



Phase Separation Solutions Inc.

Blue Water Consulting
June 2010

Ryan Seacrist | Chris Wagner | Cullen Berry | Micah Blyckert

Agenda



- Problem



- Solution



- Implementation



- Financial Analysis



- Conclusion



- Appendix

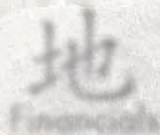
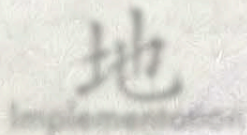
Situation



Declining Domestic Markets

International Growth Potential

Product Diversification



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Troubled Domestic Market

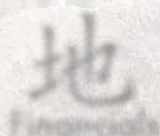
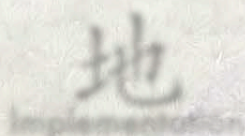


Limited
Domestic PCB



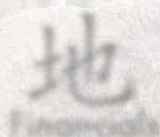
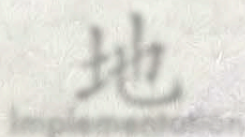
Competitive
American Market

Bennet Environmental
Market Dominance



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Market Share



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Geographic Diversification



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Solution

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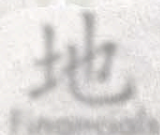
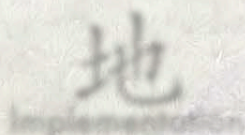
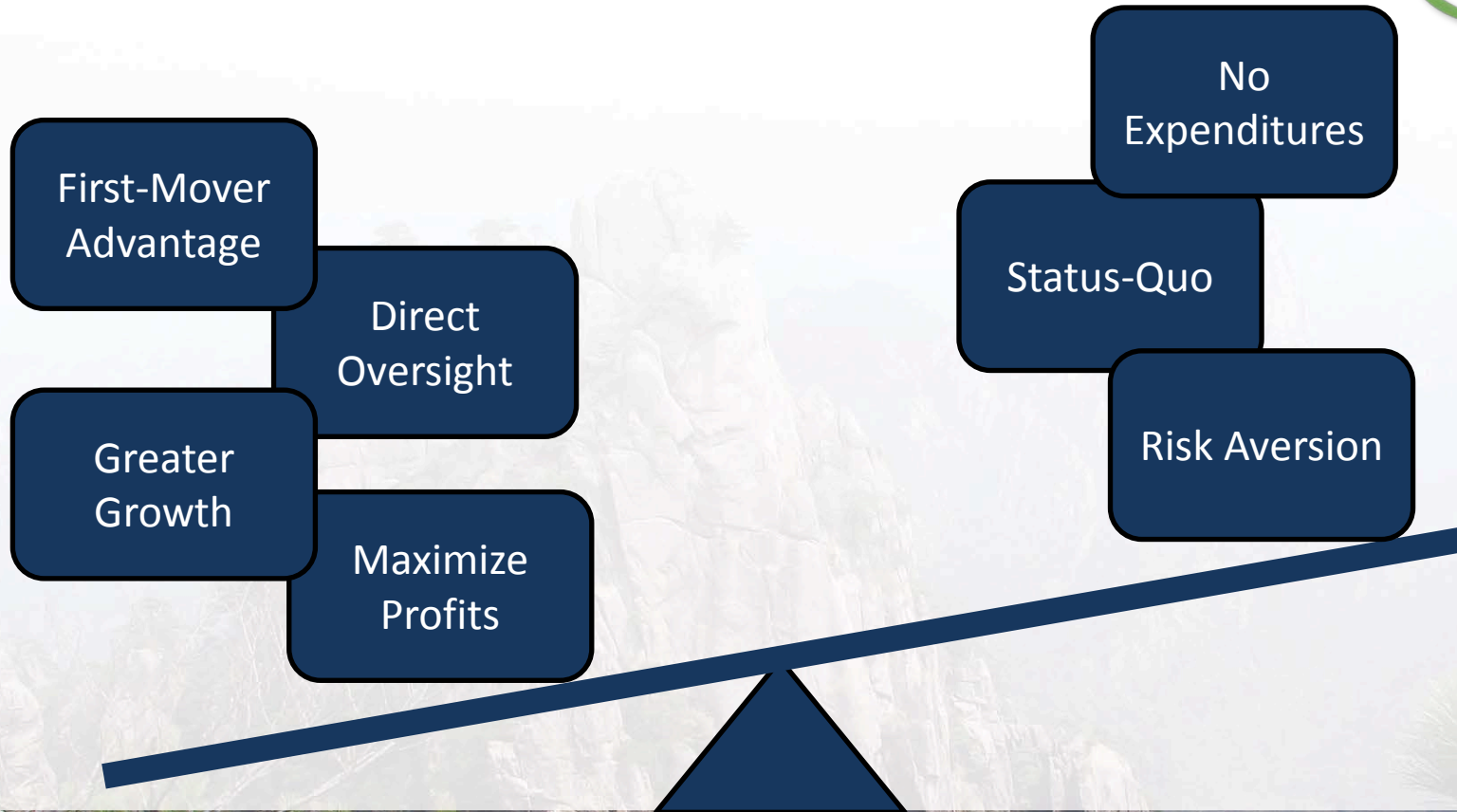
Implementation

