



Materia Do Brazil (MATEBRAZ) The Composite Project

On June 18 2006, in Bristol (UK) a committee composed of George WILLIAMS, Chairman of BMG Plc, Bill BOWER, Senior Vice President American Region, Richard EVANS, Senior Vice President, Composite Division and Tom Viallet, Chief Financial Officer were sitting in the Board room to listen to two presentations concerning an investment proposal for the sales of a composite product in Brazil and make a decision about which solution to adopt. One presentation was made by Mr Alberto Da Silva, Managing Director of Materia Do Brazil (MATEBRAZ) and another presentation by Ron Clifford, Managing Director of BMG of Texas the US subsidiary specialized on Composite materials.¹ The committee had to discuss and make a decision about which proposal to support. In addition to economics and financial consideration the Committee was looking at the deeper strategic and organizational implications of a decision of this type. Particularly WILLIAMS was concerned about the kind of message a decision in one or the other direction would send to the other subsidiaries and divisions.

BMG PLC

BMG Plc is a large industrial companies in the UK. The company was founded in 1932 and produced specialised building products. In the early part of the 1950's an overseas sales network was expanded into France, Belgium, the Netherlands Germany, Scandinavia, and Southern Europe. In 1963 BMG acquired a company in Texas and opened a joint venture company in Japan. During the 1980's BMG expanded aggressively in Asia . It opened several marketing and sales subsidiary while maintaining the production in the UK, Texas and in Japan. Sales were mainly export sales handled by the marketing and sales offices in countries. In 1989 the company started to open more factories across the world and in the mid 90s was producing 36 different products in 15 production sites. Products were grouped into four broad divisions: Specialty Materials, Building Materials, Plastics and more recently Composites. A matrix organization made of the four divisions and three regions was introduced in 1995. (See Exhibit 1 for a simplified organisation chart). According to the matrix, the Managing Directors of subsidiaries were responsible for its growth and return on investment, the divisions Vice President were responsible for the overall global profitability of their division and the regional Vice President for the profitability of their region. The management philosophy of the Corporate headquarters is to encourage local entrepreneurship and performance. Subsidiary managing directors are encouraged to take initiatives and benefit from a high degree of autonomy within the framework of corporate policies. Subsidiary

¹ *This mini case is inspired by an original case " AB Thorsten (A-C) written by Professors Gordon Shillinglaw and Charles Summer at IMD, Lausanne. The structure, text, dates, products, countries involved and organizational setting are completely different than the original case. Only the managerial issue remains.*



managers can select which existing BMG PLC products are fitted for their own market. Transfer prices based on the costs of the export factories constitute the basis for pricing but subsidiary managers are free to refuse to negotiate. Subsidiaries are encouraged to propose to division management the development of new products. The subsidiaries' Managing Directors can build their own manufacturing plant if they can justify the investment in their own market and meet the return target. In 2006 the target was a minimum of 12% return on new investments.

The Composite Division

The division headed by Richard EVANS has three manufacturing sites: one in the UK, one in the USA, one in Japan. All other countries are served by marketing and sales subsidiaries sharing their resources with other product divisions. In the American region the production centre is in Houston Texas with export sales across the continent. Ron Clifford is the Chief executive of the Composite Business unit, BMG of Texas, based in Houston. In Brazil Mr Da Silva is the Managing Director of Matebraz the Sales and Marketing subsidiary. Both Clifford and Da Silva report to Bill Bower the Regional VP as well as to Richard EVANS, the Division VP.

