



# An Emerging U.S. Gold Producer With Exceptional Exploration Leverage

Denver Gold Forum

**NYSE MKT: XPL | TSX: SLR**

September 25, 2013

# Solitario Exploration & Royalty

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# Solitario: The Right Assets in Challenging Times

## **Mt. Hamilton Gold Project – Nevada**

- *Low cash operating costs: \$ 575 / oz gold*
- *Low capital cost to construct: \$ 72 million*
- *Permitting completion date: 2nd Qtr. 2014*

## **Bongará Zinc Project – Peru**

- *Dilution-free financing to production*
- *Prefeasibility by mid-2014*
- *JV partner Votorantim Metais estimates mid-2017 startup*

## **Financed Joint Ventures on Significant Exploration Projects**

- *Pachuca Norte (Silver-Gold) – Hochschild initiates major drilling program*
- *Pedra Branca (Platinum-Palladium) – Anglo Platinum continues funding*

# Corporate Overview

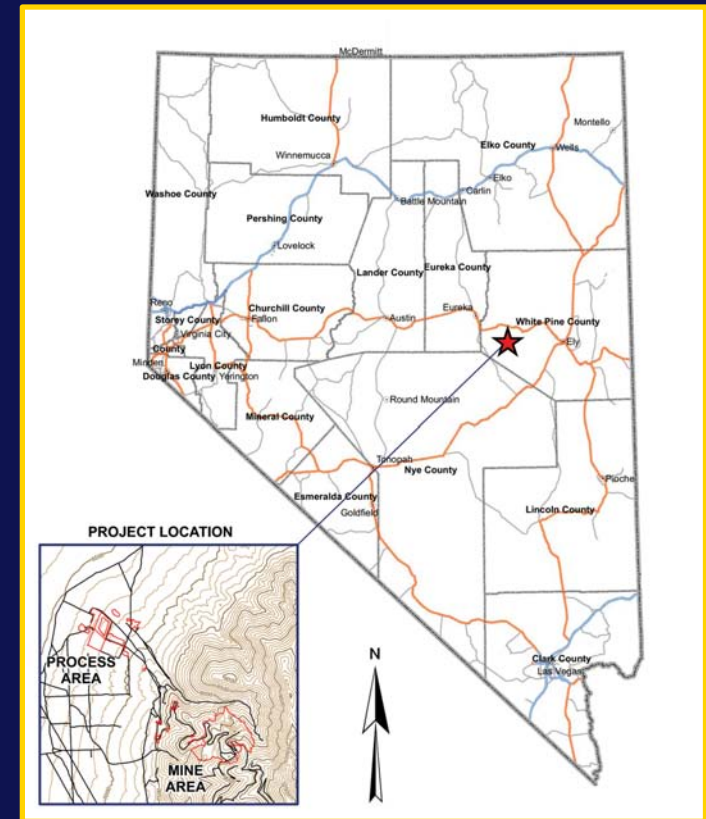
- *Issued & Outstanding Shares:* **37.1 million**
  - Options:* **2.7**
  - Warrants* **1.6**
  - Fully Diluted Shares:* **41.4 million**
- *Market cap: \$37.0 million*
- *Total net cash and securities:* **\$ 6.5 million**
  - Unused credit facility:* **1.5**
  - Total:* **\$ 8.0 million**
- *Listings: NYSE MKT: XPL; TSX: SLR*
- *Management holdings:* **11.7%**
- *Insider buying (2011 forward):* **1.25 million**

# Mt. Hamilton Advanced Gold Project, Nevada USA



# Mt. Hamilton Advanced Gold Project, Nevada USA

- *Feasibility Study and Plan of Operations completed in 2012*
- *Robust economics; development-stage gold project*
- *Open pit/heap leach*
- *Excellent potential to increase resource base*
- *Solitario owns 80% interest and is the project manager*
- *Permitting activities in progress in mining friendly Nevada*