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Financials

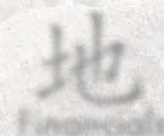
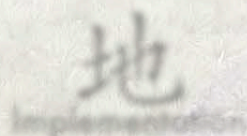
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Equity Stake Vs. Licensing



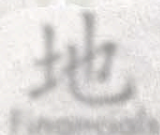
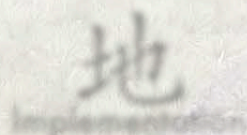
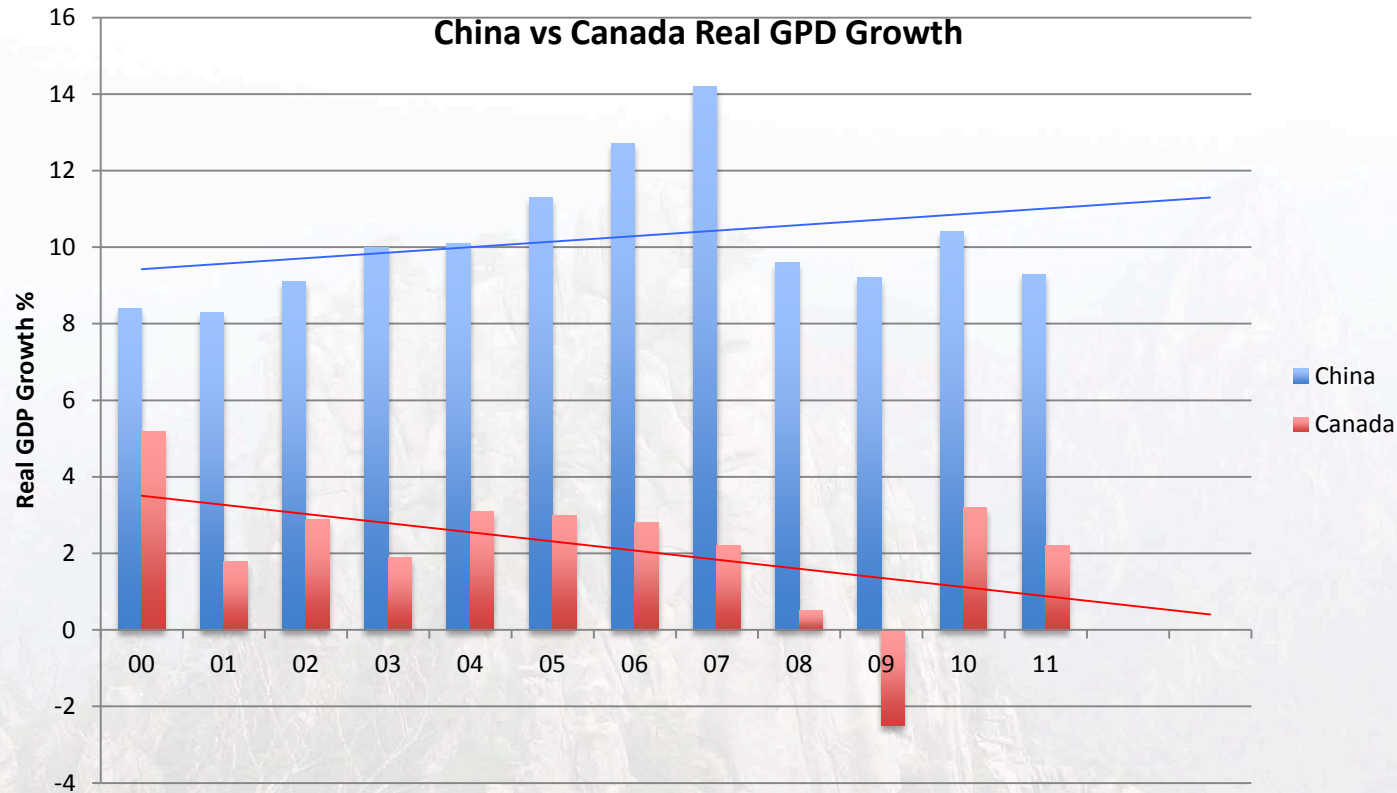
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International Growth Potential



