SRB INVESTMENTS Ltd
Mr. Rakesh BHATNAGAR	President, SRB INVESTMENTS Ltd
Mr. Vedaste HABANABAKIZE	Managing Director, FINEST TRADERS
Mr. Nick BARIGYIE	Commercial Manager, MOUNT MERU SOYCO
Mr. Thiru NAVUKKARASU	General Manager, KABUYE SUGAR WORKS SARL
Mr. Trevor AUGUSTINE	General Manager, MINIMEX
Mrs. Angelique KAREKEZI	Managing Director, RWASHOSCCO
Mr. Mazen A. DAKIK	Managing Director, ADMA INTERNATIONAL Ltd.
Mr. Thaddée MUSABYIMANA	Directeur Général, SOSOMA INDUSTRIES Ltd.
Mr. Gupta Ajay NARESH	Deputy Managing Director, INYANGE INDUSTRIES
Mr. Emmanuel HATEGEKA	Permanent Secretary, MINISTRY OF TRADE AND INDUSTRY
Mr. Jonathan HALL	Managing Director, BRALIRWA
Mr. Julius KAYOBOKE	Marketing Director, BRALIRWA
Mrs Rizah MUGABE	Purchasing Manager, BRALIRWA
Mr. Philip EJIOFOR	Finance Director, BRALIRWA
Mr. Theo GAKIRE NTARUGERA	Managing Director, SELECT KALAO
Mrs. Yvonne NEZA	Administration and Finance Manager, PREMIER TOBACCO Ltd.
Mr. A.S. NATARAJAN	Managing Director, SULFO RWANDA INDUSTRIES Ltd.
Mrs. Mary RUGANGAZI	Managing Director, HIGHLAND TEA Ltd.
Dr. Ben RUGANGAZI	President, HIGHLAND TEA Ltd.

APPENDIX II: PROFITABILITY ANALYSIS OF FULL-SCALE CORRUGATED CARDBOARD PRODUCTION

Assumptions

Cost of raw materials (cardboard, glue), % of revenues	60%						
Weight of av carton (grams)	200						
Exchange rate (RWF/USD)	700						
Labour		Number	RWF/month/person	USD/month/person	USD/month total	USD/year	
Engineer		1	2,764,000.00	3,949.00	3,949.00	47,388.00	
Machine operators		2	500,000.00	714.00	1,428.00	17,136.00	
Asst. machine operators		4	200,000.00	286.00	1,144.00	13,728.00	
Sorters, bundlers, packagers		6	75,000.00	107.00	642.00	7,704.00	
Total						85,956.00	
Rent					5,000.00	60,000.00	
Electricity					4,000.00	48,000.00	
		Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)	Year 5 (2020)	Year 6 (2021)
Projected output (cartons)		4,483,398	12,644,001	24,231,791	40,436,671	62,830,147	77,522,093
Projected output (tonnes)		897	2,529	4,846	8,087	12,566	15,504
Capital investment (USD)		25,000,000					
Depreciation (Machines & Equipment, % of investment)	20%	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00	-

INCOME STATEMENT

		Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)	Year 5 (2020)	Year 6 (2021)	Average
Revenue								
Price per av carton	100%	0.4461	0.4581	0.4705	0.4831	0.4962	0.5095	
Quantity sold		4,483,398.44	12,644,001.22	24,231,791.21	40,436,670.57	62,830,147.21	77,522,092.83	
Gross Sales		2,000,134.13	5,792,657.29	11,400,406.74	19,536,723.92	31,173,527.49	39,498,889.10	
Less: Sales Returns		-	-	-	-	-	-	
Net Sales		2,000,134.13	5,792,657.29	11,400,406.74	19,536,723.92	31,173,527.49	39,498,889.10	18,233,723.11
Cost of Goods Sold								
Raw materials	100%	1,200,080.48	3,475,594.38	6,840,244.04	11,722,034.35	18,704,116.50	23,699,333.46	
Labour		85,956.00	85,956.00	85,956.00	85,956.00	85,956.00	85,956.00	
Rent		60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	
Electricity		48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	
Other utilities		12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	
Cost of Goods Sold		1,406,036.48	3,681,550.38	7,046,200.04	11,927,990.35	18,910,072.50	23,905,289.46	11,146,189.87
Gross Profit (Loss)		594,097.65	2,111,106.92	4,354,206.70	7,608,733.57	12,263,455.00	15,593,599.64	7,087,533.25
Expenses								
Bank charges	5%	60,004.02	173,779.72	342,012.20	586,101.72	935,205.82	1,184,966.67	
Depreciation		5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00	-	
Maintenance	10%	2,500,000.00	2,500,000.00	2,500,000.00	2,500,000.00	2,500,000.00	2,500,000.00	
General overheads	2%	40,002.68	115,853.15	228,008.13	390,734.48	623,470.55	789,977.78	
Total Expenses		7,600,006.71	7,789,632.86	8,070,020.34	8,476,836.20	9,058,676.37	4,474,944.46	7,578,352.82
Profit Before Tax		(7,005,909.05)	(5,678,525.95)	(3,715,813.64)	(868,102.63)	3,204,778.62	11,118,655.19	(490,819.58)
Tax	30%	-	-	-	-	961,433.59	3,335,596.56	716,171.69
Profit After Tax (Net Profit)		(7,005,909.05)	(5,678,525.95)	(3,715,813.64)	(868,102.63)	2,243,345.04	7,783,058.63	(1,206,991.27)
Cumulative Net Profit		(7,005,909.05)	(12,684,435.00)	(16,400,248.64)	(17,268,351.27)	(15,025,006.23)	(7,241,947.60)	(12,604,316.30)
Gross Margin %		29.70	36.44	38.19	38.95	39.34	39.48	38.87
Net Margin %		(350.27)	(98.03)	(32.59)	(4.44)	10.28	28.15	(2.69)
Average Net Profit								(1,206,991.27)