# Mt. Hamilton: Achieving Objectives

- ✓ *Feasibility (SRK): completed in 14 months Q1-2012*
- ✓ *Funding to construction: completed \$15 million in financing*
  - *June 2012 – \$10 million from sale of 2.4% NSR-Royalty to Sandstorm Gold*
  - *August 2012 – \$5.0 million from a secured credit facility with RMB*
- ✓ *Resource expansion (M & I): nearly doubled since acquisition*
  - ➔ *410,000 AuEq - Q4-2010*
  - ➔ *584,000 AuEq - Q1-2012 (42% increase)*
  - ➔ *751,000 AuEq - Q3-2012 (29% increase)*
  - ➔ *790,800 AuEq - Q4-2013 with lower gold/silver price assumptions*
  - ➔ *Evaluating 9-10 year / 65,000 oz/yr production schedule*

# Mt. Hamilton Project Reserves and Resources

## Mineral Reserves - February 2012

Resource Category	Tons (millions)	Gold Grade		Silver Grade		AuEq * oz/ton	Contained Ounces (000's of oz.)		
		oz/ton	g/tonne	oz/ton	g/tonne		Gold	Silver	AuEq
Prov+Prob	22.527	0.022	0.75	0.136	4.66	0.025	487.1	3,028.2	545.3

## Mineral Resources (in Pit) - September 2013

Resource Category	Tons (millions)	Gold Grade		Silver Grade		AuEq * oz/ton	Contained Ounces (000's of oz.)		
		oz/ton	g/tonne	oz/ton	g/tonne		Gold	Silver	AuEq
Meas+Ind	31.88	0.022	0.75	0.19	6.65	0.025	687.7	6,187.90	790.8
Inferred	10.33	0.017	0.58	0.16	5.62	0.020	178.8	1,685.90	206.9

\* AuEq = Gold Grade + (Silver Grade / 60)



# Mt. Hamilton Project Feasibility Highlights and Optimization

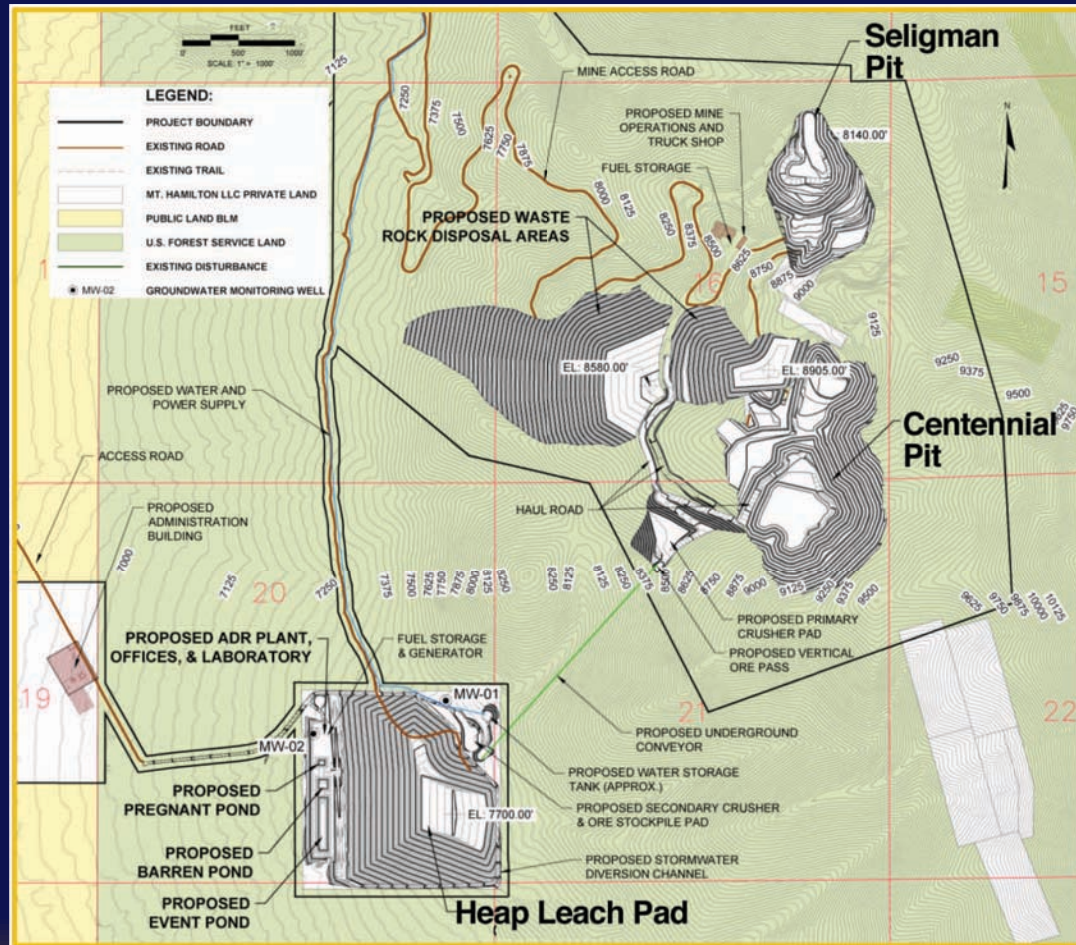
## Mt. Hamilton Feasibility Study Highlights