Composite materials have a lot of applications but one of the main market is aeronautics. More and more aircraft manufacturer use composite materials to lower the weight of the plane. BMG of Texas, because of its strong links with the US aircraft industry has been the traditional core of the division. In the late eighties the R & D department produced a series of products which could be used in the new generation of civil and military aircrafts and components. Originally part of the Specialty product division, Composite became a Division of its own in 1997. At the time all products were manufactured in Houston and sold through agents and distributors. Later on, another manufacturing plant was set up in Bristol (UK) to serve the European market and a small operation opened in Japan for Asian markets. Richard EVANS an old timer coming from the Texan operations was transferred to Bristol and became the senior Vice President in charge of the division, while Ron Clifford replaced him at the head of BMG of Texas. Clifford was also an old timer who participated in the development of composite materials. His objectives are to optimise the US operations with a preference for exports rather than local production. His arguments are that in this industry the most important competitive factors are innovation and costs. Economies of scale matter a lot when it comes to cost. The main R and D centre located in Houston is close to the factory and, Ron thinks that it is more efficient to have manufacturing and research close to each other.

Materia Do Brazil (MATEBRAZ)



Materia Do Brazil was started by BMG PLC in 1993 as a sales and marketing joint venture a Brazilian entrepreneur. During the first six years, MATEBRAZ sales across the four product categories were relatively low. It was decided, to transform it into a 100% subsidiary and BMG PLC bought back the shares from its partner. Richard EVANS, at the time VP of the American region, decided to recruit a local Managing Director to lead the subsidiary. Antonio Da Silva a 38 year old engineer who got an MBA degree from the Fundacao Getulio Vargas, the leading Brazilian business school was hired. He had 4 years of experience in production engineering for a French aircraft component company, four years as Marketing Manager for a German avionic firm and two years as a Product Division Manager in an American defence company, all based in Brazil. His experience with the aeronautics and defence industries was particularly valuable. He had been exposed to the practical applications of modern project management, strategic marketing and financial analysis techniques as well as some leadership challenges. He is quite confident about the future of MATEBRAZ particularly in the composite and building products. Alongside with China, India and Russia, Brazil is part the group of emerging countries, the BRICs, that are the growth engines of the global economy. For him such a job of growing a company is particularly challenging given the opportunities and the entrepreneurial spirit promoted by Williams and BMG's corporate team.

In 2005 Da Silva had been Managing Director of MATEBRAZ composite business for six years. During that time sales quadrupled and profits reached a level that BMG PLC management found highly satisfactory. In September 2005 Da Silva was appointed to the Board of MATEBRAZ and became country manager. Besides himself, the Board consisted of EVANS plus two non executive directors, both of them prominent Brazilian businessmen: a banker and an entrepreneur head of a family - owned conglomerate.

The Da Silva's proposal for ARAMZK-6 project in Brazil

With the development of a global aircraft industry in Brazil, Da Silva thought that ARAMZK-6, a high-tech ARAMID composite developed by the central laboratory could be sold in Brazil. Because of its technical characteristics in term of temperature and resistance it could be used in many part of plane air frames and gives aircraft or defence manufacturers an opportunity to achieve substantial savings in cost and weight. ARAMZK-6 was produced in Houston with a plant capacity of 1000 tons. By April 2006 the product was not sold in Brazil but some tests (5 tons) conducted in December 2005 by Da Silva and his team at EMBRAER, the Brazilian aircraft manufacturer proved that ARAMZK-6 would have a good future in this country. The Brazilian defence and aircraft industrialists are already using some composite materials from BMG's competitors but Da Silva was confident that ARAMZK-6 was a better product and anticipated a bright future for the product in Brazil. The Brazilian market was potentially sufficiently large to justify the construction of a local plant. When he met EVANS in Bristol at an annual marketing conference he mentioned it to EVANS who encouraged him to pursue his investigations.



In his presentation to the Committee Da Silva started by looking at the market potential in Brazil as compared with other global markets. According to his calculation the market in Brazil was supposed to grow at 43% a year and at 31% in the Mercosur² countries (see Exhibit 2). The quality of aramid ARAMZK-6 and the preliminary tests that he conducted with EMBRAER were such that he estimated that it could take as much as 40% of the Brazilian market plus a minimum of 30 % of the other Mercosur markets. He then proposed to build a factory with a production capacity of 300 Tons.

