



Globe Metals & Mining

环球金属矿产公司

Investor Update

投资者更新



June 2009

2009年06月

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This presentation should be read in conjunction with the Company's release to Australian Stock Exchange of 18 May 2009.

Competent Persons: *The contents of this report relating to geology and exploration results are based on information compiled by Dr. Julian Stephens, Member of the Australian Institute of Geoscientists and Executive Director for Globe Metals & Mining Limited. Dr. Stephens has sufficient experience related to the activity being undertaken to qualify as a "Competent Person", as defined in the 2004 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources & Ore Reserves, and consents to the inclusion in this report of the matters compiled by him in the form and context in which they appear.*

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这份说明书应该与本公司2009年05月18日向澳洲证券交易所提供的资料一同阅读。

合格人员：这份报告中关于地质和勘探结果的部分是以澳大利亚地址学家协会成员、环球金属矿业公司执行董事朱利安·斯蒂芬斯博士编辑的信息为基础的。斯蒂芬斯博士在关于取得‘合格人员’资格的活动方面有着充足的经验。这个‘合格人员’被2004年版的澳大利亚矿产资源储量分类和资源储量估计下了定义。斯蒂芬斯博士并且同意这份报告包含了以不同形式出现的由他本人编辑的内容。

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COMPANY OVERVIEW

公司概况

Investment Highlights



- ✓ Production of ferro-niobium (FeNb) planned to commence in 2012 (Ta and U credits)
- ✓ Project NPV (post-tax): ~US\$200m
- ✓ Modest capex.: US\$152m
- ✓ Capital payback: 2.1 years
- ✓ Annual revenue: US\$152m, operating margin 49%
- ✓ 20+ year mine life
- ✓ Malawi a mining friendly and stable African nation
- ✓ FeNb consumption growth 21% p.a. (2002-07), 7.9% p.a. (1990-08) – steel consumption growth 4.1% p.a. (1994-08)
- ✓ Niobium the critical additive into sophisticated (high-strength, low-alloy) steels – unit consumption to increase strongly in developing nations
- ✓ FeNb price historically very stable
- ✓ FeNb a small % input cost to steel smelters

- ✓ 铌铁的生产计划于2012年开始(有钽和铀为附属产品)
- ✓ 项目净现值 (税后) : ~ 2亿美元
- ✓ 适度的资本支出 : 1亿5千2百万美元
- ✓ 本金偿还期 : 2.1年
- ✓ 年收入 : 1亿5千2百万美元 , 营业毛利 : 49%
- ✓ 超过20年的开矿期
- ✓ 马拉维是一个对采矿友好的稳定的非洲国家
- ✓ 铌铁的消费2002年到2007年期间每年增加21% , 1990年到2008年期间每年增加7.9% , 钢铁的消费1994年到2008年期间每年增加4.1%
- ✓ 铌是精密 (高强度 , 低合金) 钢材必不可少的添加剂 – 发展中国家的单位消耗量在强劲的增长
- ✓ 铌铁价格从历史上来说非常稳定
- ✓ 对炼钢厂而言 , 铌铁只是很小的一部分投入

Corporate Overview



Strategy Summary

- To become a multi-commodity minor metals producer by 2012
- Low capital cost, high margin, quick capital payback
- +20 year mine life, significant exploration upside
- Kanyika Niobium Project NPV (post tax) ~US\$200m
- In demand products (US\$ revenue p.a.):

FeNb (\$117m)

Ta₂O₅ (\$23m)

U₃O₈ (\$13m)



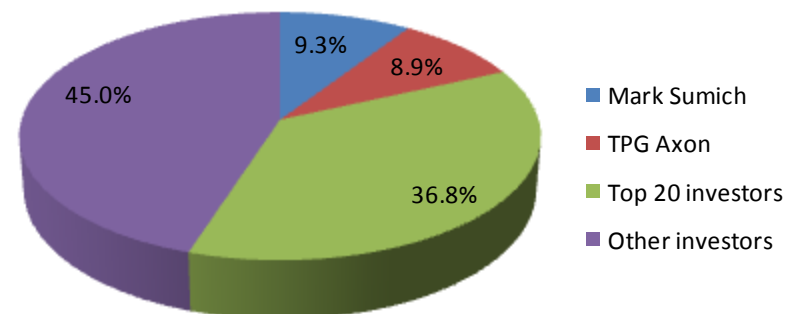
Capital Structure (ASX :GBE)

Ordinary shares	68.7m
Current Price	A\$0.13
Market Capitalisation (30 day VWAP)	A\$8.9
Options (unlisted)	3.2m
Cash (at 31 March 2009)	A\$3.7m
12 month share price range (High/Low)	\$1.10 - \$0.08

Board and Management

David Sumich	Chairman
Mark Sumich	Managing Director
Julian Stephens	Executive Director – Exploration
Ian Cowden	Consulting Geologist
Andries Kruger	General Manager – Africa
David Tullberg	GIS/Database Manager

Ownership Structure



公司简介



战略概要

- 到2012年，成为一个多元的稀有金属生产商
- 低成本，高回报，快速的本金偿还期
- 超过20年的采矿期，重要的开采优势
- 坎伊卡铌矿工程净现值（税后）~ 2亿美元
- 销路好的产品（年收入：美元）：
铌铁（117百万） 五氧化二钽（23百万） 八氧化三铀（13百万）



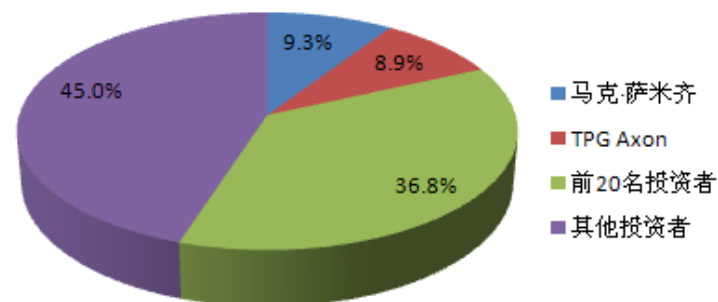
资本结构（澳交所：GBE）

普通股	68.7百万
现价	0.13澳元
市场资本（30天加权平均价）	8.9澳元
期权（未上市的）	3.2百万
现金（于2009年03月31日）	3.7百万澳元
12个月股价范围（高/低）	1.10-0.08澳元

董事会和管理团队

大卫·萨米齐	主席
马克·萨米齐	常务董事
朱利安·斯蒂芬斯	执行董事 – 勘测
伊恩·考登	地质学顾问
安德利斯·克鲁格	总经理 – 非洲
大卫·图尔伯格	地理信息系统/数据库 经理

所有者结构



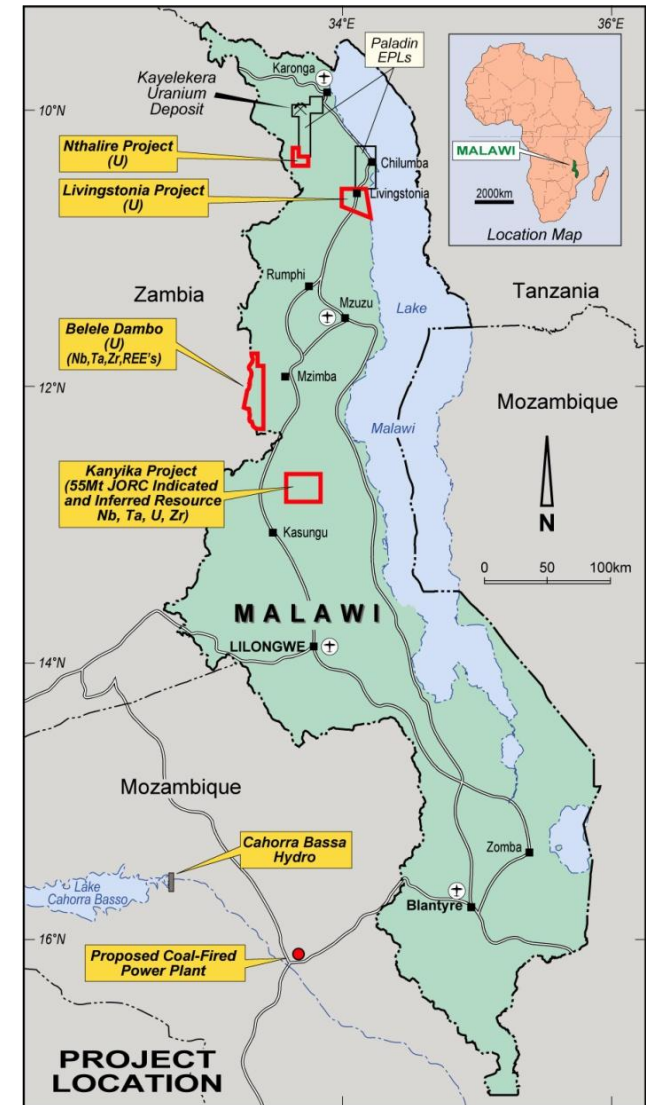
Kanyika Niobium Project



- ✓ 3,000tpa Nb metal production (+ credits)
- ✓ 1.7 - 2.3Mtpa* throughput – 20+ year mine life
- ✓ Massive exploration upside
- ✓ Open pit, low strip ratio (w:o) - 0.6-1.9:1*
- ✓ Pre-Feasibility Study underway
- ✓ Mini-pilot metallurgical program commenced to produce steel-grade FeNb – results due Q3 2009
- ✓ Formal discussions with Govt. Commenced
- ✓ Convenient road and port infrastructure; assessing hydro power option
- ✓ Marketing advisers appointed – first customer MOU signed

	55.3 Mt <u>Indicated & Inferred</u> Resource (1,500ppm Nb ₂ O ₅ cut-off)		24.0 Mt <u>Indicated & Inferred</u> High-Grade Component (3,000ppm Nb ₂ O ₅ cut-off)	
Metal	Tonnes	Grade (ppm)	Tonnes	Grade (ppm)
Nb₂O₅	165,980	3,000	91,170	3,800
U₃O₈	4,430	80	2,400	100
Ta₂O₅	7,750	140	4,080	174

* Range of figures are for years 1 and 10.

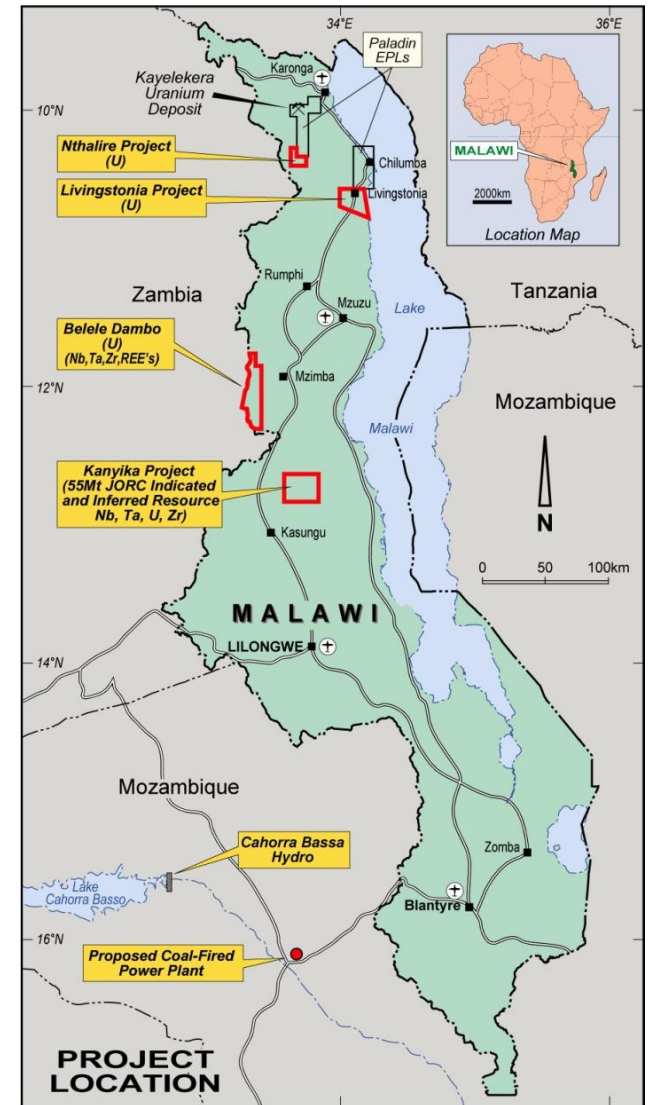


坎伊卡铌矿项目

- ✓ 每年3千吨铌金属生产（外加附属产品）
- ✓ 每年1.7到2.3百万吨*的生产能力 – 20年以上的采矿期
- ✓ 大量的开采利好
- ✓ 露天矿，低剥采比（废物：矿物 - 0.6-1.9:1）*
- ✓ 前期可行性研究在进行中
- ✓ 多功能小式玻璃反应釜冶金项目开始生产钢级别的铌铁 – 2009年第三季度出结果
- ✓ 与政府的正式商讨已经开始
- ✓ 便捷的使用道路和码头等基础设施；接入水电
- ✓ 任命了市场咨询人士 – 签订了第一份客户谅解备忘录

金属	55.3百万吨有指示的和推测的能源 (1,500百万分比纯度以上，五氧化二铌)		24.0百万吨有指示的和推测的能源 (3,000百万分比纯度以上，五氧化二铌)	
	吨	级别(百万分比纯度)	吨	级别(百万分比纯度)
五氧化二铌	165,980	3,000	91,170	3,800
八氧化三铌	4,430	80	2,400	100
五氧化二锆	7,750	140	4,080	174

* 数据的范围从1年到10年。



Path to Production



Sept 2008	Commence Pre-Feasibility Study
March 2009 – August 2009	Mini-pilot metallurgical program to produce FeNb (and provide samples for customers)
March 2009 – March 2010	Development Agreement with the Govt. of Malawi – determine fiscal regime for Project
March 2009 – Sept 2009	Secure US\$10m BFS funding (and strategic investor in Project)
Sept 2009 – Dec 2010	Binding customer off-take agreements
Sept 2009 – Dec 2010	Bankable Feasibility Study
Nov 2010 – Feb 2011	Finalise Project funding
Jan 2011 – March 2011	Commence construction
June 2012	Commence production

投产时间表



2008年09月	开始前期可行性研究
2009年03月-2009年08月	多功能小式玻璃反应釜冶金项目生产铌铁（并向客户提供样品）
2009年03月-2010年03月	开发与马拉维政府的协议 – 为项目制定税务制度
2009年03月-2009年09月	确保1千万美元的霸菱新加坡期货公司的短期债券（以及项目中的战略投资者）
2009年09月-2010年12月	约束客户的承购协议
2009年09月-2010年12月	银行能接受的可行性报告
2010年11月-2011年02月	最终确定项目的投资
2011年01月-2011年03月	开始建设
2012年06月	开始生产

Project Valuation



US\$ million	Initial Outlay	Year 1	Years 1-20
Capex	151.7		93
Revenue			
- FeNb		117.0	2,340
- Ta ₂ O ₅		22.7	457
- U ₃ O ₈		12.8	246
Total		152.5	3,043
Royalties (3%)		4.6	91
Net Income		147.9	2,952
Operating Costs			
- Mining		7.7	312
- Upstream processing (to conc.)		19.8	448
- Weak acid processing		4.9	98
- Strong acid processing		32.2	644
- Smelter		2.1	43
- Other		6.9	177
Total		73.6	1,722
Operating Margin		74.3	1,230
Project Valuation			
- Discount rate applied (% pa)			10%
- Net present value (post-tax)			US\$200M

Capex*	US\$M
- Upstream plant	85.9
- Acid plant	36.0
- Alloy plant	7.0
- General & other	22.8

* Excludes working capital

Production	tpa	MLbspa
- FeNb	3,000	6.6
- Ta ₂ O ₅	194	0.43
- U ₃ O ₈	117	0.26

Project Valuation	
- Ownership	100%
- Tax rate	30%
- IRR	33%
- Capital payback	2.1 years