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GDP Comparison



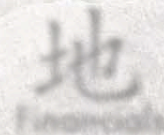
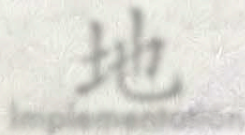
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Joint Venture Options



Nanjing Institute of
Environmental
Sciences (NIES)

Zhoushan Nahai Solid
Waste Central Disposal
Co. Ltd. (Nahai)

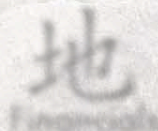
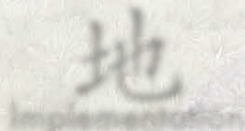


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Product Diversification Options



- Soil Remediation
 - Persistent Organic Pollutants (POP)
- Oil Recovery
 - Industrial Sludge



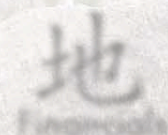
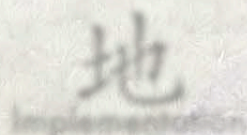
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Solution



Domestic

International



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Domestic Course of Action



1. License out TPS Technology to American Firm
 - Effective Immediately
2. Maintain Soil Remediation
 - Exit Domestic POP Market At End of 2011
3. Switch Canadian Operations
 - Oil Recovery Starting Beginning of 2012

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地
Solution

地
Implementation

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China vs. Canada PCB



	China	Canada
Number of Sites	Over 800	Less than 125
PCB Contaminated Soil	550,000 tons	200,000 tons
\$ Revenue / Ton	\$463	\$367.5
PCB Market Size	\$255 million US	\$73.5 million US

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地
Solution

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Implementation

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Chinese Market Statistics



POP

☐ 500,000 tons PCB

☐ 1 Mil additional POPs

☒ \$14,100,000 Yearly
Rev/TPS machine

Sludge

☐ 5.67 Mil tons
generated a year

☐ 6.1 Mil tons imported
year

☐ \$4,700,000 Yearly
Rev/TPS machine

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Advantages of Joint Venture With NIES