Even with a higher inflation in Brazil, the production costs at 3100 BRL/KG (around 1455\$) would be lower than the prevailing 1473 \$/Kg exports landed costs given transport and custom duties (Exhibit 3 and 4). On the basis of an investment cost of 300 Million Brazilian Real (around 140 million US\$) and a need for working capital of 40 days of sales he presented an estimated cash flow as reproduced in Exhibit 5

The Net Present Value (NPV) of the projects calculated with the hurdle rate of 12% imposed by the headquarters was significantly positive and the Internal Rate of Return (IRR) higher than the hurdle rate.

In addition to the financial analysis Da Silva developed some more strategic arguments:

- a) A global firm such as BMG cannot continue to export to countries such as Brazil. Defence and aircraft are strategic industries for countries like Brazil. The government is likely to impose measures that will force suppliers to produce locally. Matebraz can gain a significant first mover advantage by investing right now.
- b) The global market is exploding so the Texas factory will need all its capacity to meet the growth of the US market.
- c) Brazil can be the centre of Composites for Mercosur.
- d) The experience gained with ARAMZK-6 in Brazil can be extended to other products or countries like China or India

Finally Da Silva mentioned that he had presented his proposal to the Board of Director of MATEBRAZ in Sao Paulo The board had unanimously voted in favour of the investment and particularly the non-executive Brazilian board members as well as Richard EVANS.

² Mercosur is a Regional Trade Agreement among Brazil, Argentina, Uruguay and Paraguay. Chile, Columbia, Equator and Peru are associate members and Venezuela and Bolivia are becoming full member. Its purpose is to promote a free trade zone similar to the European Economic Community.



Clifford's Presentation

Ron Clifford as head of Composites in the US argued that it was uneconomical to create a new production site for a largely unproven new high tech product in emerging countries. For him Brazil is not a major player in the aircraft industry and the resources of BMG composite division should be more useful in China for instance where the potential market was three time larger than Brazil. The Texas operations could continue to export, at least in the next few years since there was 500 tons of extra capacity in the Houston plant and it did not make sense to build an additional plant in the American region. On top of that the return of exporting from Houston was much larger than the return calculated by Da Silva for a new factory. To support his position Clifford produced a cash flow statement reproduced in exhibit 6. Ron added that with his solution there was no political risk involved and was less sensitive to the traditional Brazilian inflationary environment not to mention potential security issues in a country well known for its mafias.

Questions?

As WILLIAMS which project to support? Why?