	2012 Feasibility Study	Optimized Scenario (Under Review)
Production Rate (Tons/Day)	8,500	10,000
Mine Life	8 Years	10 Years
Gold / Silver Recovery	79% Gold / 40% Silver	Same
Life of Mine Stripping Ratio (T=Tons)	2.4 T Waste : 1.0 T Ore	2.5 T Waste : 1.0 T Ore
Initial Capital Cost	\$72 Million	\$77 Million
Sustaining Capital Cost	\$35 Million	\$40 Million
Total Cash Costs (Gold-Eq.)	\$575/ounce	\$550/ounce
All In Costs *	\$875/ounce	\$825/ounce
Avg. Annual Gold-Equiv. Production	54,000 Oz	65,000 Oz **

\* Total Cash Costs + Initial Capital + Sustaining Capital + Corporate G&A

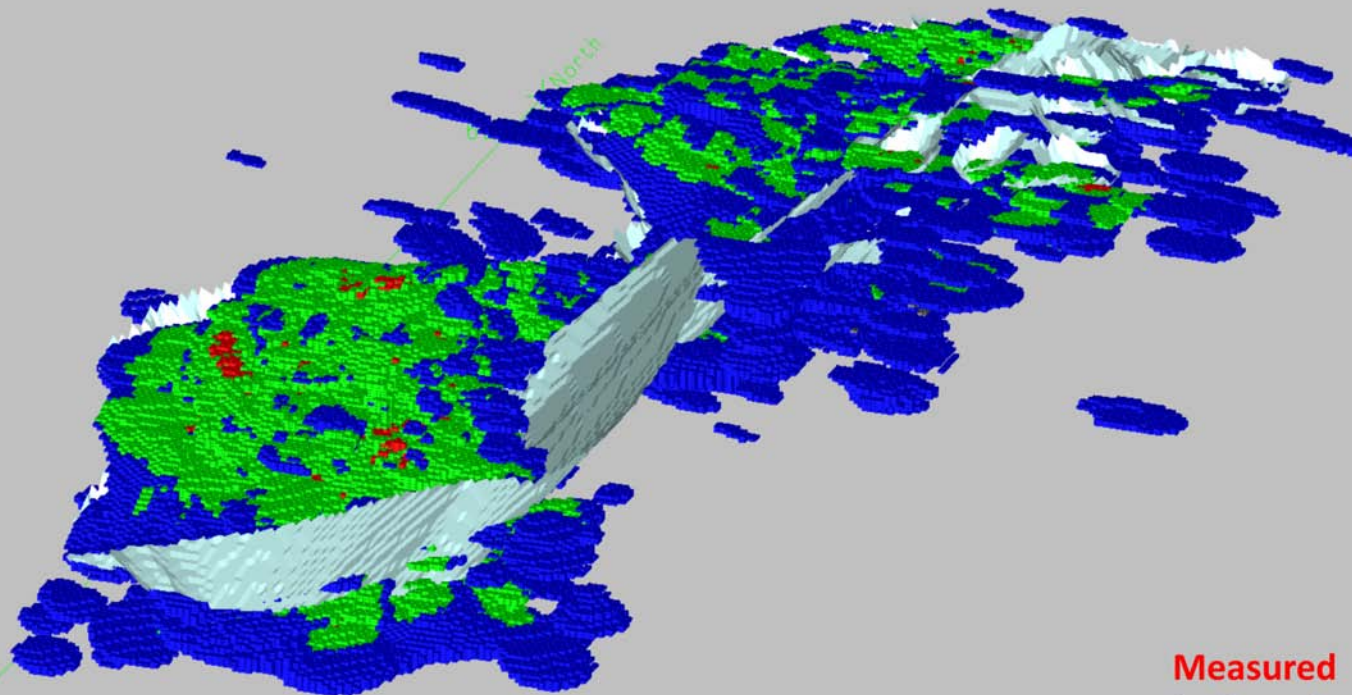
\*\* First six years of production; Value distribution: Gold-90%; Silver-10%.