Decreased Risk With Government Agency



High Barriers of Entry



Experience



Competitive Advantage



Large Market

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Solution

地
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Implementation



Short-Term

Long-Term

Administrative

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Initial Market Entry



Year 1

Demonstrate
2,000 – 3,000 tons

Year 2

1 TPS/ 80% capacity
24,000 tons

Year 3

2 TPS/ 80% capacity
48,000 tons

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Long Term



1. Reevaluate NPV of Projects in 5 Years
2. Positive NPV From Soil Remediation
3. Positive NPV From Oil Recovery



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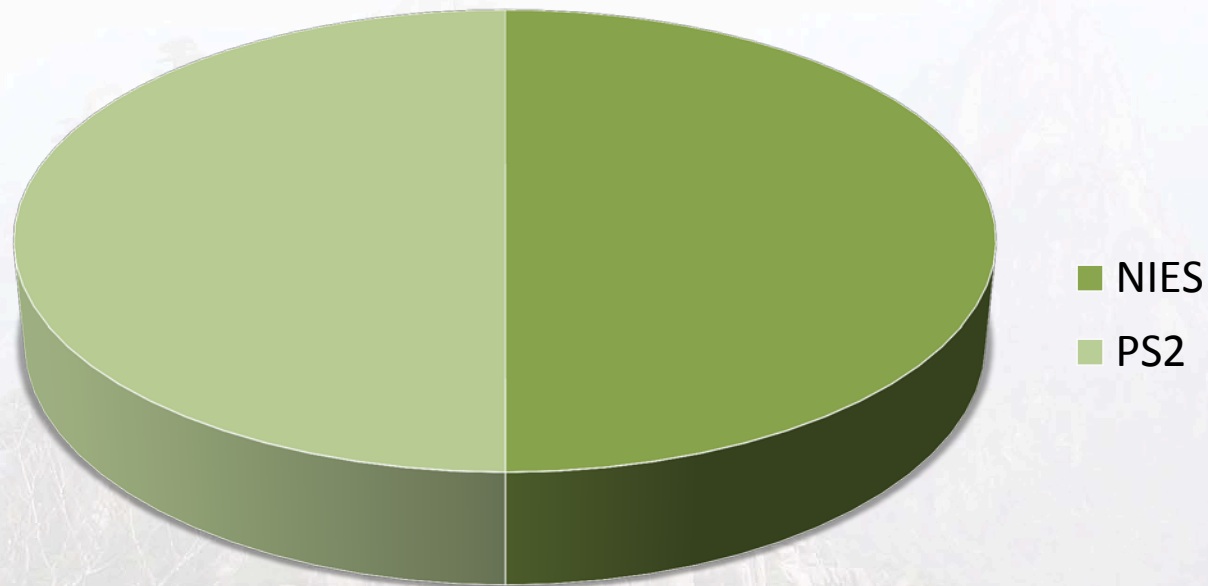
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Ownership Levels



Equity



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Staffing Chinese Operations



Managing Engineer to China

NIES Provide Staff for Operations

Staff Trained Locally

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Solution

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Implementation

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Financial Analysis



Project NPV (PCB) = \$15,163,943

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Financial Analysis



PHASE SEPERATION SOLUTIONS BALANCE SHEETS (IN CANADIAN DOLLARS)

	2007	2008	2009	2010E	2011E
Assets					
Cash and cash equivalents	1,253,446	783,993	3,255,003	5,072,250	7,432,087
Accounts receivable	117,725	155,344	681,075	696,499	1,028,166
Income tax receivable	—	177,861	—	—	—
Assets related to discontinued operations	—	141,988	—	—	—
Prepaid expenses and deposits	2,750	12,094	9,144	8,843	13,053
Current assets	1,373,921	1,271,280	3,945,222	5,777,592	8,473,306
Restricted cash	145,301	167,383	217,394	217,394	217,394
Capital assets	2,970,732	2,982,937	2,716,322	2,408,874	2,147,543
Other assets	51,216	46,096	41,904	41,904	41,904
Total assets	4,541,170	4,467,696	6,920,842	8,445,763	10,880,146