APPENDIX III: PROFITABILITY ANALYSIS OF CORRUGATED CARDBOARD BOX PRODUCTION FINISHING LINE

Assumptions

Cost of raw materials (corrugated cardboard, glue), % of revenues	70%						
Weight of av carton (grams)	200						
Exchange rate (RWF/USD)	700						
Labour		Number	RWF/month/person	USD/month/person	USD/month total	USD/year	
Engineer		1	2,764,000.00	3,949.00	3,949.00	47,388.00	
Machine operators		2	500,000.00	714.00	1,428.00	17,136.00	
Asst. machine operators		4	200,000.00	286.00	1,144.00	13,728.00	
Sorters, bundlers, packagers		6	75,000.00	107.00	642.00	7,704.00	
Total						85,956.00	
Rent					5,000.00	60,000.00	
Electricity					4,000.00	48,000.00	
		Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)	Year 5 (2020)	Year 6 (2021)
Projected output (cartons)		4,483,398	12,644,001	24,231,791	40,436,671	62,830,147	77,522,093
Projected output (tonnes)		897	2,529	4,846	8,087	12,566	15,504
Capital investment (USD)		5,000,000					
Depreciation (Machines & Equipment, % of investment)	20%	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	-

INCOME STATEMENT

		Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)	Year 5 (2020)	Year 6 (2021)	Average
Revenue								
Price per av carton	100%	0.4461	0.4581	0.4705	0.4831	0.4962	0.5095	
Quantity sold		4,483,398.44	12,644,001.22	24,231,791.21	40,436,670.57	62,830,147.21	77,522,092.83	
Gross Sales		2,000,134.13	5,792,657.29	11,400,406.74	19,536,723.92	31,173,527.49	39,498,889.10	
Less: Sales Returns		-	-	-	-	-	-	
Net Sales		2,000,134.13	5,792,657.29	11,400,406.74	19,536,723.92	31,173,527.49	39,498,889.10	18,233,723.11
Cost of Goods Sold								
Raw materials	100%	1,400,093.89	4,054,860.10	7,980,284.72	13,675,706.75	21,821,469.25	27,649,222.37	
Labour		85,956.00	85,956.00	85,956.00	85,956.00	85,956.00	85,956.00	
Rent		60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	
Electricity		48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	
Other utilities		12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	
Cost of Goods Sold		1,606,049.89	4,260,816.10	8,186,240.72	13,881,662.75	22,027,425.25	27,855,178.37	12,969,562.18
Gross Profit (Loss)		394,084.24	1,531,841.19	3,214,166.02	5,655,061.18	9,146,102.25	11,643,710.73	5,264,160.93
Expenses								
Bank charges	5%	70,004.69	202,743.01	399,014.24	683,785.34	1,091,073.46	1,382,461.12	
Depreciation		1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	-	
Maintenance	10%	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00	
General overheads	2%	40,002.68	115,853.15	228,008.13	390,734.48	623,470.55	789,977.78	
Total Expenses		1,610,007.38	1,818,596.15	2,127,022.37	2,574,519.82	3,214,544.01	2,672,438.90	2,336,188.10
Profit Before Tax		(1,215,923.14)	(286,754.96)	1,087,143.65	3,080,541.36	5,931,558.24	8,971,271.83	2,927,972.83
Tax	30%	-	-	326,143.10	924,162.41	1,779,467.47	2,691,381.55	953,525.75
Profit After Tax (Net Profit)		(1,215,923.14)	(286,754.96)	761,000.56	2,156,378.95	4,152,090.77	6,279,890.28	1,974,447.08
Cumulative Net Profit		(1,215,923.14)	(1,502,678.10)	(741,677.55)	1,414,701.41	5,566,792.17	11,846,682.45	2,561,316.21
Gross Margin %		19.70	26.44	28.19	28.95	29.34	29.48	28.87
Net Margin %		(60.79)	(4.95)	9.54	15.77	19.03	22.71	16.06
Average Net Profit								1,974,447.08