# Centennial Mine Infrastructure



# Mt. Hamilton Orebody

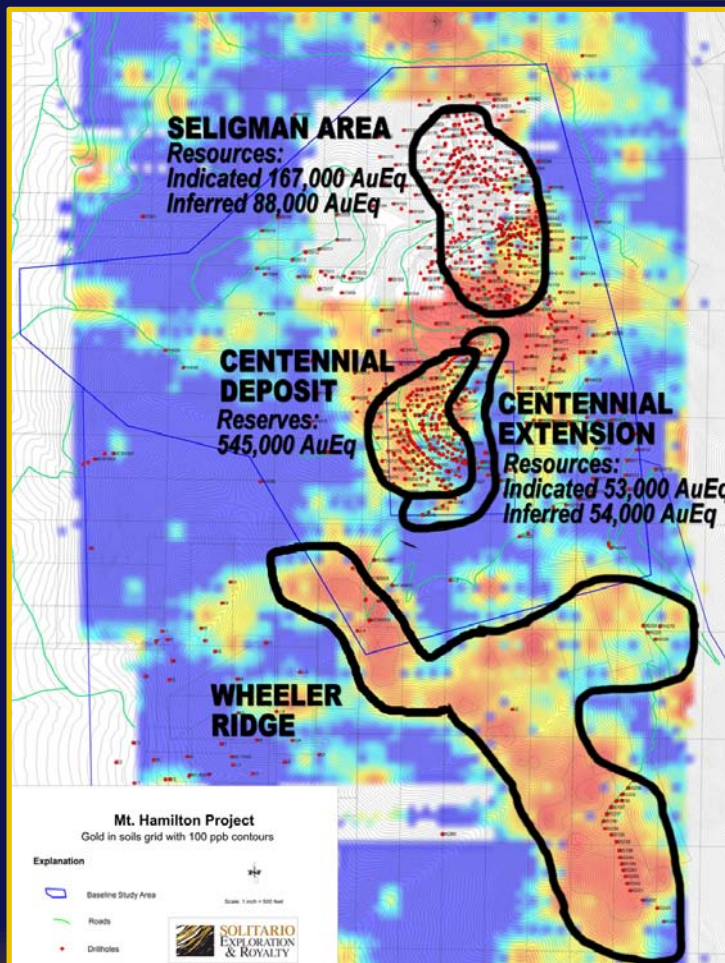
2013 Model – Classification Based on Data Spacing



Looking NW

Measured  
Indicated  
Inferred

# Mt. Hamilton Outstanding Resource Growth Potential





# Mt. Hamilton: Future Objectives

## 2014 Major Activities

- *Keep permitting process on track for mid-2014 approval*
- *Optimize production rate: potential to increase annual gold production by 15-20% and increase mine-life by two years with minimal CAPEX increase*
- *Construction financing*
- *Potential drilling at Wheeler Ridge and/or Mt. Hamilton inferred resource*

# Bongará High-Grade Zinc Project, Peru

*One of the world's largest undeveloped zinc deposits*

- *Dilution-free financing in place – Solitario carried to production (30%) with no participation in any funding costs until cash flow is achieved*
- *Joint ventured with Votorantim Metais – World's 5th largest zinc producer with a zinc smelter in Peru*
- *Advanced exploration project approaching \$60 million in partner investments (+485 drill holes; ~115,000 meters)*