项目评估



百万美元	创始费用	第一年	1-20年
资本支出	151.7		93
收入			
- 铌铁		117.0	2,340
- 五氧化二钽		22.7	457
- 八氧化三铈		12.8	246
总和		152.5	3,043
特殊使用权费(3%)		4.6	91
净收入		147.9	2,952
运营成本			
- 采矿		7.7	312
- 上游处理 (纯缩)		19.8	448
- 微酸处理		4.9	98
- 强酸处理		32.2	644
- 熔炼		2.1	43
- 其他		6.9	177
总和		73.6	1,722
运营盈利		74.3	1,230
项目评估			
- 折扣率(% 每年)			10%
- 净现值 (税后)			2亿美元

资本支出*	百万美元
- 上游工厂	85.9
- 酸处理厂	36.0
- 合金工厂	7.0
- 通常/其他	22.8

* 不包括营运资本

生产	吨每年	百万磅每年
- 铌铁	3,000	6.6
- 五氧化二钽	194	0.43
- 八氧化三铈	117	0.26

项目评估	
- 所有权	100%
- 税率	30%
- 内部收益率	33%
- 资本回收期	2.1 年

KANYIKA NIOBIUM PROJECT

坎伊卡铌矿工程

Resource



Metal	Indicated Resource			
	13.2Mt (1,500ppm Nb ₂ O ₅ cut-off)		Incl. 8.5Mt High-Grade (3,000ppm cut-off)	
	Tonnes	Grad2e (ppm)	Tonnes	Grade (ppm)
Nb ₂ O ₅	48,590	3,600	35,730	4,200
U ₃ O ₈	1,320	100	940	110
Ta ₂ O ₅	2,120	160	1,620	190

Metal	Inferred Resource			
	42.1Mt (1,500ppm Nb ₂ O ₅ cut-off)		Incl. 15.5Mt High-Grade (3,000ppm Nb ₂ O ₅ cut-off)	
	Tonnes	Grade (ppm)	Tonnes	Grade (ppm)
Nb ₂ O ₅	117,900	2,800	55,740	3,600
U ₃ O ₈	3,370	80	1,390	90
Ta ₂ O ₅	5,470	130	2,630	170

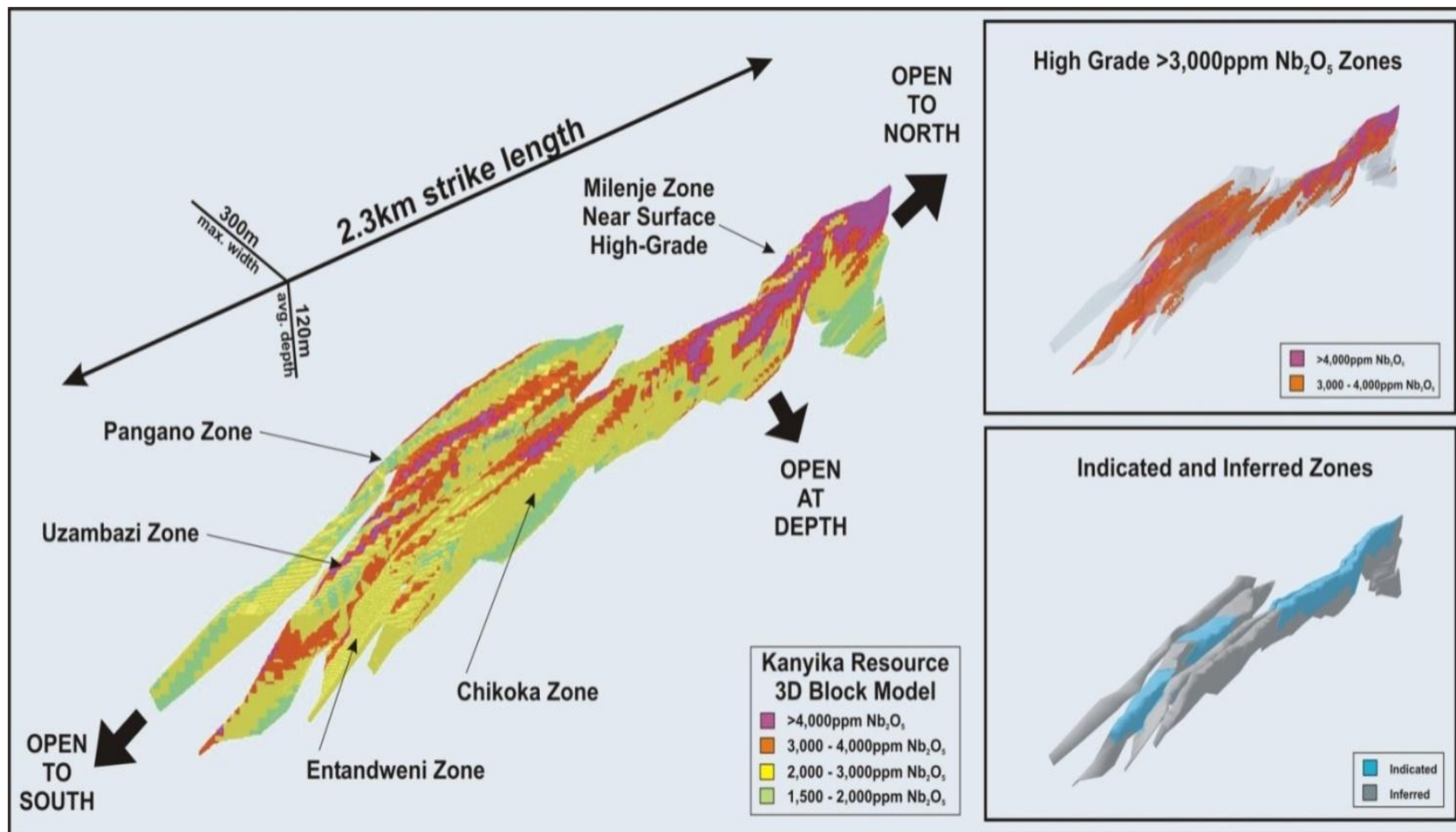
Metal	Total Resource (Indicated + Inferred)			
	55.3Mt (1,500ppm Nb ₂ O ₅ cut-off)		Incl. 24.0Mt High-Grade (3,000ppm Nb ₂ O ₅ cut-off)	
	Tonnes	Grade (ppm)	Tonnes	Grade (ppm)
Nb ₂ O ₅	165,980	3,000	91,170	3,800
U ₃ O ₈	4,430	80	2,400	100
Ta ₂ O ₅	7,750	140	4,080	174

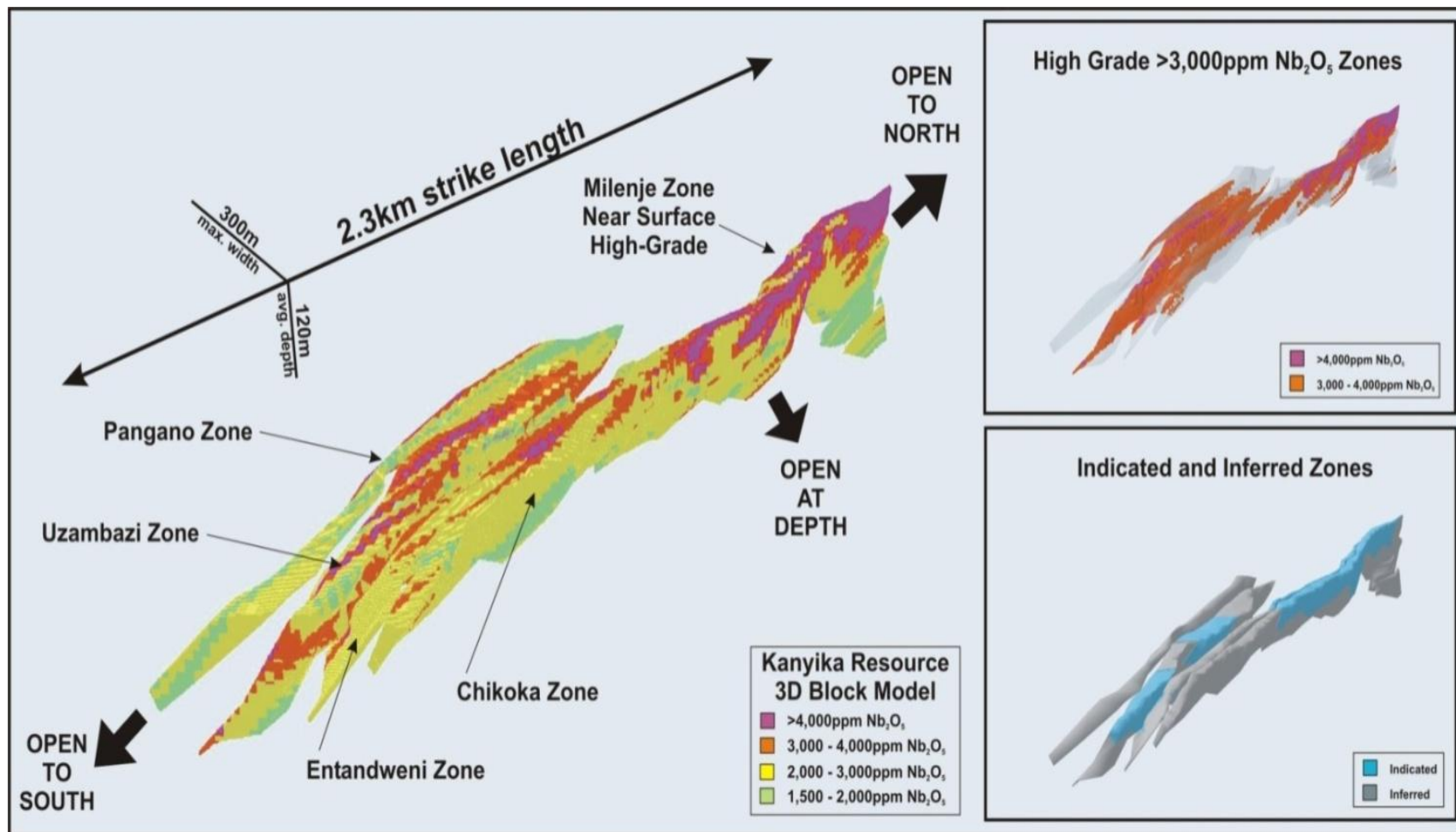
金属	有指示的资源			
	13.2百万吨 (1,500百万分比纯度，五氧化二铌)		包括8.5百万吨高级别的 (3,000百万分比纯度，五氧化二铌)	
	吨	级别 (百万分比纯度)	吨	级别 (百万分比纯度)
五氧化二铌	48,590	3,600	35,730	4,200
八氧化三铀	1,320	100	940	110
五氧化二钽	2,120	160	1,620	190

金属	推断的资源			
	42.1百万吨 (1,500百万分比纯度，五氧化二铌)		包括15.5百万吨高级别的 (3,000百万分比纯度，五氧化二铌)	
	吨	级别 (百万分比纯度)	吨	级别 (百万分比纯度)
五氧化二铌	117,900	2,800	55,740	3,600
八氧化三铀	3,370	80	1,390	90
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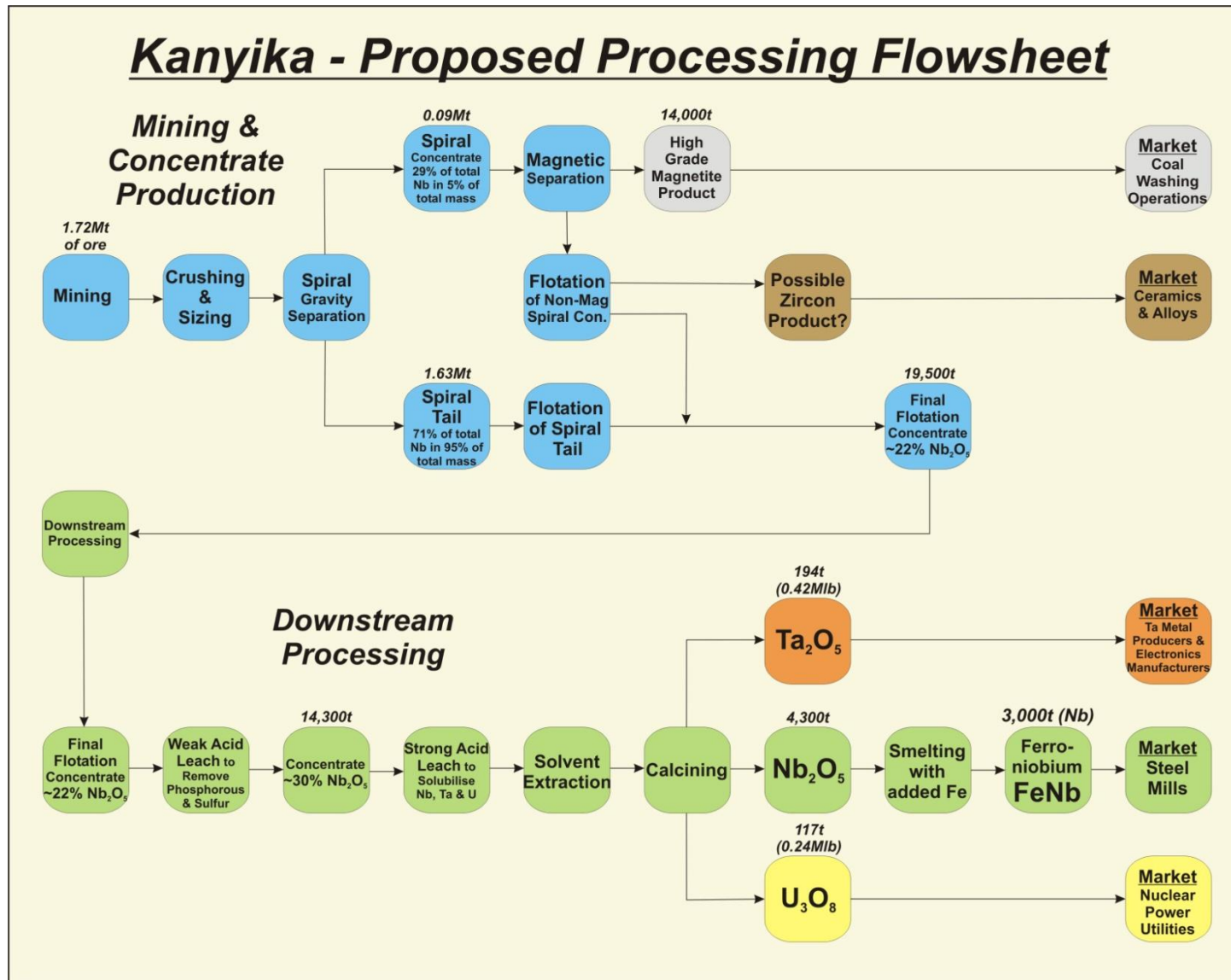
金属	总资源 (指示的+推断的)			
	55.3百万吨 (1,500百万分比纯度，五氧化二铌)		包括24.0百万吨高级别的 (3,000百万分比纯度，五氧化二铌)	
	吨	级别 (百万分比纯度)	吨	级别 (百万分比纯度)
五氧化二铌	165,980	3,000	91,170	3,800
八氧化三铀	4,430	80	2,400	100
五氧化二钽	7,750	140	4,080	174