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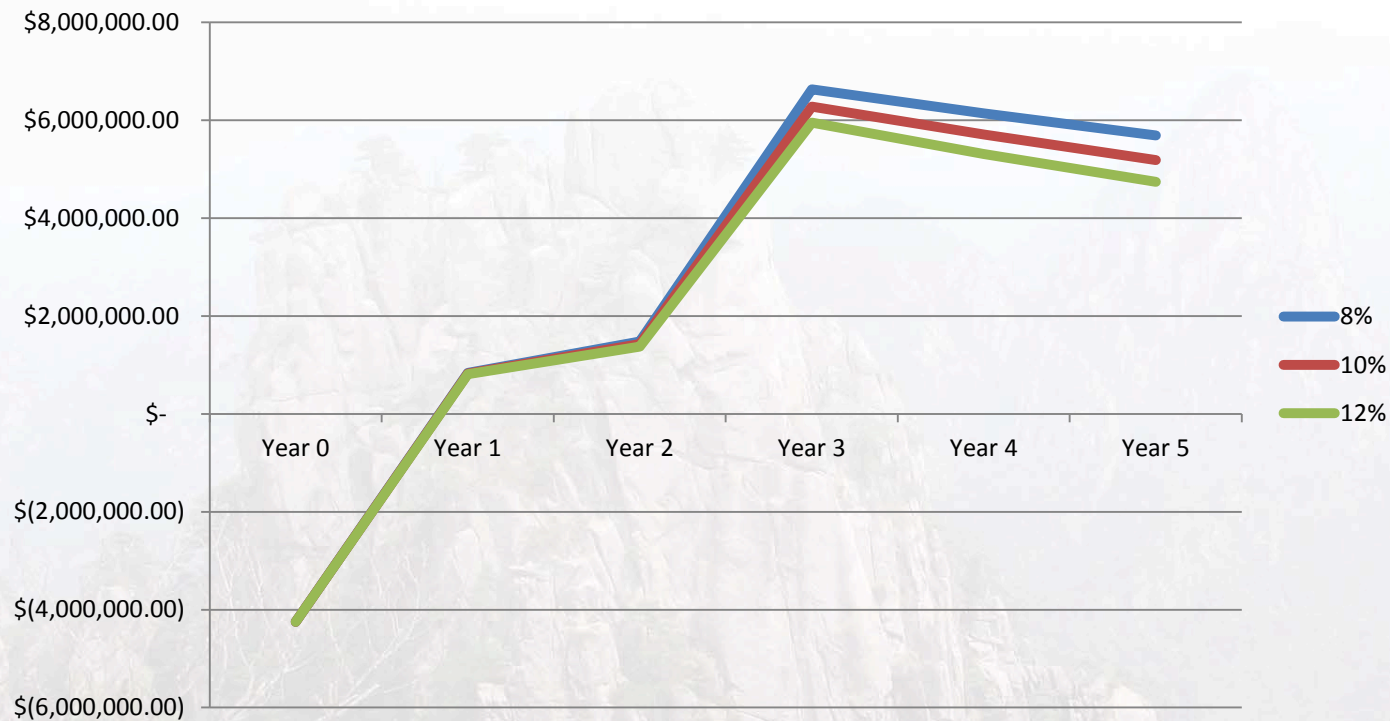
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Sensitivity Analysis



Sensitivity Analysis



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地
Solution

地
Implementation

地
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Conclusion



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Questions



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Appendix



- [Assumptions](#)
- Why not
 - [PCB in Canada](#)
 - [Pharmaceutical Waste](#)
 - [Sludge in China](#)
 - [Do Both JVs](#)
- [SWOT Analysis](#)
- [TPS Advantages](#)
- [PCB NPV Table](#)
- [Sludge NPV Table](#)
- [Sludge in Future](#)
- [Barriers of Entry](#)
- [Future Opportunities](#)
- [Chinese Business Culture](#)
- [Chinese Regulation](#)
- [Canadian Regulation](#)
- [REV/COST/CASHFLOW](#)
- [Sources](#)

Financial Assumptions



- \$25,000 Revenue From Licensing TPS Technology to American Firm
- \$150,000 Revenues From TPS Royalties
- \$25,000 Salaries per machine per year
- \$2.5 Million Cost per TPS Machine
- 10% Operating Capacity for Year 1 in China
- All Facilities Operate at 80% Capacity
- 2009 Operating Expenses used for Projections
- 25% Chinese Corporate Tax Rate
- 10% Canadian Corporate Tax Rate
- \$463.63 Revenue per ton of Sludge---Based of PCB Revenue per ton
- Expansion of Option 1 Doubles Capacity to 60,000 tons
- Expansion of Option 2 Doubles Capacity to 20,000 tons
- *Joint Venture Revenues & Costs are Split 50/50

PCB in Canada



- Only 200,000 tons of known PCB left in Canada
- Market dominated by Bennett Environmental
- One of three facilities
- Government regulations require PCB eliminated by end of 2011
- Market for PCB soil remediation will be depleted in a little over 2 years*

*Assuming total capacity of all three facilities in Canada is 110,000 tons/year; facilities working at 80% capacity