# Bongará Project Preliminary Operating Parameters

**Deposit Estimate:** *16 million tonnes @ 9% Zn + Pb and 0.4 opt Ag*

**Concentrate:** *108,000 tonnes Zn; 15,900 tonnes Pb; 400,000 oz Ag*

**Recoverable Ore Value:** *~ \$160/tonne at \$1.00/lb Zn & Pb; \$25/oz Ag*

**Costs:** *Second quartile of world zinc productions costs*



# Progress Update on Major Expansion at Bongará

- *Prefeasibility mid-2014; Feasibility mid-2015*
- *Mine and process engineering well-advanced*
- *Continued access road construction*
- *11,000 meters of underground and surface drilling completed in 2013*
- *Continue successful permitting and social engagement efforts*



# Bongará 2013 Underground Drilling Program Highlights

## San Jorge Zone

Drill Hole	Intercept (meters)	Zinc (%)	Lead (%)	Lead + Zinc (%)	Silver (g/t)
V-404	6.8	19.42	0.39	19.81	22.04
V-405	7.0	15.34	1.44	16.78	24.85
	10.2	7.15	0.18	7.33	13.35
V-407	3.6	26.31	1.59	27.90	74.87
V-410	9.9	22.94	3.09	26.04	20.61
V-431	4.3	17.24	0.25	17.50	6.21
V-432	21.1	8.31	1.71	10.02	12.11
V-433	5.0	38.22	3.89	42.12	60.76
V-456	15.7	6.50	0.46	6.96	7.21
V-458	25.5	7.22	0.55	7.77	6.21
V-465	10.7	45.60	5.25	50.84	106.71

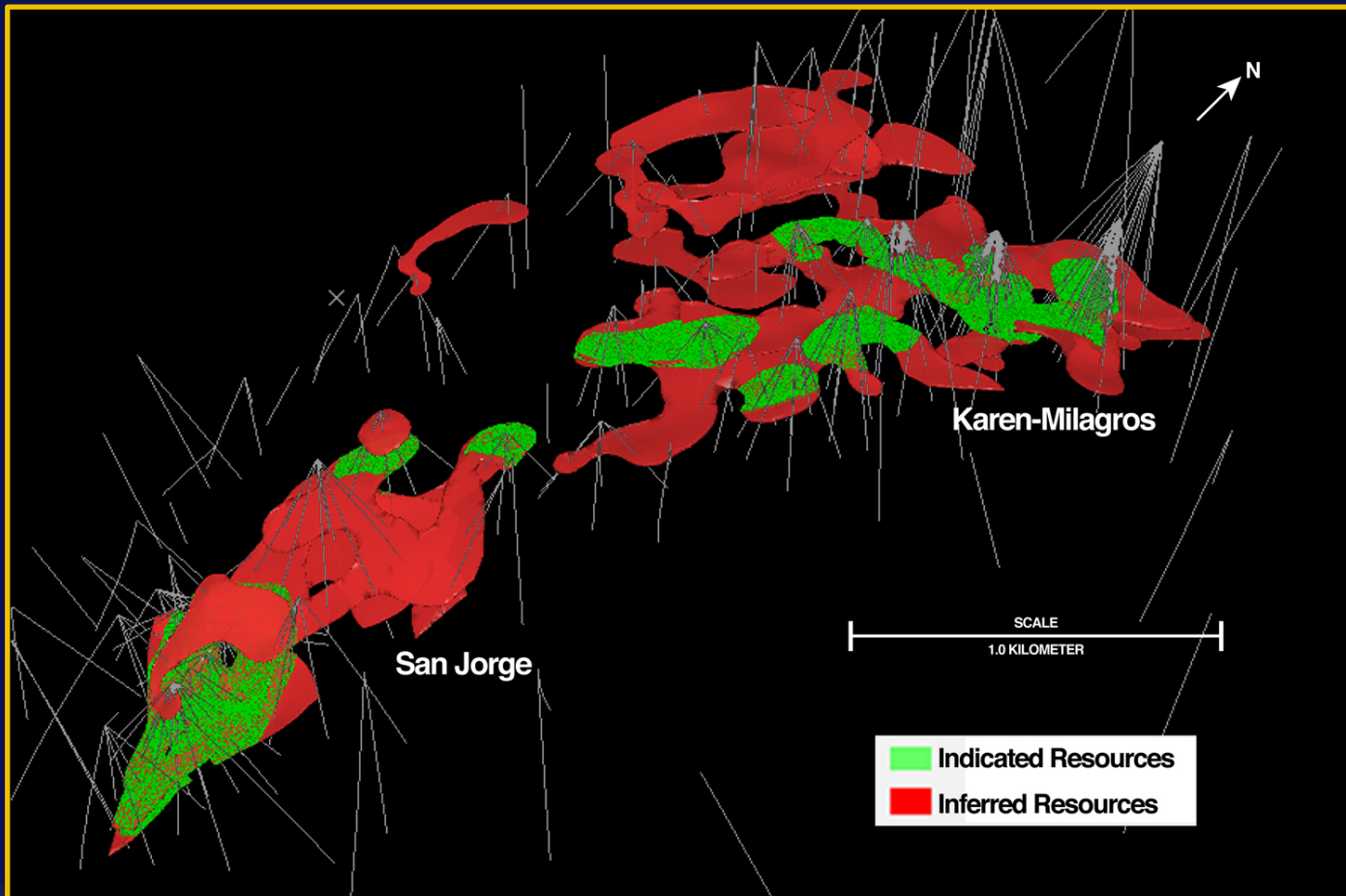
# Bongará 2013 Surface Drilling Program Highlights