Exhibit 1
BMG Plc: A simplified Organisation Chart

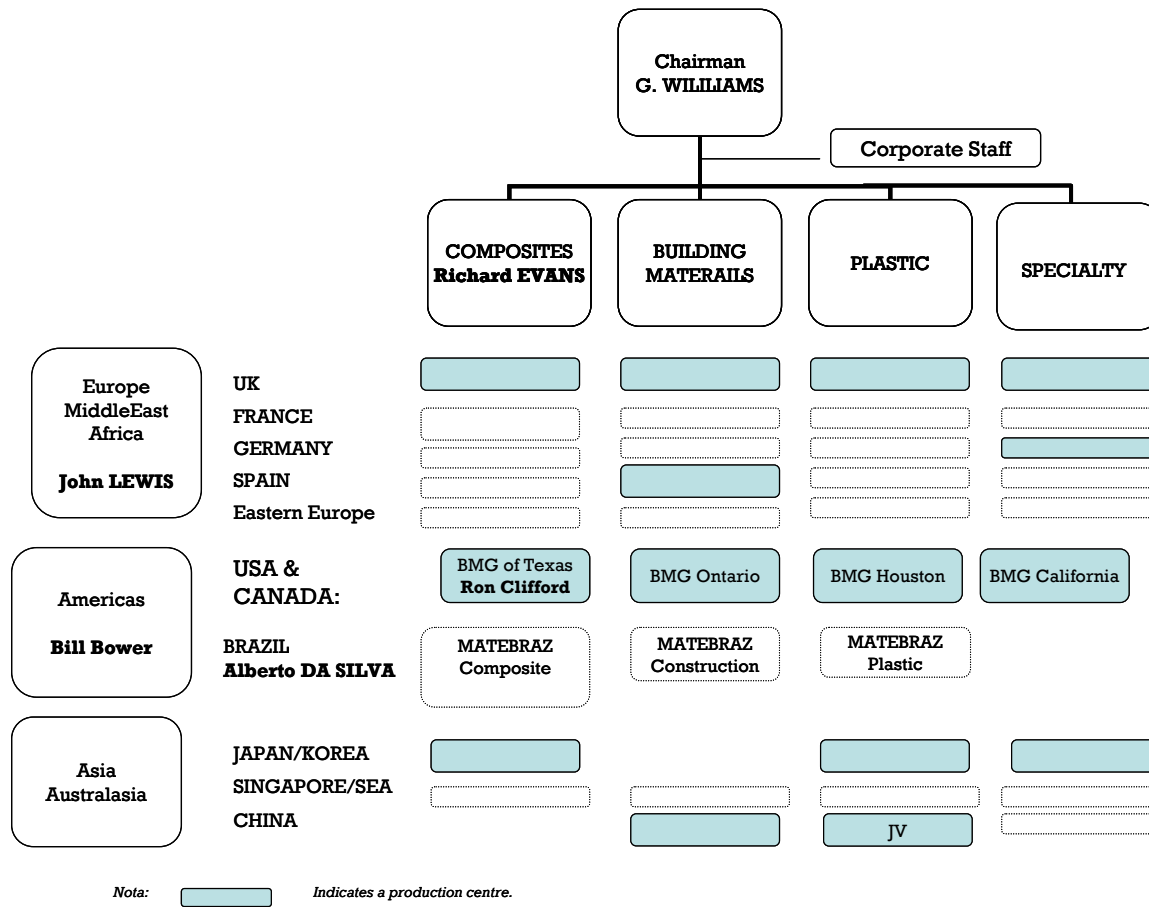




Exhibit 2

Market Analysis and Forecast for Aramid ARAMZK-6

	7 Years Market Potential(Tons)	Actual Market (Tons 2006)	BMG Sales	BMG Market Share	Yearly Growth Rate
USA/CAN	5000	1000	500	50%	26%
EU	6000	1400	800	57%	23%
JAPAN	2000	400	100	25%	26%
CHINA	2000	150	20	13%	45%
BRAZIL	600	50	5	10%	43%
Rest of ASIA	300	40	0	0%	33%
Rest of MERCOSUR	200	30	2	7%	31%
Africa & Middleast	100	10	0	0%	39%
	16200	3080	1427	46%	27%

Sources: Internal Market Research (BMG, 2006)

Exhibit 3

Exchange rates and Inflation in Brazil and the USA

	INDICES				
	Brazilian Real BRL/US\$	Inflation US	Inflation BRAZIL	USA	BRAZIL
2000	1.95	3.40%	7.0%	100	100
2001	2.33	2.80%	6.8%	102.83	106.84
2002	3.55	1.6%	8.4%	104.44	115.84
2003	2.9	2.3%	14.7%	106.83	132.96
2004	2.65	2.7%	6.6%	109.7	141.73
2005	2.36	2.7%	6.5%	112.71	150.92
2006(est)	2.13	2.4%	4.6%	115.4	157.9



Exhibit 4

Manufacturing variable costs for production in Brazil compared with landed costs of imports from Houston

	BRAZIL (BRL/Kg)	HOUSTON (\$/Kg)
FEEDSTOCK	1500	500
LABOR	1200	400
OTHERS	400	200
SHIPPING (8%)		88
IMPORT DUTIES (24 %)		252.7
Total Variable Costs (BRL/Kg)	3100 BRL	1473 US\$
Average Cost increase due inflation	2%	
Working Capital Requirement/Sales	40 days (11%)	60 Days (16.7%)
Exchange Rate (April 2006) for 1\$	2.13 BRL	

Nota: The cost difference for feedstock comes from 2 sources: (a) purchasing power due to size in the USA and (b) custom duties since feedstock is imported.