Deposit

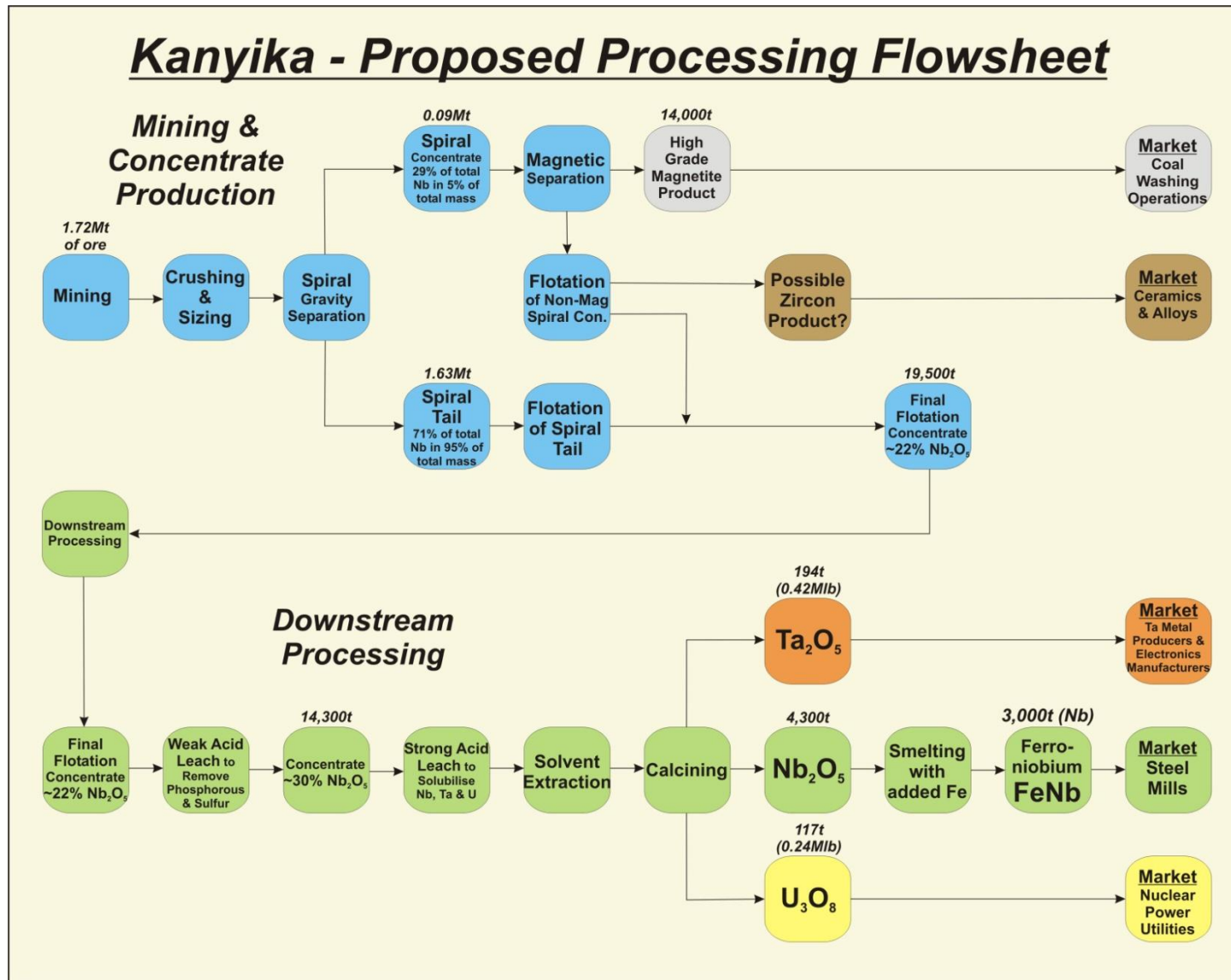




Flowsheet



流程图



- Mini-pilot metallurgical program to produce steel-grade FeNb well underway with further encouraging results
- Mini-pilot program targeting production of 5-10kg of FeNb from ~60kg of concentrate, in addition to tantalum oxide and uranium oxide by-products
- Improvement in concentrate grade achieved: ~30% Nb₂O₅ (from ~22%) and mass reduction by ~27% through weak acid leaching of flotation concentrate
- Bulk sample now at SGS Lakefield (Canada) for major flotation work
- Downstream processing now planned to incorporate acid leaching phases followed by smelting to produce FeNb – significant additional revenue from tantalum and uranium by-products and superior FeNb specification/product
- Potential for other possible by-products:
 - ▶ High-grade magnetite
 - ▶ Ceramic grade feldspar
 - ▶ Zircon/Zirconia products

- 多功能小式玻璃反应釜冶金项目生产钢级别的铌铁，伴随着进一步的鼓舞人心的结果
- 多功能小式玻璃反应釜项目目标是从60公斤的精砂中提炼出5-10克的铌铁，附带着氧化钽和氧化铀的副产品
- 实现精矿级别的改进：~ 30% 五氧化二铌（从~ 22%），通过对浮选精矿的弱酸过滤大量减少了27%
- 大样品现在在SGS Lakefield研究实验室（加拿大）为主要的浮选工作
- 下游的处理过程现在准备是结合酸过滤阶段，接下来通过熔炼来生产铌铁 – 副产品钽和铀带来可观的附加收入和品质优良的铌铁产品
- 潜在的其他有可能的副产品：
 - ▶ 高级别的磁铁
 - ▶ 陶器级的长石
 - ▶ 锆石/氧化锆产品

Products & Markets

Processing



Ferriobium
FeNb

Ta₂O₅

U₃O₈

	Ferro-Niobium	Tantalum	Uranium/Yellowcake
Kanyika Production (p.a.)	➤ 3,000t	➤ 194t/0.43Mlbs	➤ 117t/0.26Mlbs
Market Share (%)	➤ 3-4% (2013) ¹	➤ 8%	➤ <0.2%
Market Size 2008 (p.a.)	➤ 67,000t	➤ 5.3 Mlbs	➤ 63,000t
Kanyika Production	➤ Primary	➤ By-product	➤ By-product
Price (Globe Fin. Model)	➤ US\$39/kg (metal)	➤ US\$65/lb	➤ US\$50/lb
Globe Revenue (%)	➤ 77%	➤ 15%	➤ 8%
Customers	➤ Steel mills	➤ Capacitor manuf.	➤ Nuclear power plants
Product Specification	➤ 66.5% Nb, 33.5% Fe	➤ 99% Ta ₂ O ₅	➤ Standard grade

1. Market share based upon estimated market size in 2013 (75,000-100,000tpa)

处理过程



Ferroniobium
FeNb



Ta₂O₅

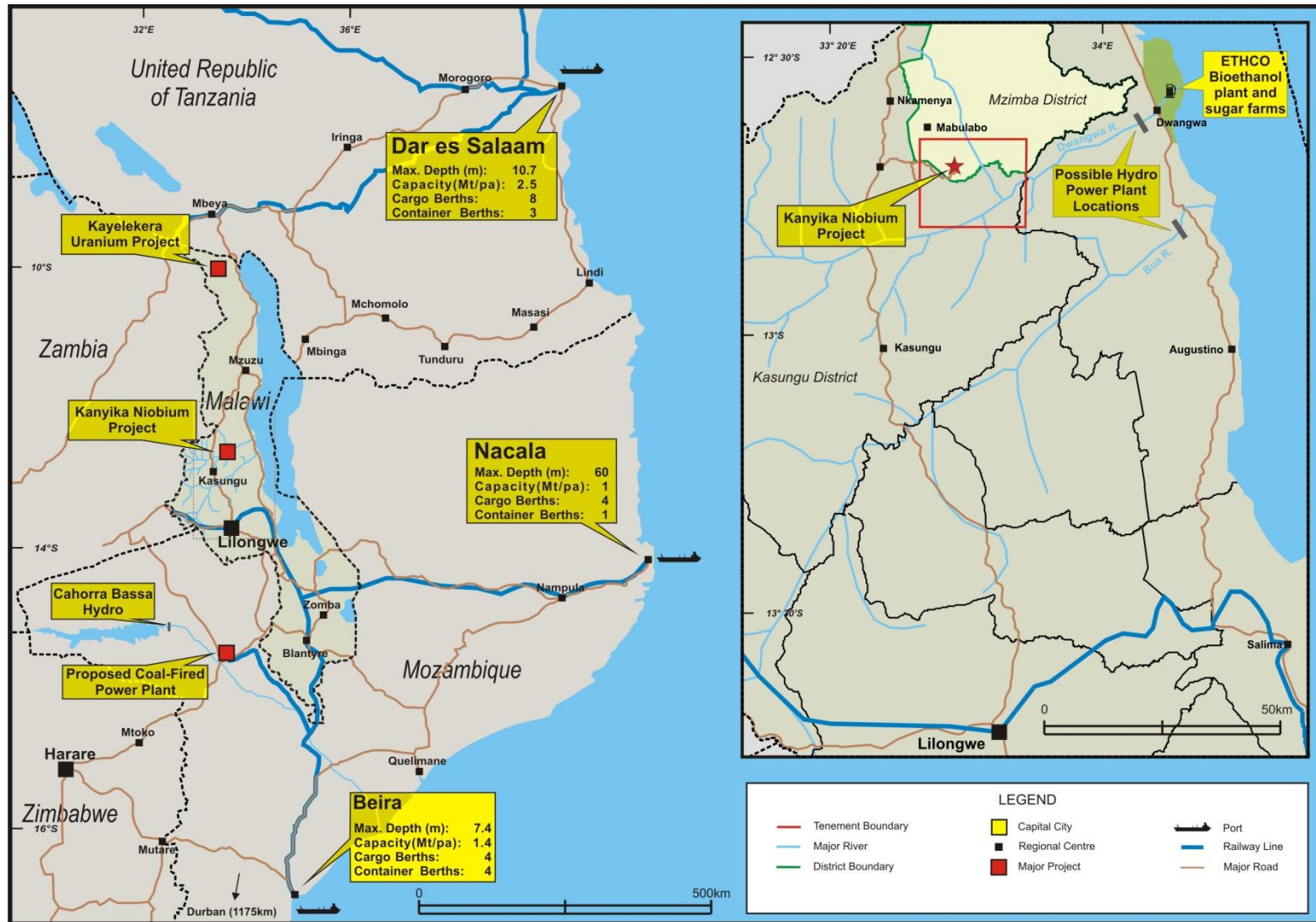


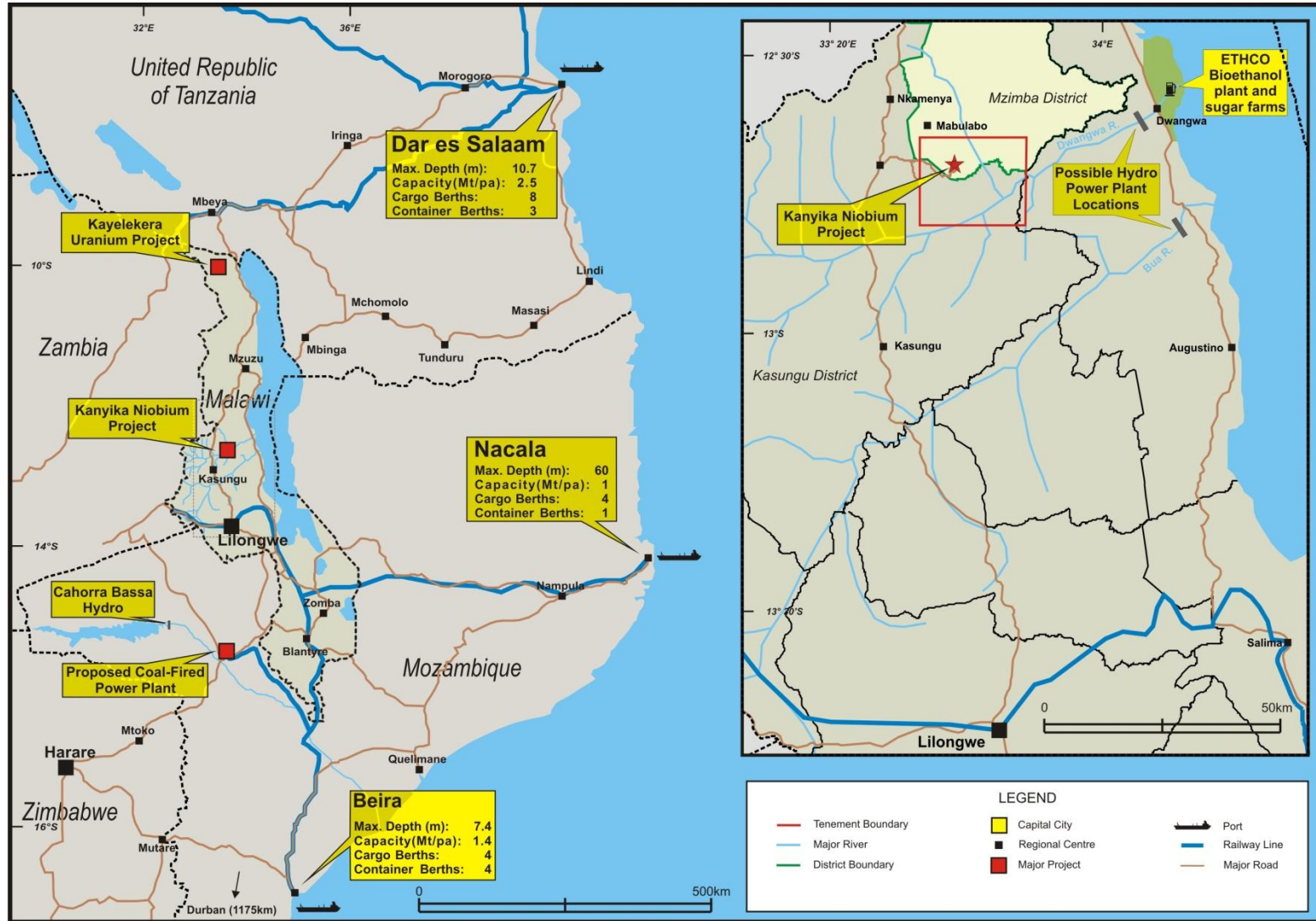
U₃O₈

	铌铁	钽	铀/黄饼
坎伊卡生产 (每年)	➤ 3,000吨	➤ 194吨/0.43百万磅	➤ 117吨/0.26百万磅
市场占有率 (%)	➤ 3-4% (2013) ¹	➤ 8%	➤ <0.2%
市场大小2008年 (每年)	➤ 67,000吨	➤ 5.3 百万磅	➤ 63,000吨
坎伊卡产品	➤ 主要产品	➤ 副产品	➤ 副产品
价格 (全球金融模型)	➤ 每公斤39美元 (金属)	➤ 每磅65美元	➤ 每磅50美元
环球公司收入 (%)	➤ 77%	➤ 15%	➤ 8%
客户	➤ 钢厂	➤ 电容器生产商	➤ 核电站
产品规格	➤ 66.5% 铌, 33.5% 铁	➤ 99% 五氧化二钽	➤ 标准级别

1. 市场占有率是建立在2013年估计的市场大小为基础的 (75,000-100,000吨每年)

Infrastructure





Financials



US\$ million	Unit Cost	Year 1	Unit Cost	Year 10
Production¹				
- Strip ratio (waste:ore)		0.6:1		1.9:1
- Mill feed (Mtpa)		1.72		2.26
- Nb ₂ O ₅ (ppm)		3,831		2,919
- Ta ₂ O ₅ (ppm)		173		138
- U ₃ O ₈ (ppm)		104		78
Revenue		152.5		153.3
Royalties (3%) ²		4.6		4.6
Net Income		147.9		148.7
Operating Costs				
- Mining	\$2.80/t mined	7.7	\$2.80/t mined	18.3
- Upstream processing (to conc.)	\$11.5/t milled	19.8	\$10.5/t milled	19.8
- Weak acid processing	\$250/t conc	4.9	\$250/t conc	4.9
- Strong acid processing	\$2,250/t conc	32.2	\$2,250/t conc	32.2
- Smelter	\$500/t conc	2.1	\$500/t conc	2.1
- Other		6.9		13.9
Total Operating Costs		73.6		91.2
Sustaining capital ³		0		4
Pre-Tax Free Cash Flow	48.7% margin	74.3	34.9% margin	53.5

1. Constant production of 3,000tpa over life-of-mine, volume of Ta and U products varies slightly based upon grade. Constant recovery of 65%, mass pull to concentrate of 19,508t and mass post weak acid leach of 14,306t; 2. Royalty rate is an assumption; 3. US\$4m in every year after year 1.