## Karen-Milagros Zone

Drill Hole	Intercept (meters)	Zinc (%)	Lead (%)	Lead + Zinc (%)	Silver (g/t)
V-378	7.7	14.62	2.11	16.73	15.69
V-386	16.2	10.70	1.71	12.41	11.13
V-394	3.5	21.72	7.08	28.79	48.69
V-397	2.4	33.00	21.33	54.33	133.96
V-401	12.7	7.38	1.78	9.16	13.29
V-412	5.5	17.17	0.94	18.11	8.49
V-424	17.2	5.83	0.26	6.09	2.36
V-427	15.1	12.06	2.75	14.81	17.59
V-436	17.0	11.74	1.08	12.81	18.48
and	6.0	15.51	2.52	18.04	29.74
V-451	30.7	13.06	4.97	18.03	32.64
V-452	19.4	7.66	0.73	8.38	7.33
V-453	22.0	13.70	1.54	15.24	14.47

# Bongará Zinc Project

## Distribution of Mineralization





# Pachuca Norte High-Grade Silver-Gold Project, Mexico

- *Property situated around one of the world's greatest silver districts*
  - *Past production: 1.4 billion ounces of silver and 7.0 million ounces of gold*
- *Joint ventured with Hochschild Mining in February 2013*
  - *\$10.0 million work commitment over 60 months to earn 51%*
  - *Additional 19% (total 70%) by completing a positive feasibility study*
- *Recent drilling and surface work in the Pachuca Norte area confirms similar mineralization to the historic district*
- *\$1.5 million in exploration drilling recently initiated*
  - *Focus on offsetting well mineralized drill holes*

# Pedra Branca Platinum-Palladium Project, Brazil

*One of the most advanced PGM projects in South America*

- *Joint ventured with Anglo Platinum (51% interest earned) – world's largest platinum producer*
- *Solitario substantially carried to production with Anglo Platinum funding next \$7.0 million and Solitario's share of construction financing*
- *Advanced exploration project with \$12 million in past exploration expenditures (318 drill holes)*
- *Potential for 2 million ounces of platinum-palladium*
- *Major \$1.5 million regional airborne geophysical program recently completed – large magnetic targets identified*

# Solitario - Building a Solid Foundation

- *Mt. Hamilton Gold Project*
  - *Significant future cash flow*
  - *Outstanding resource growth potential*
  - *NPV (\$1,323 gold): \$145 million (5% discount rate)*
  - *Demonstrated financeability*
- *Bongará Zinc Project*
  - *Project development accelerating*
  - *Emerging as a world-class zinc project*
  - *Financed to production by Votorantim Metais*
- *Diversified pipeline of projects*
- *Significant management ownership → Minimal share dilution*
- *Experienced management team*

# Solitario Exploration & Royalty

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James R. Maronick, CFO  
Walter H. Hunt, COO*