Pharmaceutical Waste



Canada

- Slow growth rates
- High transportation costs

China

- Market expected to increase with aging Chinese population
- Potential for large profits and diversification of industry
- Low barriers to entry
- No current relationships in China

Industrial Sludge Treatment in China

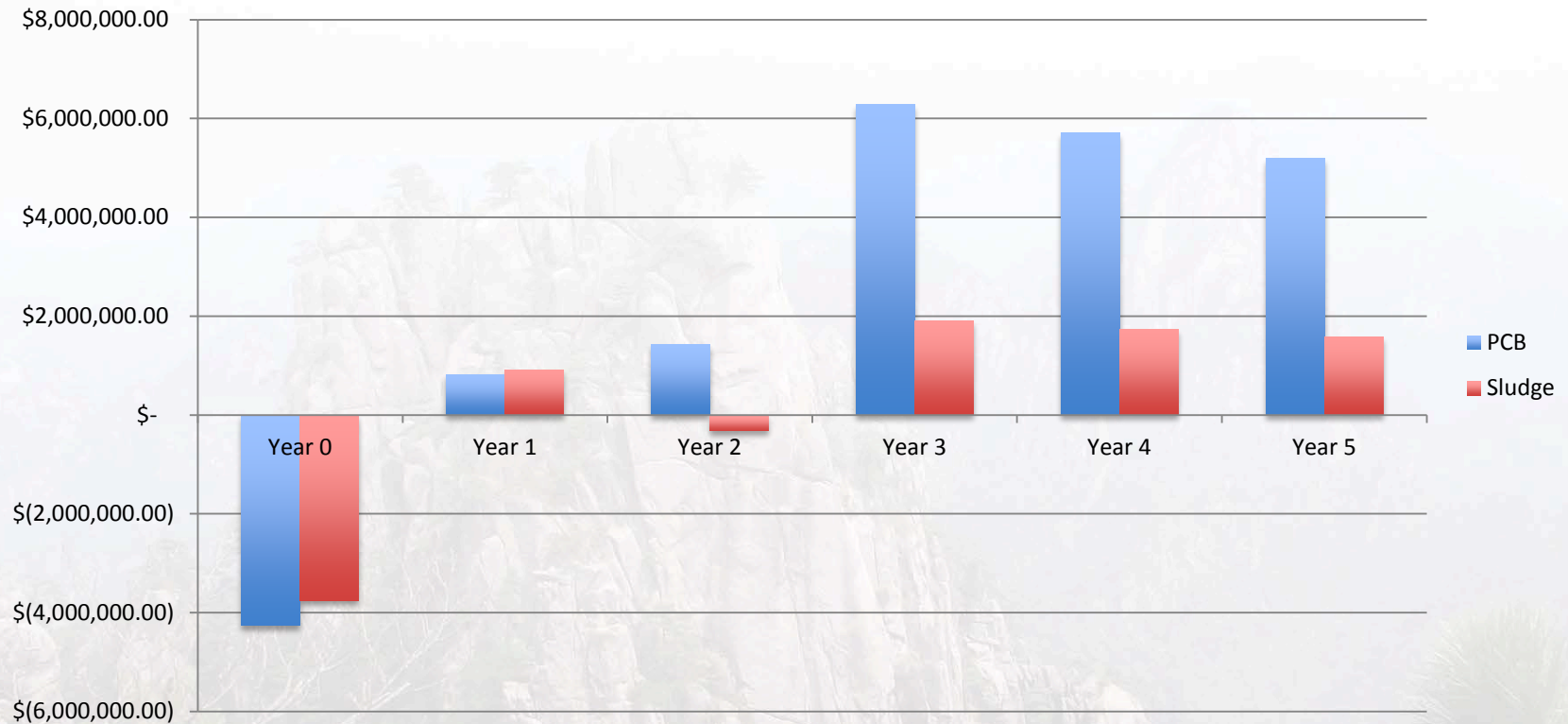


- 10,000 tons able to be processed per year
- Lower NPV in comparison to PCB earnings potential
- Fixed location
- 100,000 future maximum capacity of facility
- Viable future option considering absolute amount of POPs in China