百万美元	单位成本	1年	单位成本	10年
产品¹				
- 剥采比 (废物 : 矿物)		0.6:1		1.9:1
- 磨给材料 (每年百万吨)		1.72		2.26
- 五氧化二铌 (百万分比纯度)		3,831		2,919
- 五氧化二钽 (百万分比纯度)		173		138
- 八氧化三铀 (百万分比纯度)		104		78
收入		152.5		153.3
特殊使用权费 (3%) ²		4.6		4.6
净收入		147.9		148.7
运营成本				
- 采矿	每吨2.8美元, 矿品	7.7	每吨2.8美元, 矿品	18.3
- 上游处理 (纯缩)	每吨11.5美元, 矿品	19.8	每吨10.5美元, 矿品	19.8
- 微酸处理	每吨250美元, 纯缩	4.9	每吨250美元, 纯缩	4.9
- 强酸处理	每吨2250美元, 纯缩	32.2	每吨2250美元, 纯缩	32.2
- 熔炼	每吨500美元, 纯缩	2.1	每吨500美元, 纯缩	2.1
- 其他		6.9		13.9
总运营成本		73.6		91.2
可持续资本 ³		0		4
税前自由现金流	48.7% 收益率	74.3	34.9% 收益率	53.5

1、采矿期内每年300吨不间断的生产, 钽和铀产品的数量可能由于等级的不同而稍有不同。持续的恢复65%, 大量的纯缩19,508吨和弱酸过滤后14,306吨。2、特殊使用权费率是个假定。3、第一年以后每年都有4百万美元。

Niobec Mine Comparison



	Niobec Mine	Kanyika Project ¹
Owner	IAMGOLD (TSX: IMG)	Globe (ASX: GBE)
Location	Quebec, Canada	Mzimba, Malawi
Commencement of FeNb Production	1994	2012
Resources/Reserves (Mt)	52.3 (incl. 23.4 reserves)	55 (Indicated + Inferred resources)
Grade (ppm)		
- Nb ₂ O ₅	6,200 ³	3,831
- Ta ₂ O ₅	n/a	173
- U ₃ O ₈	n/a	104
- eNb ₂ O ₅ ⁶	6,200	4,759
Mining Method	Underground (>400m)	Open pit (from surface)
FeNb Production Capacity (tpa) (Nb metal content)	4,500	3,000 (+194t Ta ₂ O ₅ , 117t U ₃ O ₈)
FeNb Production (tpa)	4,200	As above
Mined Material (Mtpa)	1.80	2.76
Mill Feed (Mtpa)	1.79	1.72 (0.6:1 strip ratio)
Recovery (%)	58 ²	65
Revenue (US\$m)	143.1	152.5
FeNb Price (US\$/kg)	37.5 ⁴	39
Operating Profit (US\$m)	79.6 (Q4 23.7)	74.3
Operating Margin (%)	56% (Q4 65%)	49%
Implied Market Capitalisation (US\$m)	281 ⁵ (~3.5x 08 EBITDA) ⁷	5.6

1. All Globe production-related figures are year 1-5 figures, and thereafter vary over the 20 year life-of-mine. All Niobec figures are for 2008; 2. Claude Dufresne and Ghislain Goyette, "The Production of Ferroniobium at the Niobec Mine"; 2001 3. Reserve/resource grade is 5,900ppm, currently mining 6,200ppm material; 4. Recovered price in Q4 2008 – see 2008 IAMGOLD Annual Report, p.98; 5. IAMGOLD Corporation Research Report, Paradigm Capital, 15 January 2009 – Niobec representing 7.9% of 'sum-of-the-parts' IAMGOLD valuation; IAMGOLD market capitalisation at 12 May 2009 US\$3.55bn; 6. equivalent Nb₂O₅ calculated using Ta₂O₅ and U₃O₈ grades shown and respective prices from p.15; 7. 2008 Capex \$22.9m.

尼奥贝克矿区对照



	尼奥贝克矿	坎伊卡工程 ¹
所有者	亚姆黄金公司(多伦多证交所IMG)	环球金属矿业公司 (澳交所 : GBE)
地址	加拿大魁北克省	马拉维姆津巴
开始生产铌铁的时间	1994	2012
资源/储备 (百万吨)	52.3 (包括23.4储备)	55 (有指示的和推断的能源)
级别 (百万分比纯度)		
- 五氧化二铌	6,200 ³	3,831
- 五氧化二钽	无	173
- 八氧化三铀	无	104
- e五氧化二铌 ⁶	6,200	4,759
采矿方式	地下 (超过400米)	露天矿 (从表面开采)
铌铁生产能力 (吨每年) (铌金属成分)	4,500	3,000 (外加194吨五氧化二钽和117吨八氧化三铀)
铌铁生产 (吨每年)	4,200	如上
矿出材料 (百万吨每年)	1.80	2.76
磨给材料 (百万吨每年)	1.79	1.72 (0.6:1 剥采比)
收获 (%)	58 ²	65
收入 (百万美元)	143.1	152.5
铌铁价格 (美元每公斤)	37.5 ⁴	39
营业毛利 (百万美元)	79.6 (第四季度 23.7)	74.3
盈利幅度 (%)	56% (第四季度 65%)	49%
推断的市场资本 (百万美元)	281 ⁵ (~3.5x 2008年息税折旧摊销前利润) ⁷	5.6

1、所有环球公司产品相关的数据都是1-5年的数据，从那以后在20年的采矿期范围内是不同的。所有尼奥贝克的数据都是2008年的。 2、选自于2001年克劳德·杜弗雷斯内和吉斯兰·格威特编著的《尼奥贝克矿区铌铁的生产》一书。3、储备/能源的级别为5,900百万分比纯度，现在开采的是6,200百万分比纯度的材料。4、2008年第四季度发布的价格 – 参见亚姆黄金公司2008年度报告第98页。5、亚姆黄金公司研究报告，范式资本，2009年01月15日 – 尼奥贝克代表了亚姆黄金公司总合法评估的7.9%：亚姆黄金公司2009年05月12日的市场资本为35亿5千万美元。6、等同的五氧化二铌由本说明书15页显示的五氧化二钽和8八氧化三铀级别计算出来。7、2008年资本支出为2千2百90万美元。



Malawi



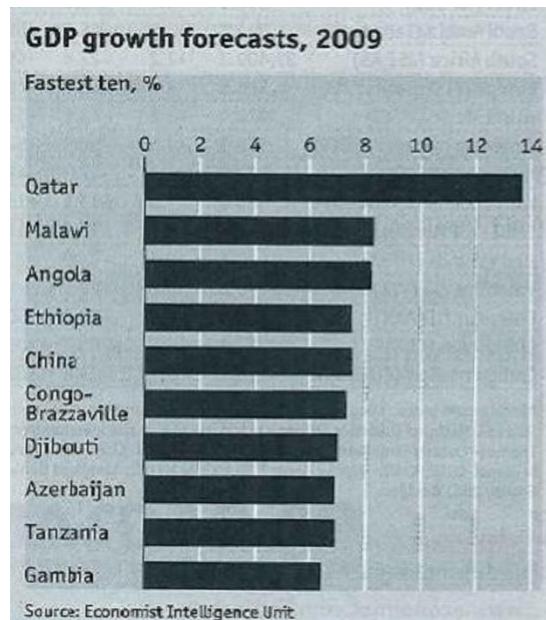
Republic of Malawi	
Size	118,484km ²
Capital	Lilongwe
Official Language	English
Government	Multi-party democracy
Elections	19 May 2009
Legal system	English Common Law
Population (2008 est.)	13,933,868
GDP/capita (US\$ at PPP)	590
Local Currency	Kwacha

Malawi Economy Grew by 9.7% in 2008 – IMF

“Malawi’s economy expanded by an estimated 9.7 percent in 2008, boosted by an expansion of the telecommunication industry, high tobacco sales and a strong maize harvest, the International Monetary Fund said.

The Southern African nation has been enjoying a relative economic boom, and growth averaged 7 percent in the past three years. It managed to bring down inflation from 30 percent to single digits last year.

Finance Minister Goodall Gondwe said that the 2008 growth is three times the continent’s forecast of 3 percent.” (Reuters, 1 April 2009)



Opening of Kayelekera Uranium Mine

“The Directors of Paladin Energy Ltd are very pleased to announce that its SECOND mine, the Kayelekera Uranium Mine in Malawi, has been officially opened by His Excellency, Dr Bingu wa Mutharika, the President of the Republic of Malawi.

Paladin’s Kayelekera Uranium Mine has been successfully commissioned with the plant showing full capability to operate throughout its flowsheet with yellowcake produced during this phase. The project remains on schedule for its ramp-up.” (John Borshoff, Managing Director, Paladin Energy Limited, 20 April 2009)



马拉维



马拉维共和国	
面积	118,484平方公里
首都	利隆圭
官方语言	英语
政府	多党派民主
选举日	2009年05月19日
法律系统	英国普通法
人口 (2008年估计数)	13,933,868
人均国民生产总值 (美元)	590
本地货币	克瓦查

2008年马拉维经济增长了9.7% - 国际货币基金组织

2008年马拉维的经济估计扩展了9.7%，这是由通信行业的大发展、高的烟草价格和玉米的大丰收带动的，国际货币基金组织说。

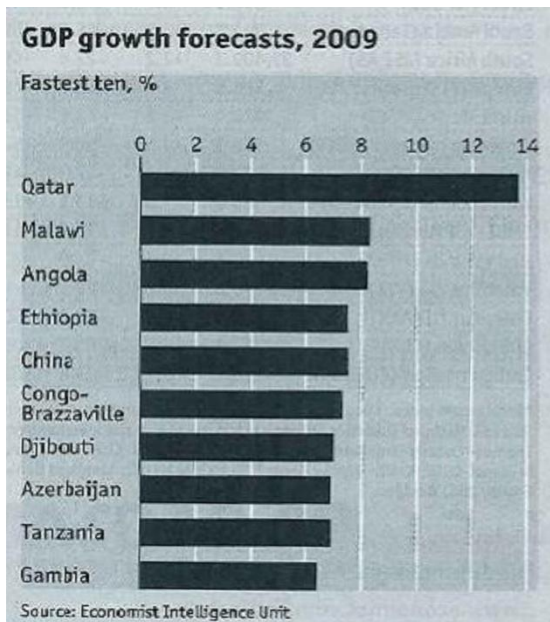
这个南非国家正经历着经济的大发展，在过去的3年里平均增长7%。去年它将过去30%的通货膨胀率控制在一位数以内。

财政部长古德尔·贡德韦指出“2008年的增长为3倍于非洲大陆预期的3%。(路透社，2009年04月01日)

开放卡耶勒克拉铀矿

“帕拉丁能源公司的董事们非常兴奋的宣布他们的第二个矿 - 卡耶勒克拉铀矿正式由马拉维共和国总统宾古·瓦·穆塔里卡博士阁下开放了。

“帕拉丁的卡耶勒克拉铀矿已经成功地开始了运作，这阶段按照流程图正在全力的生产铀黄饼。这个项目正按照计划准备着生产能力的提升。”(常务董事约翰·鲍绍夫，帕拉丁能源公司，2009年04月20日)



Community & Government Relations



Community Engagement

Globe conducts periodic (six monthly) formal meetings at Kanyika with Mabulabo Traditional Authority, representatives of the Ministry of Mines & Energy and the Mzimba District Commissioner's Office. Photo (right) from Kanyika, November 2008.

The Community is consulted on all matters relating to Globe's exploration activities, future activities and current and future employment of locals.

Globe has employed and trained up to 44 individuals per year from the surrounding area; recently contributed 100 desks to the Kanyika Secondary School.



Government Negotiations

Formal discussions with the Government of Malawi on all aspects of the Project (fiscal regime etc) commenced in March 2009 (picture right).

Expected to result in a Development Agreement with the Government of Malawi, encompassing all rights and obligations applying to Kanyika.

Discussions to recommence in June 2009 after the Presidential and National Assembly elections on 19 May 2009.



社区和政府关系

社区参与

在坎伊卡，环球公司与吗布拉伯传统机构、矿业与能源部以及姆津巴地区委员会的代表们定期举办正式的会议（每六个月）。右面的照片拍摄于2008年11月于坎伊卡。

这个社区与环球公司商讨着有关采矿的各项事宜，包括将来的活动，现在和将来的本地雇工。

环球公司每年从附近的区域中雇佣和培训44名员工；最近向坎伊卡中学捐献了100张课桌。

与政府商谈

与马拉维政府关于工程的各个方面（税务制度等）的商谈开始与2009年03月。（照片见右）

期待着与马拉维政府开发协议的结果，包含适用于坎伊卡的所有权利和义务。

在2009年05月19日总统和国民大会选举结束后重新开始商谈。



NIOBIUM

铌

Key Facts



Chemical Symbol	Nb; atomic # 41 on periodic table
Market Size (2008 est.)	67,000t (Nb metal content)
Market Value (2008 est.)	US\$2.8bn (@ average US\$42/kg Nb metal)
Segments	90%+ consumed in steel industry as FeNb
FeNb Growth	21% CAGR (2002-07); 7.9% CAGR (1990-08) ¹
World Steel Growth	4.1% CAGR (1994-08) ²
Properties	Small addition to molten steel acts as grain refiner, encouraging formation of a micro-structure that adds toughness, corrosion resistance, tensile strength, formability, and strength
Segments (within steel industry)	Nb primarily used in steel industry in High-Strength Low-Alloy Steels (HSLA), or micro-alloyed steels; ~10-12% steels are HSLA ³
ppm	HSLA steels usually contain 350-500 g/tonne (0.035-0.05%) Nb; up to 1000 g/tonne (e.g.BSC 4360:55E); addition of 0.01% Nb strengthens steel by 35-40 MPa ⁴
Benefits	In addition to performance, also lighter, requires less raw materials, lower energy and transport costs, more profitable for producers
Products/Industries	Auto, construction, ship building, oil and gas, heavy machinery, transport
Substitutes/Related Commodities	V and Mo used in HSLA; Ni and Cr used to impart corrosion resistance in stainless steels; Ti and Ta used in high temperature applications
Market Structure	95%+ FeNb traded on annual, privately negotiated, off-take contracts between mills and producer

1: CBMM, TIC Conference, Shanghai, 2008 (www.cbmm.br); USGS Minerals Yearbook (www.usgs.gov); 2: USGS and World Steel Association (www.worldsteel.org); 3: W. B. Morrison, "Overview of Microalloying in Steel", Vanadium International Technical Committee (www.VANITEC.org) estimates that HSLA steel accounts for approx. 12% of all steel produced 4: Globe Mining & Metals commissioned research, Mining Research (www.miningresearch.co.uk).