Labour costs are lower in Houston because of productivity due to economies of scale.



Exhibit 5
Estimated Cash Flow for Investing and Producing ARAMZK-6
in Brazil (000 BRL)

ESTIMATED FREE CASH FLOW in Brazilian Real (000 BRL)										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	
Exchange rate BRL/\$ (estimated)	<u>2.13</u>	<u>2.17</u>	<u>2.22</u>	<u>2.26</u>	<u>2.31</u>	<u>2.35</u>	<u>2.40</u>	<u>2.45</u>	<u>2.50</u>	
SALES tons		100	120	144	173	207	249	299		
SALES priceBRL./Kg		4500	4500	4400	4400	4400	4300	4300		
Variable cost BRL per kg		3100	3162	3225	3290	3356	3423	3491		
SALES (000 BRL)		450000	540000	633600	760320	912384	1069978	1283973		
Variables costs (000 BRL)		310000	379440	464435	568468	695805	851665	1042438		
Contribution margin		140000	160560	169165	191852	216579	218313	241535		
Market & admin		90000	91820.4	93681.288	95584.29	97531.227	99524.153	101565.4		
EBITDA		50000	68740	75484	96268	119048	118788	139970		
Depreciation	1/7	-42857	-42857	-42857	-42857	-42857	-42857	-42857		
EBT		7143	25882	32627	53411	76191	75931	97113		
Taxes	40%	-2857	-10353	-13051	-21364	-30476	-30373	-38845		
Working Capital Requirement/sales	11.0%	-49315	-9863	-10258	-13887	-16665	-17271	-23452		
Net Cash Flow from operations		-2172	48524	52176	61016	71907	71145	77673		
Capital Investment		-300000								
Terminal value (Perpetual = Last FCF/Cost of Capital)									647276	
FREE CASH FLOW (000 BRL)		-300000	-2172	48524	52176	61016	71907	71145	77673	
Cumulative Free Cash Flow(000BRL)		-300000	-302172	-253649	-201473	-140456	-68549	2596	80269	727546

Nota: Marketing and administrative expenses vary with a fixed component of 50,000 BRL/year + a variable component of 400BRL/Ton



Exhibit 6
Estimated Cash Flow for exporting ARAMZK-6
To Brazil from Houston (000 US\$)

Estimated CASHFLOW for EXPORT from Texas									
	2006	2007	2008	2009	2010	2011	2012	2013	2014
EXCHANGE Rate BRL/\$	2.13	2.17	2.22	2.26	2.31	2.35	2.40	2.45	2.50
SALES tons		100	120	144	173	207	249	299	
SALES price/ton in BRL		4500	4500	4400	4400	4400	4300	4300	
SALES price/ ton in \$		2071	2081	1947	1908	1871	1793	1757	
SALES (000\$)		207125	243677	280308	329774	387969	446061	524777	
Variable costs in \$/tq		1473	1473	1473	1473	1473	1473	1473	
Variable Costs (000 \$)		147312	176774	212129	254555	305466	366559	439871	
Gross Margin (000 \$)		59813	66902	68178	75219	82503	79501	84906	
Mkt & admin in BRL		9000	91820	93681	95584	97531	99524	101565	
Mkt & admin in \$		41425	41434	41445	41458	41473	41480	41511	
Earning Before Taxes EBT (000 \$)		18388	25468	26733	33761	41030	38011	43395	
Taxes	40%	-7355	-10187	-10693	-13504	-16412	-15204	-17358	
Working Capital Requirement/sales	16.7%	-34521	-6082	-6105	-8244	-9699	-9682	-13119	
Terminal value (Perpetual = Last FCF/Cost of Capital)									107646
FREE CASHFLOW(000 \$)		-23488	9189	9935	12012	14919	13125	12918	107646
Cumulative Free Cash Flow		-23488	-14299	-4364	7648	22567	36691	48609	156255

Nota: Marketing and administrative expenses vary with a fixed component of 50,000 BRL/year + a variable component of 400BRL/Ton