PCB vs Sludge NPV Analysis



China PCB vs Sludge



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SWOT Analysis



- Large Market
- Niche Market
- High Barriers of Entry
- Government Assistance
- Free Ad Campaign

- Emerging Market
- First-Mover
- International Relations

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- Multinational Labor
- Cultural Differences
- Large Investment

- Patent Expiration
- Incineration
- Policy Uncertainty
- Economic Uncertainty

TPS Advantages



Recovery and
Recycling

Requires no
Pretreatment

Non-
Incineration

On-site Option
(Mobile)

Permitted for all
Types of
Hydrocarbon
Impacted Soil

Meets all air
Emission
Standards

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PCB NPV Projections



	<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
REV	\$-	\$788,500.00	\$13,512,000.00	\$27,024,000.00	\$27,024,000.00	\$27,024,000.00
OPCOSTS	\$-	\$375,000.00	\$3,000,000.00	\$6,250,000.00	\$6,250,000.00	\$6,250,000.00
DEP	\$-	\$250,000.00	\$250,000.00	\$500,000.00	\$500,000.00	\$500,000.00
EBIT	\$-	\$1,413,500.00	\$10,262,000.00	\$20,274,000.00	\$20,274,000.00	\$20,274,000.00
TAX	\$-	\$353,375.00	\$2,565,500.00	\$5,068,500.00	\$5,068,500.00	\$5,068,500.00
NI	\$-	\$1,060,125.00	\$7,696,500.00	\$15,205,500.00	\$15,205,500.00	\$15,205,500.00
DEP	\$-	\$250,000.00	\$250,000.00	\$500,000.00	\$500,000.00	\$500,000.00
CAPEX	\$3,000,000.00	\$-	\$2,500,000.00	\$-	\$-	\$-
WFC	\$2,500,000.00	\$(500,000.00)	\$2,000,000.00	\$(1,000,000.00)	\$(1,000,000.00)	\$(1,000,000.00)
FCF	\$(5,500,000.00)	\$1,810,125.00	\$3,446,500.00	\$16,705,500.00	\$16,705,500.00	\$16,705,500.00
base	\$(4,250,000.00)	\$905,062.50	\$1,723,250.00	\$8,352,750.00	\$8,352,750.00	\$8,352,750.00
8%	\$(4,250,000.00)	\$838,020.83	\$1,477,409.12	\$6,630,682.25	\$6,139,520.60	\$5,684,741.30
10%	\$(4,250,000.00)	\$822,784.09	\$1,424,173.55	\$6,275,544.70	\$5,705,040.64	\$5,186,400.58
12%	\$(4,250,000.00)	\$808,091.52	\$1,373,764.35	\$5,945,322.46	\$5,308,323.63	\$4,739,574.67
NPV(8%)=		\$16,520,374.11				
NPV(10%)=		\$15,163,943.57				
NPV(12%)=		\$13,925,076.63				