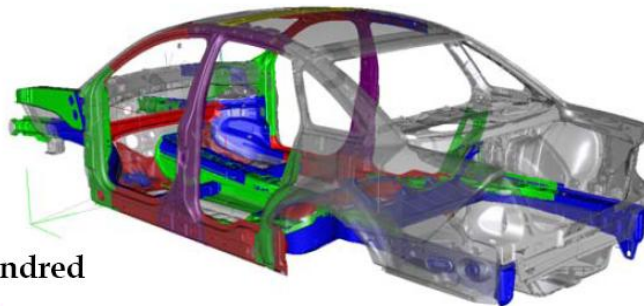
主要事实



化学符号	li	Nb；元素周期表上第41号
市场大小 (2008年估计数)		67,000吨 (铌金属产品)
市场价值 (2008年估计数)		28亿美元 (每公斤的铌金属平均价格为42美元)
主要用途		90%以上被用于钢铁工业，如铌铁
铌铁增长		21% 复合年均增长率 (2002-2007年)，7.9% 复合年均增长率 (1990-2008年) ¹
世界钢材增长		4.1% 复合年均增长率 (1994-2008年) ²
属性		钢液的很小部分的附加成分，用作晶粒细化剂，改变其微观结构，从而增加韧性，防锈，增加抗张强度，可模锻性及强度
主要用途 (钢铁工业内部)		铌主要被用在钢铁工业的高强度低合金钢上，或者微合金钢；~10-12% 的钢丝高强度低合金钢。
百万分比纯度		每吨高强度低合金钢通常含有350-500克的铌 (0.035-0.05%)；最多不超过每吨1000克 (例如：BSC 4360:55E)；附加0.01% 的铌能够增加35-40的钢铁强度
利益		除了好的表现之外，分量轻，需要较少的原材料，低能耗和运输成本，为厂商带来更高的利润
产品/工业		汽车业，建筑业，造船业，石油和天然气，重金属和运输
替代品/相关产品		钒和钼用在高强度低合金钢；镍和铬用于不锈钢的防锈上面；钛和钽用在高温仪器上
市场结构		每年成交95%以上的铌铁，私下商谈，钢厂和生产商的承购

1、巴西矿冶公司，TIC会议，上海，2008年 (www.cbmm.br)，美国地质勘探局，矿业年册 (www.usgs.gov)。2、美国地质勘探局和世界钢协 (www.worldsteel.org)。3、W. B. 莫里森，《微合金钢概况》，国际钒技术委员会 (www.VANITEC.org) 估计高强度低合金钢占了所有钢产量的大约12%。4、全球矿产金属委员会研究，矿业研究 (www.miningresearch.co.uk)。

Products



Ford Five Hundred

Green: HSLA 250

Blue: HSLA 350

Yellow: HSLA 550

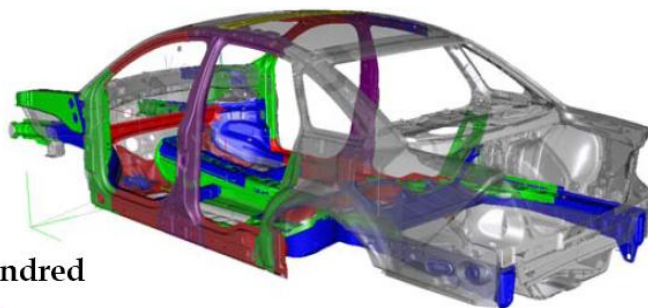
Red: DP 600

Purple: Inner: Top DP600 / Bottom HSLA 250

Outer: Top DP600 / Bottom Mild Steel

US\$4kg of niobium used in the manufacture of a mid-sized vehicle would save 100kg of steel, which would translate into fuel savings of half a litre per 100km¹





Ford Five Hundred

Green: HSLA 250

Blue: HSLA 350

Yellow: HSLA 550

Red: DP 600

Purple: Inner: Top DP600 / Bottom HSLA 250

Outer: Top DP600 / Bottom Mild Steel

4公斤的铌用于制造中型汽车能够节省100公斤钢，从而使之每100公里节省0.5升汽油¹



1、“尽管钢材需求减少，铌价保持高位，需求稳定。”矿业周刊，2008年11月07日

Market Structure



Company	Mine	Nb Production 2008	Market %
CBMM	Araxa, Brazil	51,000	76.1%
Anglo American	Catalao, Brazil	5,000	7.5%
IAMGOLD	Niobec, Canada	4,200	6.3%
Chinese/Others	Purchased ores	1,500	2.2%
Total FeNb (Nb content)		61,700	92.1%
Non-Steel Nb production	Various	5,300	7.9%
Total Nb Production		67,000	100%

New Producers	Mine	Nb Production	Year
Globe	Kanyika, Malawi	3,000	2012
Rosspetsplav	Luesche, DRC/Russia	1,500	2009

公司	矿址	2008年铌产量	市场份额%
巴西矿冶公司	巴西 阿拉沙	51,000	76.1%
英美集团	巴西 卡塔劳	5,000	7.5%
亚姆黄金公司	加拿大 尼奥贝克	4,200	6.3%
中国/其他	购买的矿	1,500	2.2%
总铌铁产量 (铌产品)		61,700	92.1%
非钢铌产量	不同	5,300	7.9%
总铌产量		67,000	100%

新生产商	矿址	铌产量	年
环球金属矿产公司	马拉维 坎伊卡	3,000	2012
罗斯佩茨普拉乌	俄罗斯/刚果 路易斯切	1,500	2009

“The level of consumption of [niobium and tantalum] is to a large extent an indicator of a nation’s technical prowess.”

(E. G. Polyakov & L. P. Polyakova, “Current Trends in the Production of Tantalum and Niobium”, *Metallurgist*, Vol. 47, Nos. 1-2, 2003)

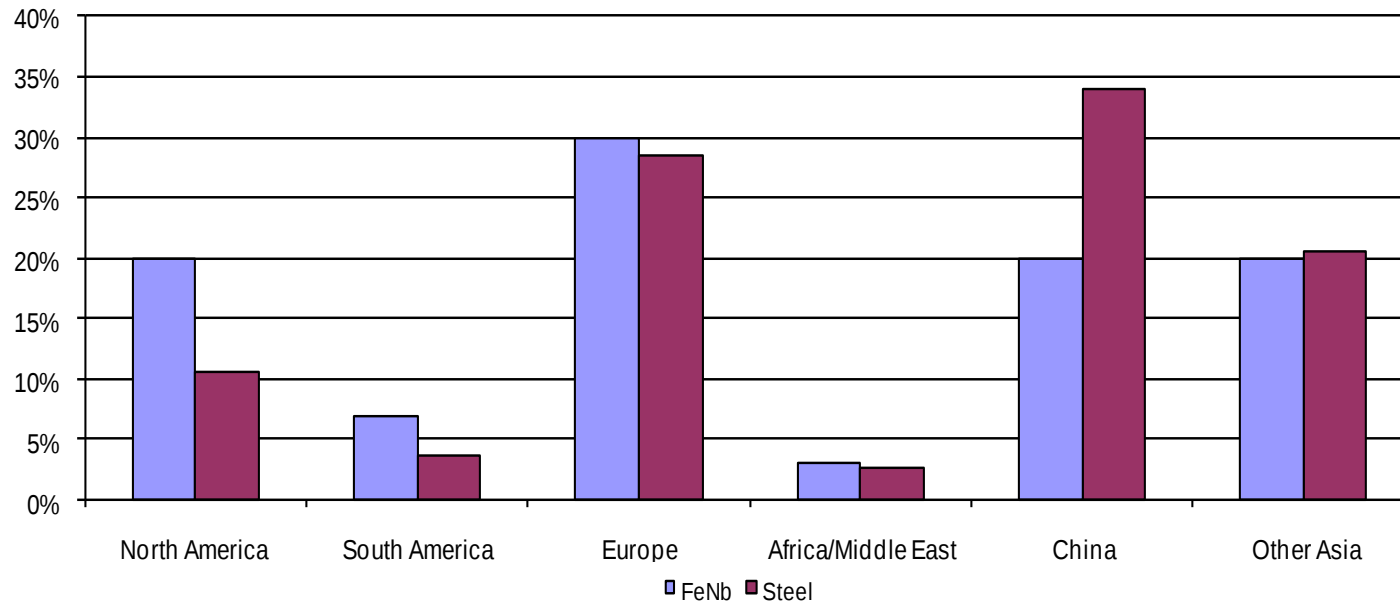
“In 2008, ferro-niobium was used in about 10% of total steel production. There is good potential for that figure to grow, perhaps to as much as 20%, as higher-quality steels continue to replace mild steel in a number of applications.”

(Roskill, “*The Economics of Niobium*”, 11th edition, 2009; www.roskill.co.uk)

“The best substitute for steel is better steel.”

(CBMM, “*Niobium – The Capacity Expansion Project at CBMM*”, TIC Conference Presentation, Shanghai, 2008)

Comparative Market Share by Region: FeNb v Steel Consumption, 2006



“铌和钽的消费水平是衡量一个国家科技实力的重要指数。”

(E. G. 波利雅科夫和L. P. 波尔雅科娃, 《当今钽和铌的生产趋势》, 冶金学家, 第47节, 2003年1-2刊)

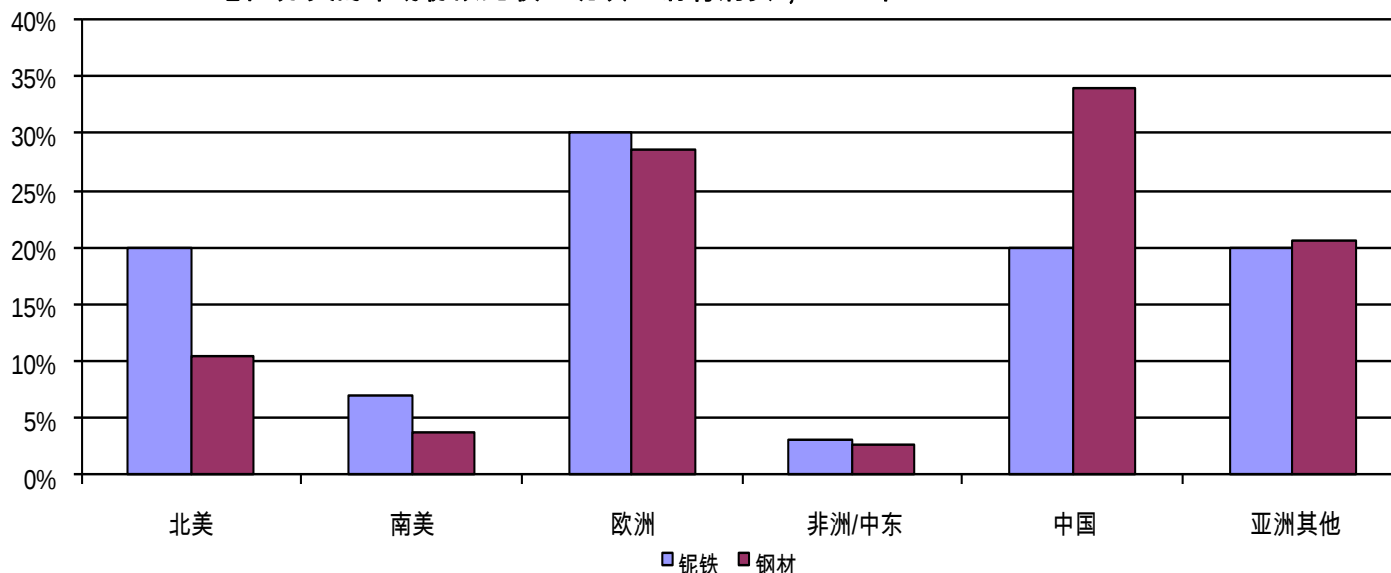
“2008年, 铌铁在整个钢铁生产中占了10%的比重。由于在大量的产品生产中高级钢材持续了中低质钢材, 这个数值有可能继续增长, 达到20%。”

(罗斯基尔, 《铌经济》, 第11版, 2009年; www.roskill.co.uk)

“钢材最好的替代品是更好的钢材。”

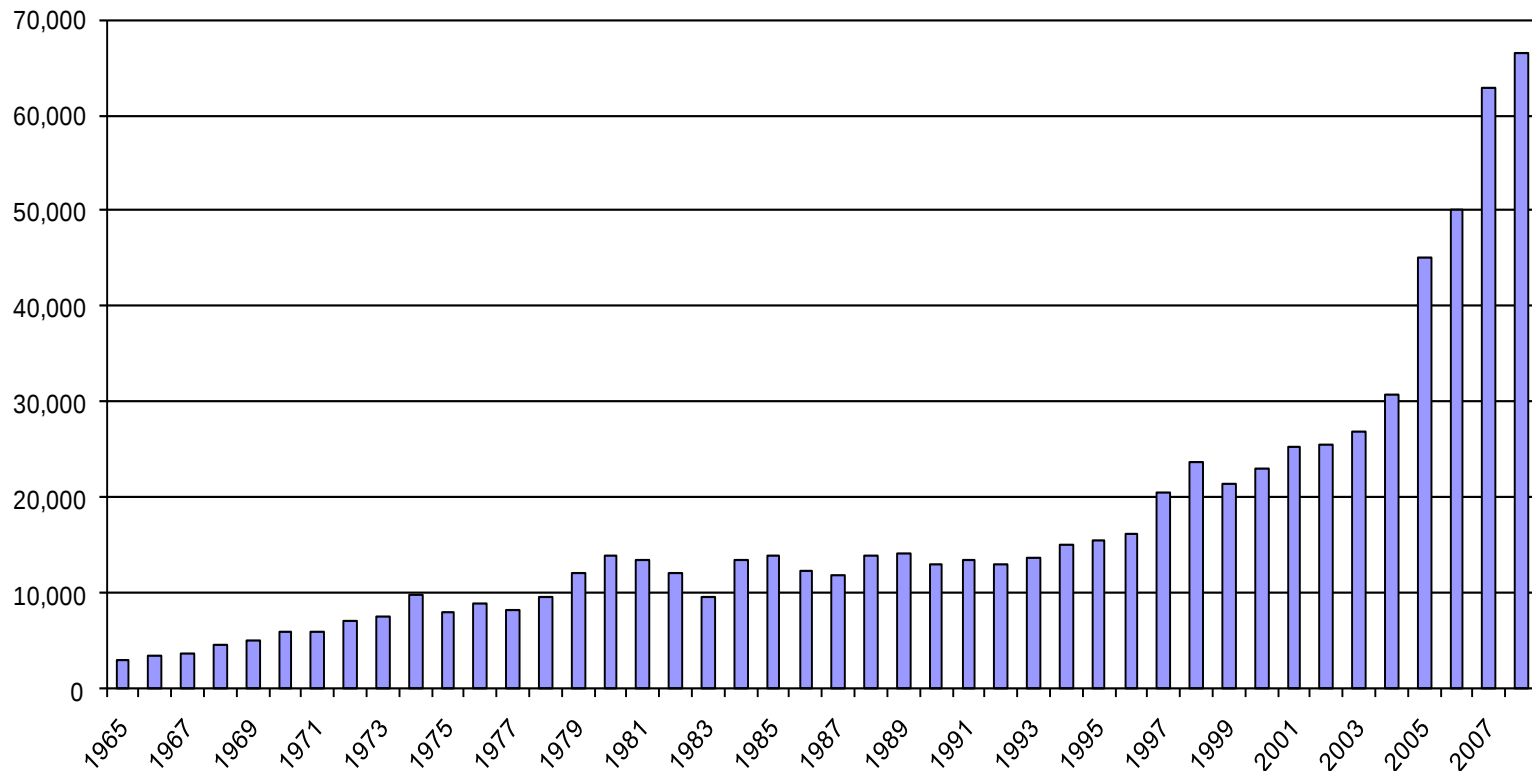
(巴西矿冶公司, 《铌-巴西矿业公司有能力扩展的工程》, TIC会议报告, 上海, 2008年)