## **Stock Exchange Listings:**

*NYSE MKT: XPL | TSX: SLR*

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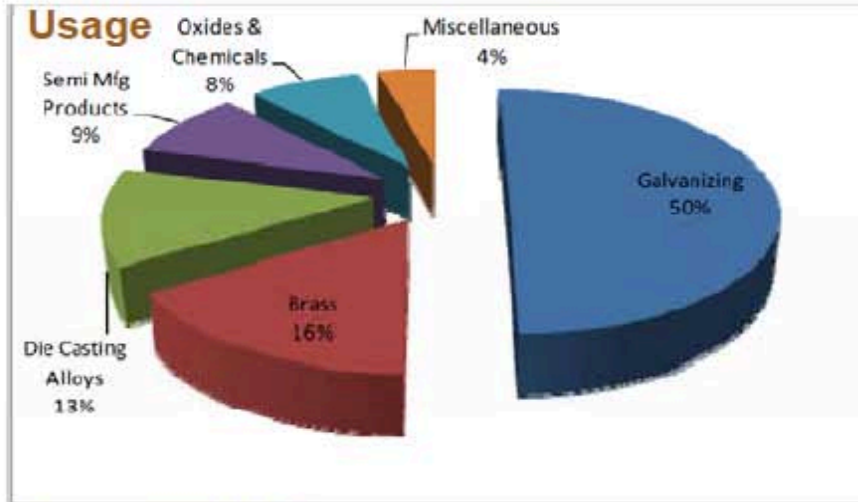
*(001)-713-682-4070 (Int'l)*

# Zinc Supply/Demand Indicate Higher Prices

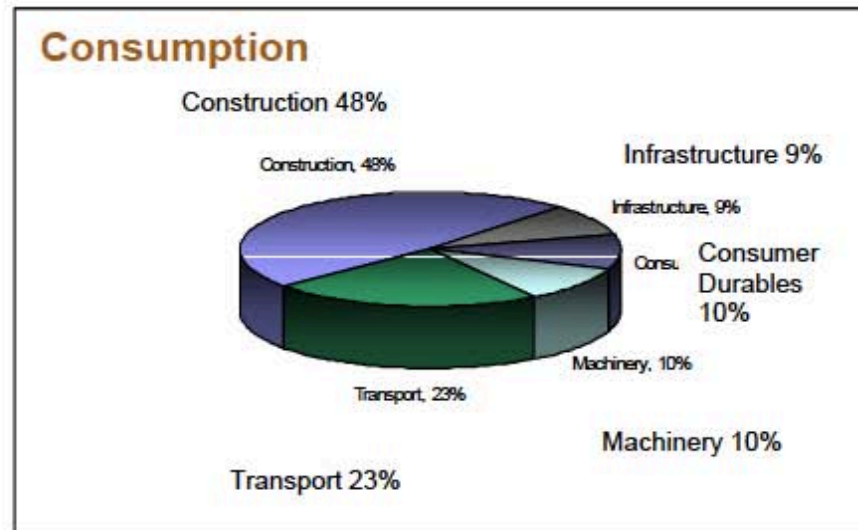
- *Zinc production currently in surplus with large zinc inventory*
- ... ***But***
- *By 2015 significant depletion of existing zinc reserves and mine closures*
- *Zinc mines tend to be small compared to copper*
- *Long lead time for startups – no major new discoveries*
- *Capital investment in new zinc projects virtually non-existent*
- ... ***Setting the stage for a much higher zinc price by 2014***



# Zinc Usage and Consumption



Source: Brook Hunt, Paradigm Capital Inc.