CASH FLOW PROJECTIONS

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cash Inflow							
Sale Receipts: Cash	0	2,000,134.13	5,792,657.29	11,400,406.74	19,536,723.92	31,173,527.49	39,498,889.10
Total Cash Inflow	0	2,000,134.13	5,792,657.29	11,400,406.74	19,536,723.92	31,173,527.49	39,498,889.10
Cash Outflow							
Machines Equipment & Furniture	5,000,000.00						
Stock (raw materials)	350,023.47						
Raw materials	0	1,400,093.89	4,054,860.10	7,980,284.72	13,675,706.75	21,821,469.25	27,649,222.37
Labour	0	85,956.00	85,956.00	85,956.00	85,956.00	85,956.00	85,956.00
Rent	0	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00
Electricity	0	48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	48,000.00
Other utilities	0	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00
Bank charges	0	70,004.69	202,743.01	399,014.24	683,785.34	1,091,073.46	1,382,461.12
Maintenance	0	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00	500,000.00
General overheads	0	40,002.68	115,853.15	228,008.13	390,734.48	623,470.55	789,977.78
<i>Subtotal</i>	<i>5,350,023.47</i>	<i>2,216,057.27</i>	<i>5,079,412.26</i>	<i>9,313,263.09</i>	<i>15,456,182.56</i>	<i>24,241,969.26</i>	<i>30,527,617.27</i>
Tax	0	-	-	326,143.10	924,162.41	1,779,467.47	2,691,381.55
Total Cash Outflow	5,350,023.47	2,216,057.27	5,079,412.26	9,639,406.18	16,380,344.97	26,021,436.73	33,218,998.82
Net Cash Flow	(5,350,023.47)	(215,923.14)	713,245.04	1,761,000.56	3,156,378.95	5,152,090.77	6,279,890.28
Cumulative Cash Flow	-	(215,923.14)	497,321.90	2,258,322.45	5,414,701.41	10,566,792.17	16,846,682.45

PRO FORMA BALANCE SHEET

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ASSETS						
Machines, Equipment & Furniture (Net of Dep)	5,000,000.00	4,000,000.00	3,000,000.00	2,000,000.00	1,000,000.00	0.00
Working Capital	554,014.32	554,014.32	554,014.32	554,014.32	554,014.32	554,014.32
Bank	-215,923.14	497,321.90	2,258,322.45	5,414,701.41	10,566,792.17	16,846,682.45
Total Assets	5,338,091.18	5,051,336.22	5,812,336.77	7,968,715.72	12,120,806.49	17,400,696.77
LIABILITIES						
Equity/Capital	5,554,014.32	5,554,014.32	5,554,014.32	5,554,014.32	5,554,014.32	5,554,014.32
Retained Earnings	-1,215,923.14	-1,502,678.10	-741,677.55	1,414,701.41	5,566,792.17	11,846,682.45
Depreciation Account	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	0.00
Total Liabilities & Capital	5,338,091.18	5,051,336.22	5,812,336.77	7,968,715.72	12,120,806.49	17,400,696.77

FINANCIAL INTERNAL RATE OF RETURN (FIRR)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Net Cash Flow	(5,350,023.47)	(215,923.14)	713,245.04	1,761,000.56	3,156,378.95	5,152,090.77	6,279,890.28
Net Book Value of Fixed Assets	0	0	0	0	0	0	0
Recovery of Working Capital I	0	0	0	0	0	0	554,014.32
Recovery of Working Capital II	0	0	0	0	0	0	0
Cash Flow for FIRR	(5,350,023.47)	(215,923.14)	713,245.04	1,761,000.56	3,156,378.95	5,152,090.77	6,833,904.60
FIRR	28%						