地区分类的市场份额比较：铌铁 v 钢材消费，2006年



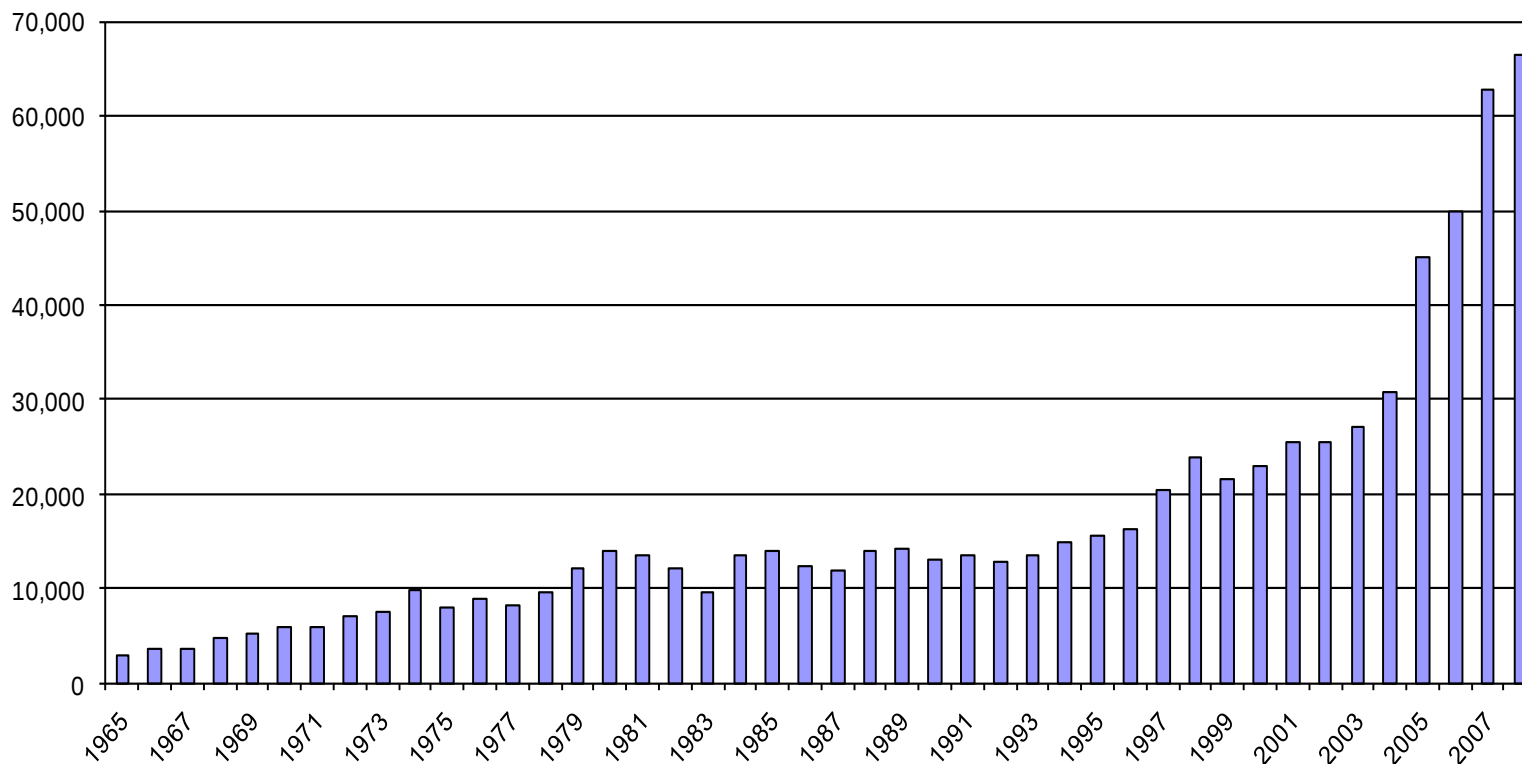
Market Size and Growth

World Niobium Production (tonnes): 1965-2008



Sources: Compiled utilising data from Mining Research (www.miningresearch.co.uk), Roskill (www.roskill.co.uk), CBMM (www.cbmm.br) and Tantalum & Niobium International Studies Centre (www.tanb.org)

世界铌产量 (吨) : 1965-2008年

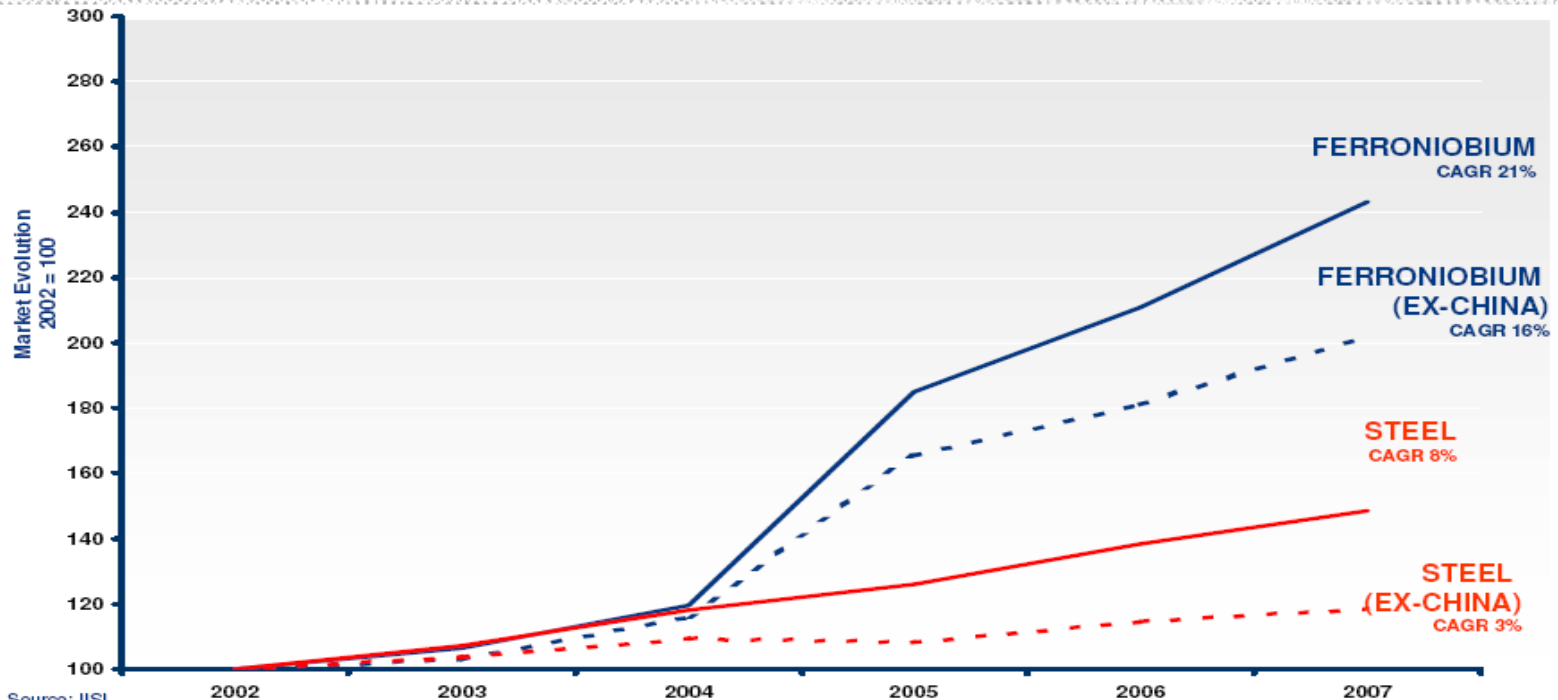


来源：编辑了矿业科研的数据 (www.miningresearch.co.uk)，罗斯基尔 (www.roskill.co.uk)，巴西矿冶公司 (www.cbmm.br) 和钽铌国际研究中心 (www.tanb.org)

Developing and Developed Nations



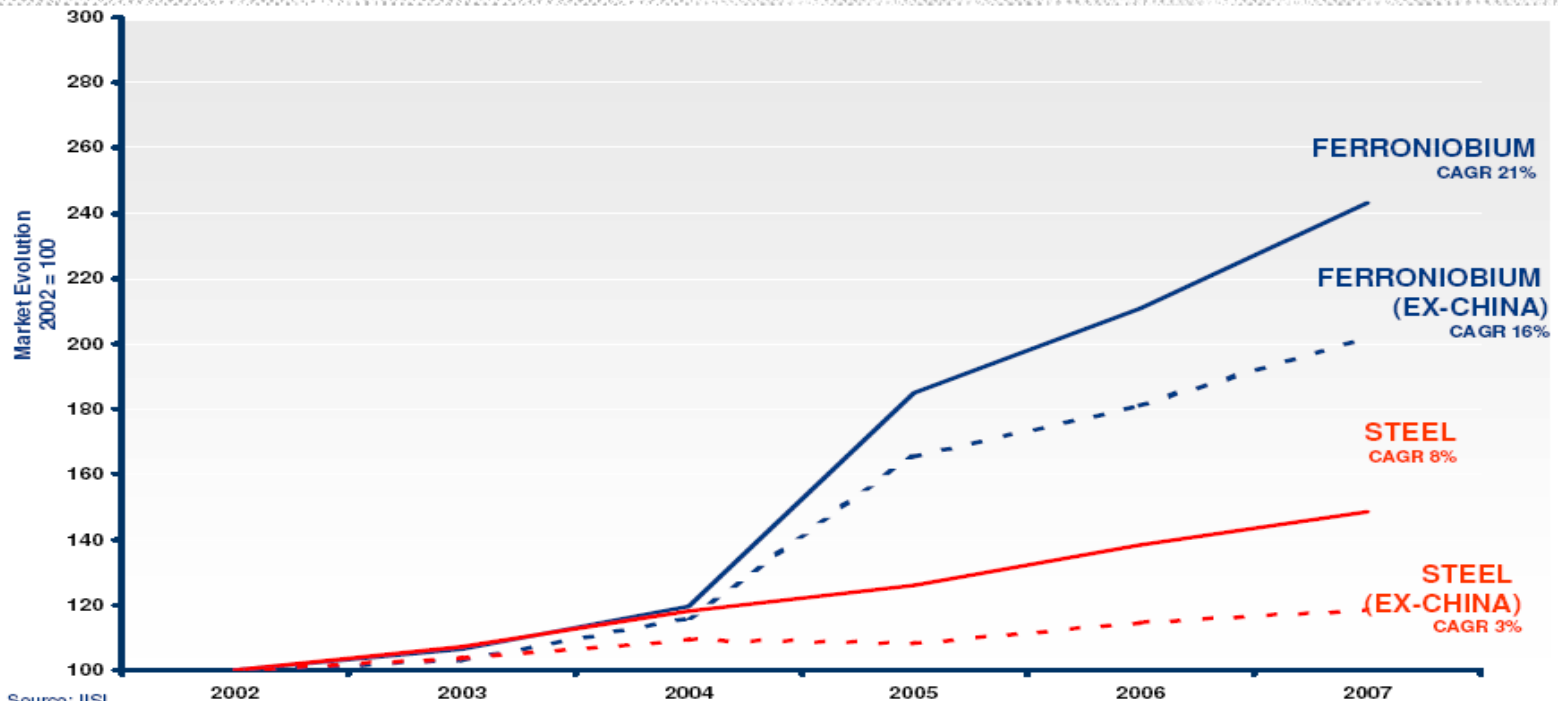
CHINA EFFECT



THE BEST SUBSTITUTE FOR STEEL IS BETTER STEEL



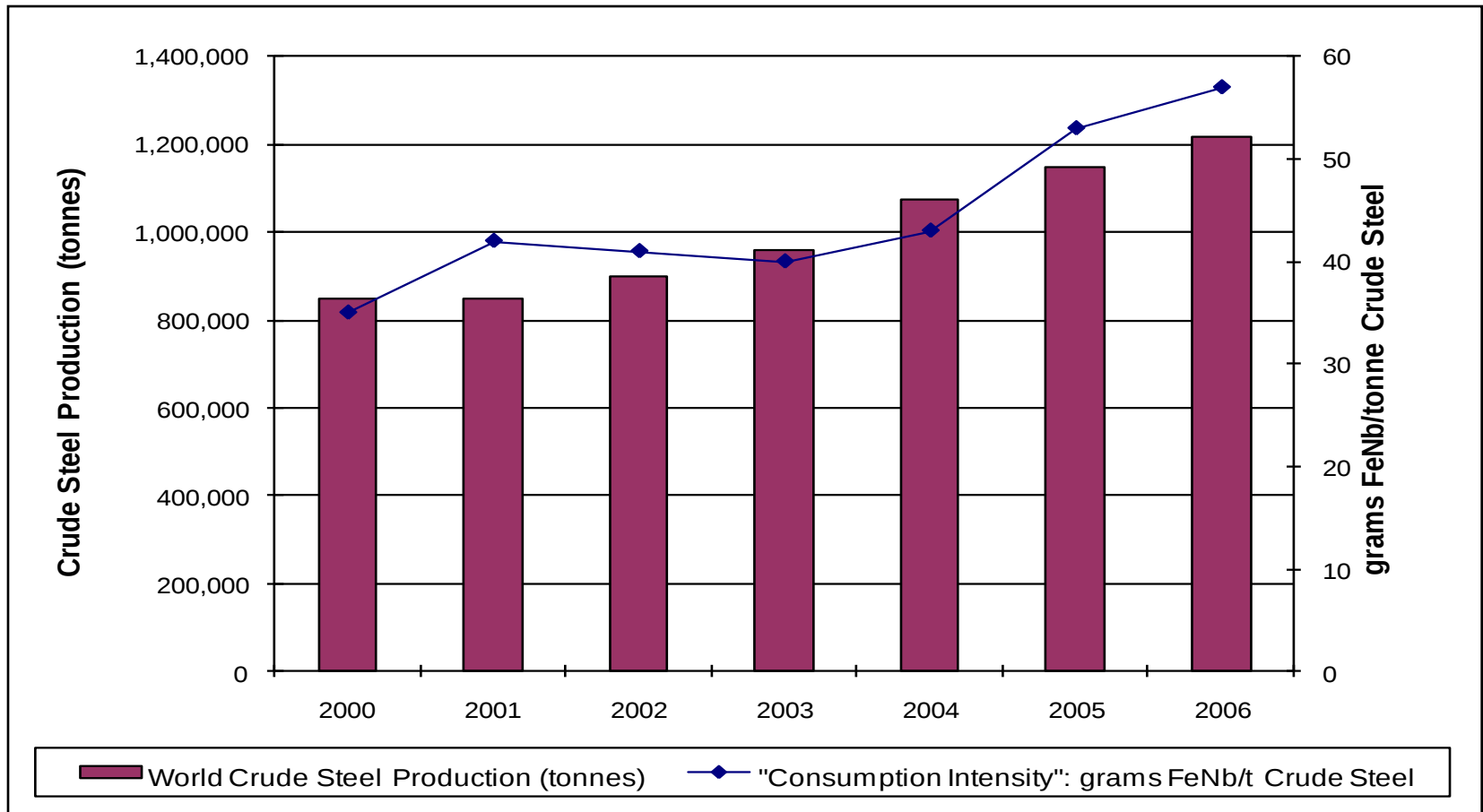
CHINA EFFECT



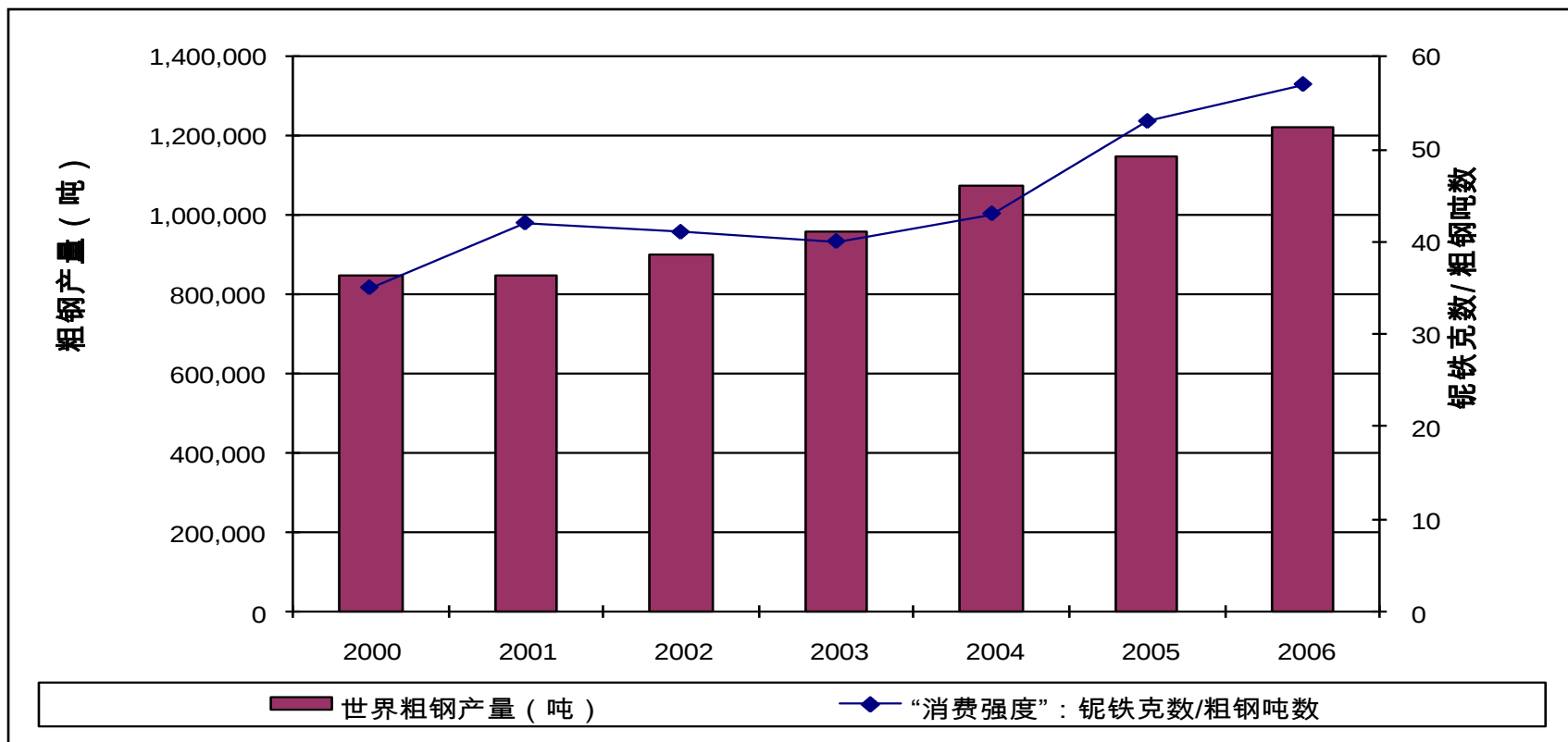
THE BEST SUBSTITUTE FOR STEEL IS BETTER STEEL