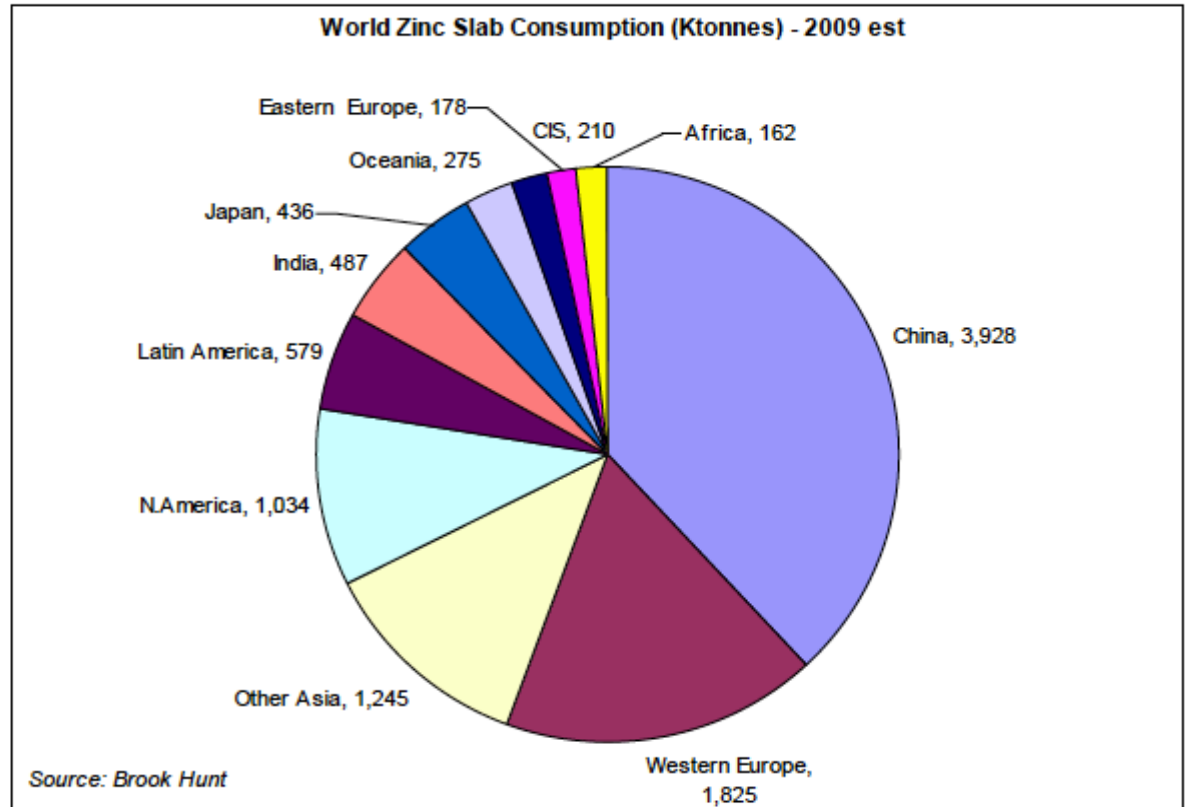


- Zinc is primarily used in galvanizing of steel, brass and diecast alloy parts.

- Consumption is primarily linked to construction and transportation sectors.

# Global Zinc Consumption

- China is now the largest zinc consumer in the world with approximately 40% of global demand.
- Chinese demand has doubled in the past 6 years and is forecast to grow at 9% annually over the next 5 years (Brook Hunt, Oct 2010).
- By 2020 China is expected to provide for 50% of global demand.
- India's zinc consumption is similarly expected to increase rapidly from current 552,000 tpa to 1,035,000 tpa by 2020 (Brook Hunt, Oct 2010).



# Supply Challenge - Large and Medium Mine Depletion

## Scheduled Depletion of Several Large and Medium Mines Commencing 2012

Mine	K tonnes	Depletion Date
Lennard Shelf	75	Shutdown
Galmoy, Ireland	80	Shutdown
Brunswick, Canada	265	2012
Perseverance, Canada	135	2012
Golden Grove, Australia	140	2012
Lisheen, Ireland	175	2013
Mt. Garnet, Australia	55	2013
Rosh Pinah, Namibia	67	2014
Century, Australia	600	2014
Iscaycruz, Peru	174	2017
Skorpion, Namibia	171	2019
<b>Total</b>	<b>1,937</b>	

\* Data from Wood Mackenzie, June 2011 Zinc Report

**Credit Suisse** (January 12, 2010 Research Note) projected the need for a 60% increase in mine production by 2016 - this means more than 6,000,000 tonnes of new mine development.

**Xstrata Zinc** (October 2010 LME presentation) President stated we could lose 1.9M tonnes of mine supply by 2016 while only adding 800,000 tonnes; and expected that we will need 7 million tonnes of new mine supply by 2020 and 14 million tonnes by 2025 to meet demand.

**Wood Mackenzie** (August 2011) forecasts loss of 1.7M tonnes by 2015, and 8.2 M tonnes of mine production by 2020.