Consumption Intensity

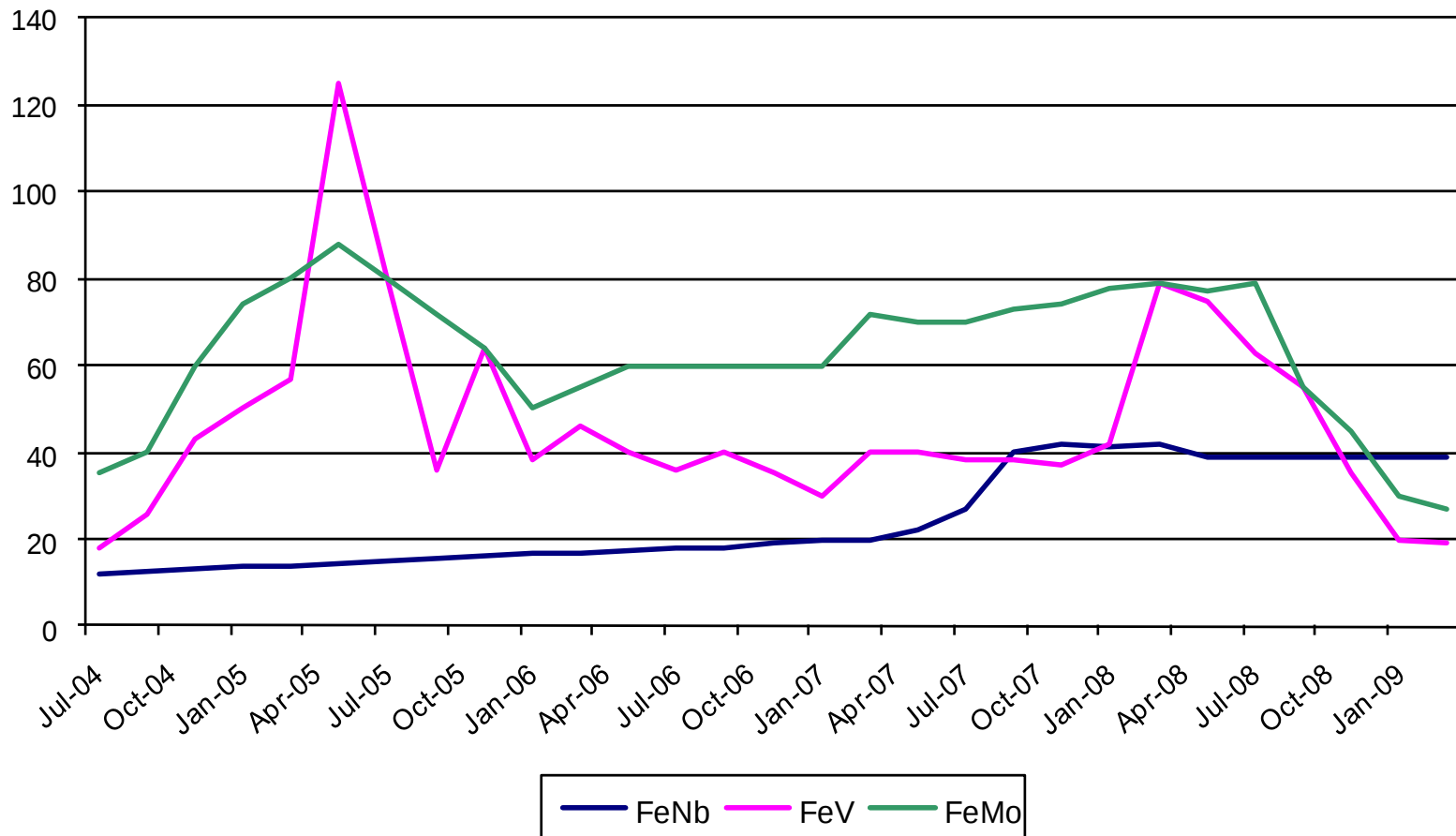
"The growth in consumption of niobium...has resulted from both the overall growth in total steel consumption and a shift from mild steels to higher quality steels, which often contain niobium. Worldwide, in 2008 the unit consumption of niobium in steel was around 55-60g/t of steel produced. In the most highly developed countries the figure was 100g/t or more, whereas in China only around 40g/t were consumed. There would appear, therefore, to be significant potential for the increased use of niobium in this end-use market. (Roskill)



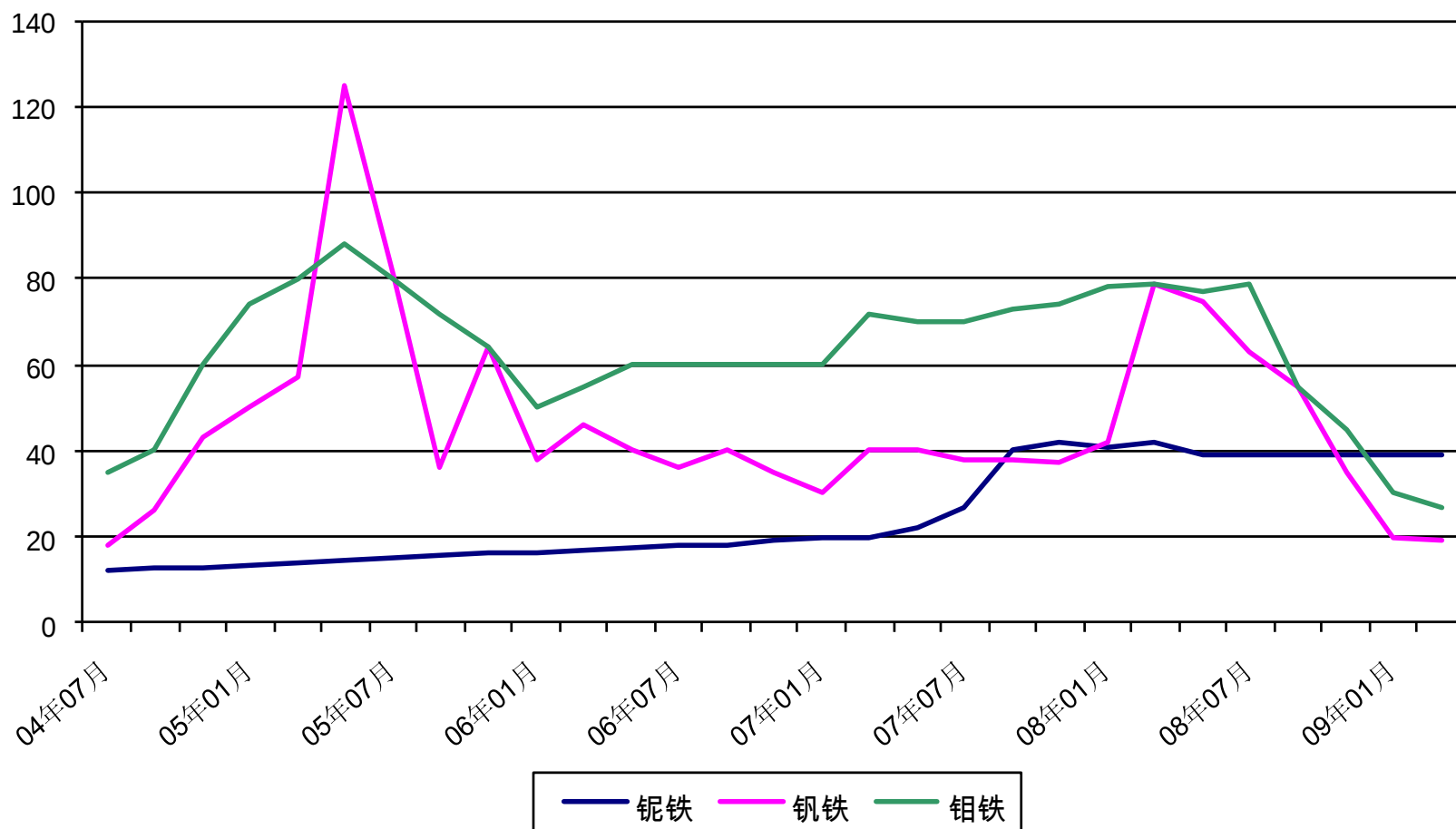
“铌消费的增长归因于两个方面，钢材总体消费的增长和中低质钢材向高级钢材转换，高级钢材则通常含有铌。2008年，爱世界范围内，钢材中铌的单位消费量大约为每生产1吨钢材，需要55-60克的铌。在非常发达的国家这个数字能到达100克/吨或者更高。然而在中国这个数值只有40克/吨。这也表明，在最终用户市场上有着潜力巨大的对铌的需求。（罗斯基尔）



Selected Ferro-Alloy Price Comparison (US\$/Kg)



有选择的铁合金价格比较 (美元/ 公斤)



*"Ferro-niobium prices increased sharply from mid-2007...By May 2008, spot prices had risen to US\$39.70-41.90/kg (US\$18-19/lb), with **producer prices at US\$35.30-36.40/kg** (US\$16-16.50/lb). In November 2008 a benchmark contract price of US\$43.00-46.00/kg (US\$19.50-21/lb) was reported. Prices remained at that level in early 2009."*

*"**It would be natural to expect such a large increase in prices to be only temporary, particularly during a time of severe global economic downturn. Roskill does not share that view.** Prior to 2007, niobium prices had been flat for some years and thus falling in real terms. At the same time, demand was increasing and producers were expanding capacity accordingly, probably at considerable expense. An adjustment to the benchmark price at some point was inevitable. Roskill has obtained independent opinion on future pricing from within the steel industry and considers that **ferro-niobium prices are likely to stay at about the level seen in late 2008 and early 2009.**"*

*"It is to be noted that ferro-niobium is consumed in very small quantities and that, even at the new higher price, it forms a **very minor component of steel production costs.**" (Roskill)*

*"The price of Brazilian ferroniobium remains **stable at around RMB230,000-235,000/t (USD51.1-52.2/kg Nb) in the spot market** this week and the sole agent sells the material at lower prices around RMB220,000/t (USD48.9/kg Nb) to the steel mill...Some steel mills reported that demand for automobile plate is seeing some recovery this month, but others believe that it will still take some time for the high-end steels markets to revive, so the price of Brazilian ferroniobium will not go up, but keep stable in the coming weeks"*

*"Bao Steel, one of the major ferroniobium consumers in China, stated that **demand for construction steels recovers after the Chinese government released the economic stimulus package plans**, but most of Bao Steel's products are medium- and high-end products, whose markets are reviving. Nevertheless, it is worth mentioning that automobile plate market sees some improvements, thanks to the reviving car industry. Bao Steel disclosed that orders for the steel have soared to 290,000t in April, up from 140,000t in March, while the purchasing volume was less than 100,000t at worst. The major ferroniobium consumer expressed that they are cautiously positive towards the steel market in June and July. The steel industry improves somewhat in April, which is a result of downstream consumers consume their inventories to low levels since they primarily used their inventories from the last quarter in 2008." (www.asianmetal.com; 30 April 2009)*

“从2007年中期开始，**铌铁**的价格增长的非常快。到2008年05月，现货价格已经涨到39.70-41.90美元/公斤（18-19美元/磅），生产者价格为\$35.30-36.40美元/公斤（16-16.50美元/磅）。在2008年11月，报告了基准合同价格，即43.00-46.00美元/公斤（19.50-21美元/磅）。到2009年初，价格还保持在那个水平。”

“人们会很自然的认为在当今严重的全球经济衰退期，价格的大幅增加只是暂时现象。但罗斯基尔并不这么认为。2007年以前，**铌**价持续偏低了很多年。同时，**铌**的需求增加使得生产商需要相应的扩大生产能力，这可能是一笔很可观的开支。对基准价格的调整已经不可避免。罗斯基尔保留了钢铁行业对未来**铌**价的独立意见，他认为**铌铁**价格很有可能保持在2008年末或2009年初的水平。”

“需要认识到的是，**铌铁**的消费量是很小的，就算是按照新的高价格，它也只占了钢材生产的很小部分的成本。”（罗斯基尔）

“巴西的**铌铁**价格在现货市场上很稳定的保持在每吨230,000-235,000人民币（51.1-52.2美元/公斤 **铌**）。这个星期独家代理商以每吨220,000人民币（48.9美元/公斤 **铌**）的低价向钢厂销售了这些材料。一些钢厂的报告显示这个月对汽车牌照的需求正在恢复，但其他人依旧认为高端钢材市场需要更长的时间。这样一来，巴西**铌铁**的价格不会上涨，但接下来的数个星期会保持稳定。”

“宝钢，中国的几个大型**铌铁**需求者之一，认为**对建筑钢材的需求会在中国政府发布经济刺激计划后复苏**，宝钢的大部分产品为中、高档产品，这些产品的市场正在恢复。不过，值得一提的是，汽车牌照市场看样子有所改进，这归功于汽车工业的复苏。宝钢批露说在对钢材的需求已经从3月的140,000吨飙升到了4月的290,000吨，最少的时候只有100,000吨。主要的**铌铁**用户表示他们对6、7月份的钢材市场持有谨慎的乐观态度。钢铁工业4月的改进，归因于下游用户从2008年最后一个季度以来主要靠使用库存，使得他们的库存达到了一个非常低的水平。”（www.asianmetal.com：2009年04月30日）

Substitutes ?

	Nb	V	Mo
Market Size (2008 est.)	67,000t	60,000t	212,000t
Use in Steel Industry (%)	90%+	85%	75%
Primary Application	Refining HSLA/low carbon steels	Refining high carbon steels	Hardening steel
CAGR 1990-08 (%)	7.9%	2.7%	2.9%
Metal Content in Alloy (%)	66%	45-50%; 80%	60-75%
Use in HSLA (%)	95%+	23%	6%
Primary Production (%)	95%+	29%/85%*	<30%, typically Cu credit

- Often Nb and V **provide best outcome together**, rather than used alone (e.g. yield strength and ductile-brittle transition temperatures in conventional hot-rolled steels).
- Nb a more effective grain refiner than V – the usual Nb addition is 0.02-0.04%, which is a third of the optimal V addition (**AND** FeV only 92% of FeNb price over 1998-2008.)
- FeNb produced by primary Nb producers – historically very stable supply and prices; FeV price historically very volatile, and **supply unreliable**.

Sources: USGS Commodity Reviews (www.usgs.gov); Globe Mining & Metals commissioned research, Mining Research (www.miningresearch.co.uk); *56% of total production is co-production of vanadiferous magnetite ore processed for steel making, with V produced as a by-product (Windimurra Vanadium 2008 AGM Presentation).

替代品？

	铌	钒	钼
市场大小（2008年估计数）	67,000吨	60,000吨	212,000吨
用于钢铁工业的百分比(%)	90%+	85%	75%
主要用途	精炼高强度低合金钢/低碳钢	精炼高碳钢	硬化钢
复合年均增长率 1990-2008年（%）	7.9%	2.7%	2.9%
合金中占的比重（%）	66%	45-50%; 80%	60-75%
用于高强度低合金钢的 百分比（%）	95%+	23%	6%
主要产品（%）	95%+	29%/85%*	<30%,典型的副产品-铜

- 通常铌和钒一同使用会比单独使用**提供更好的结果**（比如：在常规的热轧钢中产生强度和延性脆性转移）。
- 做为晶粒细化剂，铌比钒更有效–通常附加的铌只有0.02-0.04%，这只是附加优化钒的三分之一（而且，1998年至2008年期间，钒铁的价格只有铌铁价格的92%）
- 铌铁是生产铌过程中的主要产品–历史上非常稳定的供应和价格；钒铁的价格历史上极为不稳定，供应也不可靠。

来源：美国地质勘探局商品回顾（www.usgs.gov）；全球矿业金属委员会研究，矿业研究（www.miningresearch.co.uk）；*56%的总产出是为制造钢材而处理磁铁矿的合作产品，而钒则是副产品。（维因迪姆拉 钒2008年度大会报告。）

Substitutes ?

“In the higher-quality steels, where niobium is finding increasing use, there is little opportunity for substitution by other alloying elements. At the typical addition rate of 0.05%, niobium delivers steel with a ferrite grain size of 20µm². Similar additions of titanium and vanadium result in much larger grain sizes, approximately 60µm² and 100µm², respectively. Even at much higher rates of addition, titanium and vanadium cannot offer the degree of refinement provided by microalloying with niobium.”

“As ferro-niobium, like other alloys, is used in very small amounts its impact on the cost per tonne of steel produced is minor. Ferro-niobium prices are historically also very stable. The same cannot be said of ferro-vanadium and ferro-titanium prices, which show very wide fluctuations. There have been periods when the price of ferro-vanadium was below that of ferro-niobium: there have also been periods when it was several times higher...Roskill considers that there is little real risk of niobium being replaced to any significant extent by other alloys in steelmaking.” (Roskill)

Receivers poised as lender moves on vanadium miner



The West Australian, 18 February 2009

“在高质量的钢材方面，铌的使用在增加，但其他的合金元素的替代品确没什么机会。在典型的附加率0.05%下，铌能给钢材带来 $20\mu\text{m}^2$ 的铁素体晶粒尺寸。同样的比率，钽和钒的结果是大的晶粒，大概分别是 $60\mu\text{m}^2$ 和 $100\mu\text{m}^2$ 。就算是添加更多的钽和钒，他们也做不到象铌对微合金一样那么精细。”

“铌铁，象其他合金一样，在钢材生产过程中只占很小的一部份。铌铁的价格历史性的平稳。这不适用于钒铁和钽铁的价格-波动的很厉害。有时期钒铁的价格低于铌铁，但有时也几倍于铌铁。罗斯基尔认为在钢材生产过程中，铌被其他合金元素取代的可能性几乎没有。”（罗斯基尔）

Receivers poised as lender moves on vanadium miner

FLASHBACK YESTERDAY

Windimurra on the brink as directors quit



Windimurra Resources was yesterday on the brink of collapse as its directors quit the company, leaving the firm in a state of financial uncertainty.

The company's financial problems have been exacerbated by a sharp decline in the price of vanadium, its main product.

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The company's financial problems have been exacerbated by a sharp decline in the price of vanadium, its main product.



Sunk with no China Inc. lifeline

《西澳日报》，2009年02月18日

1. Economic Crisis

*"... the niobium industry remained confident of the industry's future prospects. Demand for **natural gas linepipe**, the main application for HSLA steel, is healthy and will remain so. The **automobile industry**, another major consumer of HSLA steel, was in a major downturn in 2008, and one that will continue into 2009 and 2010. There too, however, the long-term prospects for niobium remained good, given the general trend towards greater use of HSLA steel. The **construction industry**, the third major user of HSLA steel is set to recover in 2010...Little, if any, growth is likely in 2009 but a return to the underlying trend will very probably be seen from 2010."* (Roskill)

2. Developing Nations

- ▶ Nb consumption per unit of steel to increase as economies become more sophisticated (measured as "consumption intensity")
- ▶ Growth in underlying steel consumption alone is significant – China 13.1% CAGR 1994-08¹
- ▶ China leading world economic recovery

"Combined with the country's wider 4 trillion yuan (US\$585 billion) economic stimulus package, the policies have caused General Motors to roughly double is forecast for China's nationwide auto market growth this year" (Bloomberg, 25 March 2009)

3. Developed Nations

- ▶ Trend of increasing sophistication of steels will continue: 10-12% HSLA steels forecast to rise to 20%
- ▶ Trend evidenced by historic FeNb consumption of 7.9% CAGR v 4.1% for steel
- ▶ E.g. Fiat used 6% HSLA steels in 1980, 67% in 2006²

1. 经济危机

“**铌工业对未来的发展很有信心。对天然气管道的需求和高强度低合金钢的主要产品都很健康并且能够保持这样。汽车工业，高强度低合金钢的另外一个主要用户，2008年在衰退，可能会持续到2009年甚至2010年。但是，考虑到更多的使用高强度低合金钢的趋势，铌的远景是很乐观的。建筑业，高强度低合金钢的第三大用户，将会在2010年复苏。2009年的增长，如果有的话，不会很大，但潜在的复苏趋势将会在2010年大大体现。**”（罗斯基尔）

2. 发展中国家

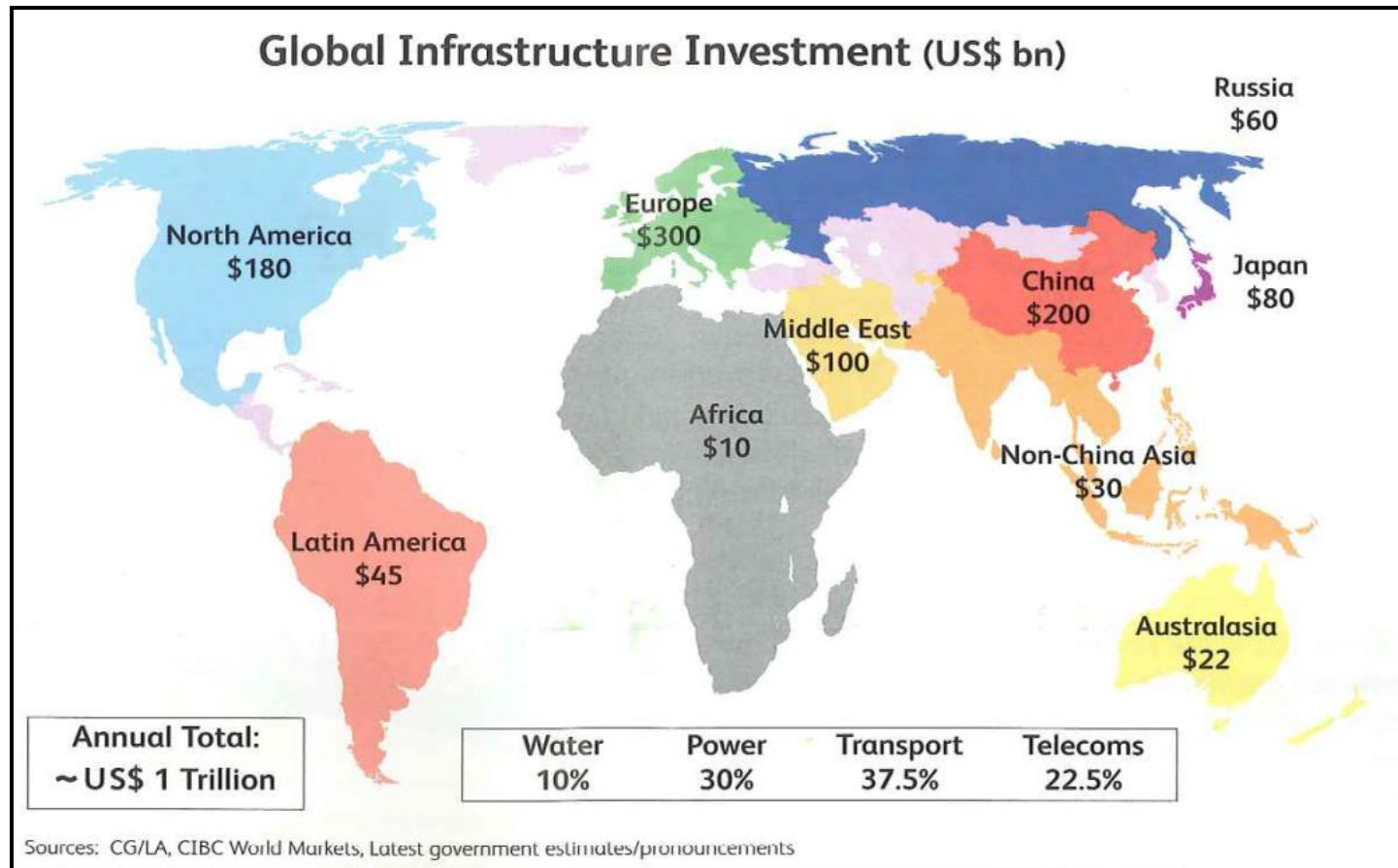
- ▶ 铌 经济发展使得钢材对铌的单位消耗量增加（由“消费强度”测量）
- ▶ 钢材消费的大幅增加 – 1994年至2008年间，中国的复合年增长率为13.1%¹
- ▶ 中国带领着世界走向经济复苏

“结合这个国家的4万亿人民币（5千8百50亿美元）的经济刺激计划，这个政策使得今年通用汽车公司双倍了它在中国的汽车市场增长的预测。（彭博，2009年03月25日）

3. 发达国家

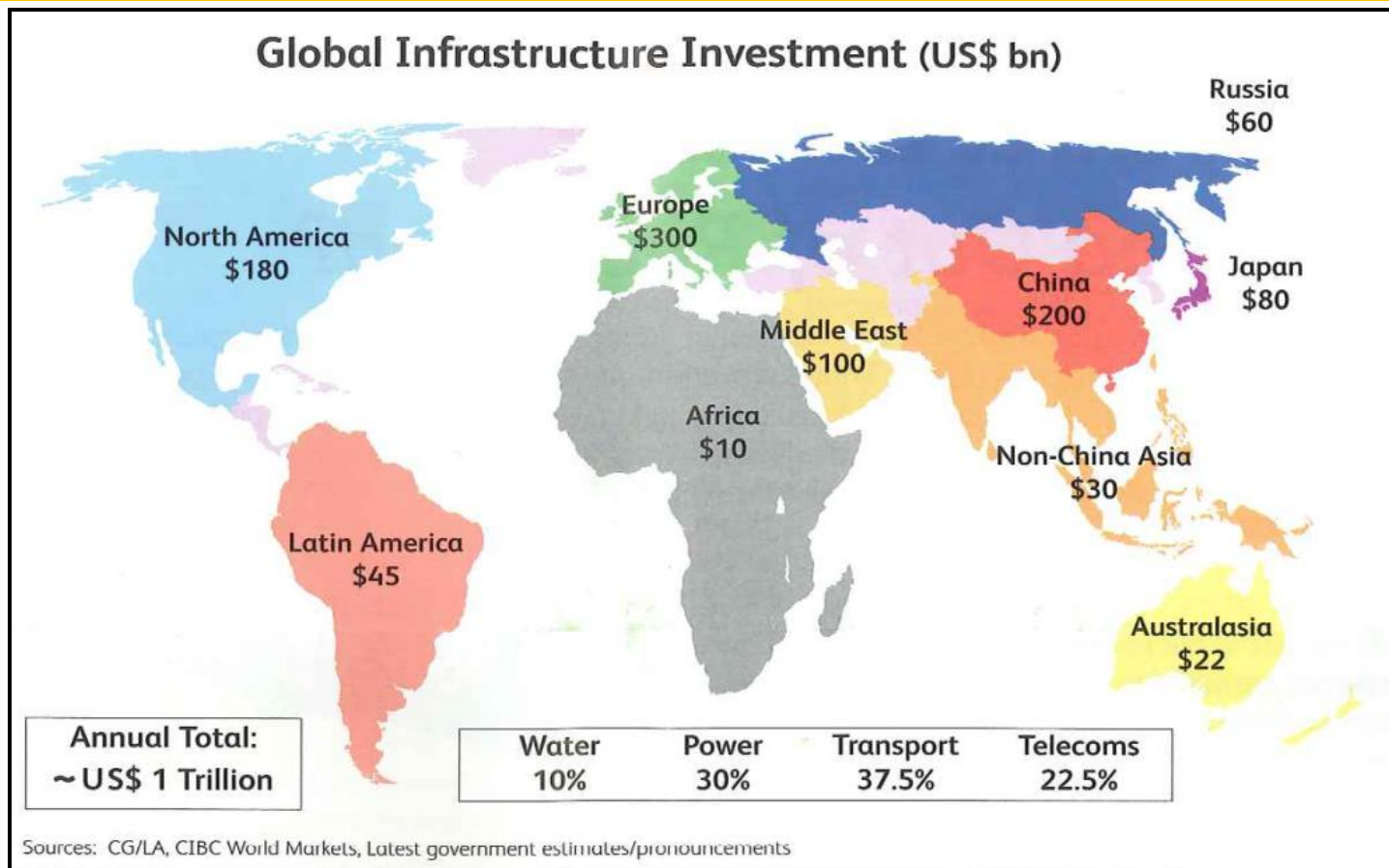
- ▶ 增长使用特种钢材的趋势在继续：10-12%的高强度低合金钢的预测上升到了20%
- ▶ 历史证据显示铌铁消费复合年均增长率为7.9%，钢铁的为4.1%
- ▶ 例如：1980年菲亚特使用了6%的高强度低合金钢，到了2006年他们用了67%²

Infrastructure Spend



- Above figures are annual expenditure estimates for next decade, not one-off 2009 commitments
- American Society of Engineers has sought US\$2.2 trillion in infrastructure spending over a five year period
- Chinese stimulus package spend now US\$585bn, with 80% to be spent on infrastructure
- 2.9% of global GDP to be spent on infrastructure in 2009, up from 2.2%
- US\$25-30 trillion to be spent on infrastructure over next twenty years

基础设施支出



- 上述数值为未来10年的估计年度开支，不是2009年的承诺
- 美国工程师社团已经预测了5年间的基础设施开支为2万2千亿美元
- 中国的刺激经济计划有5千8百50亿美元，其中80%用于基础设施的建设
- 2009年用于基础设施的全球国民生产总值的百本比从2.2%上升到了2.9%
- 接下来的20年里，美国将有25-30万亿美元用于基础设施

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