Sludge NPV Projections

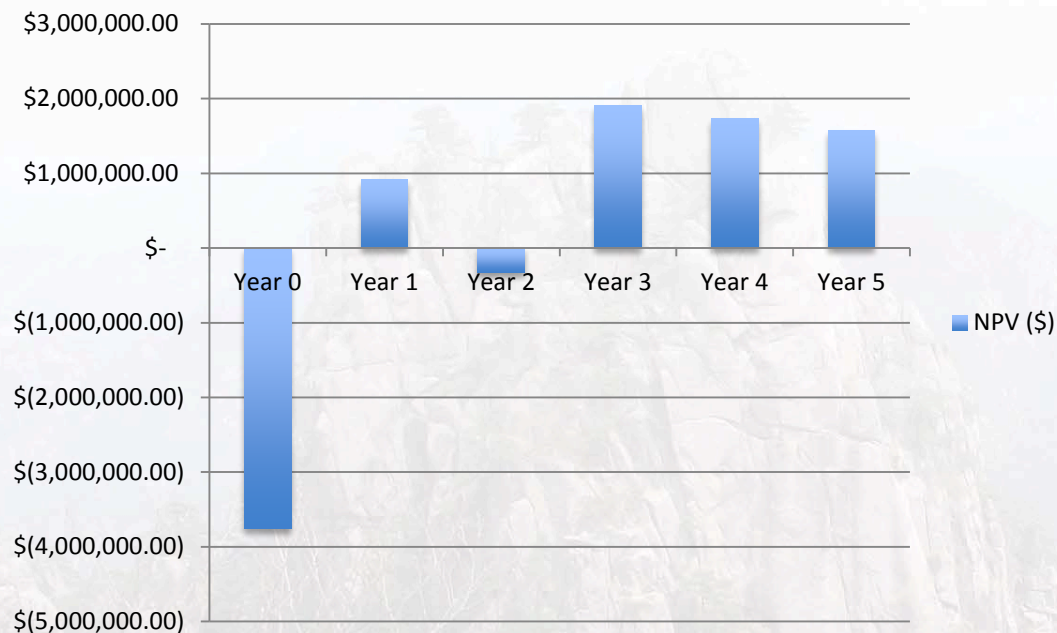


	<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
REV	\$-	\$3,704,000.00	\$3,704,000.00	\$7,408,000.00	\$7,408,000.00	\$7,408,000.00
OPCOSTS	\$-	\$1,500,000.00	\$1,500,000.00	\$1,625,000.00	\$1,625,000.00	\$1,625,000.00
DEP	\$-	\$250,000.00	\$250,000.00	\$500,000.00	\$500,000.00	\$500,000.00
EBIT	\$-	\$1,954,000.00	\$1,954,000.00	\$5,283,000.00	\$5,283,000.00	\$5,283,000.00
TAX	\$-	\$488,500.00	\$488,500.00	\$1,320,750.00	\$1,320,750.00	\$1,320,750.00
NI	\$-	\$1,465,500.00	\$1,465,500.00	\$3,962,250.00	\$3,962,250.00	\$3,962,250.00
DEP	\$-	\$250,000.00	\$250,000.00	\$500,000.00	\$500,000.00	\$500,000.00
CAPEX	\$3,000,000.00	\$-	\$2,500,000.00	\$-	\$-	\$-
WFC	\$1,500,000.00	\$(300,000.00)	\$2,200,000.00	\$(600,000.00)	\$(600,000.00)	\$(600,000.00)
FCF	\$(4,500,000.00)	\$2,015,500.00	\$(784,500.00)	\$5,062,250.00	\$5,062,250.00	\$5,062,250.00
base	\$(3,750,000.00)	\$1,007,750.00	\$(392,250.00)	\$2,531,125.00	\$2,531,125.00	\$2,531,125.00
8%	\$(3,750,000.00)	\$933,101.85	\$(336,291.15)	\$2,009,288.63	\$1,860,452.44	\$1,722,641.14
10%	\$(3,750,000.00)	\$916,136.36	\$(324,173.55)	\$1,901,671.68	\$1,728,792.43	\$1,571,629.48
12%	\$(3,750,000.00)	\$899,776.79	\$(312,699.30)	\$1,801,604.78	\$1,608,575.70	\$1,436,228.30
NPV(8%)=		\$2,439,192.91				
NPV(10%)=		\$2,044,056.40				
NPV(12%)=		\$1,683,486.26				

Sludge Potential in Future



NPV of China Sludge JV



Experience
from
Canadian
Operations

Increased
Cash
(Equivalent)
for
Investments

Barriers of Entry



Start-up Costs



Difficulty in Sourcing



Securing Friendly Locations
for Operations



2-3 Years of Regulatory
Evaluation

Future Opportunities



- 2001-75% of Food Samples had detectable POP
- 10-15% Exceeded Levels Prescribed by World Health Organization
- Clean-up Efforts are Still in Early Stages



Chinese Business Culture



- Government Connections
- Chinese Companies Favorable Over Foreign Companies
- Relationships

关系

Chinese Regulation



- \$162.5 billion towards environmental protections (2005)
- Stockholm Convention on Persistent Organic Pollutants
- Difficult for Chinese government to eliminate the use of POP

Canadian Regulation

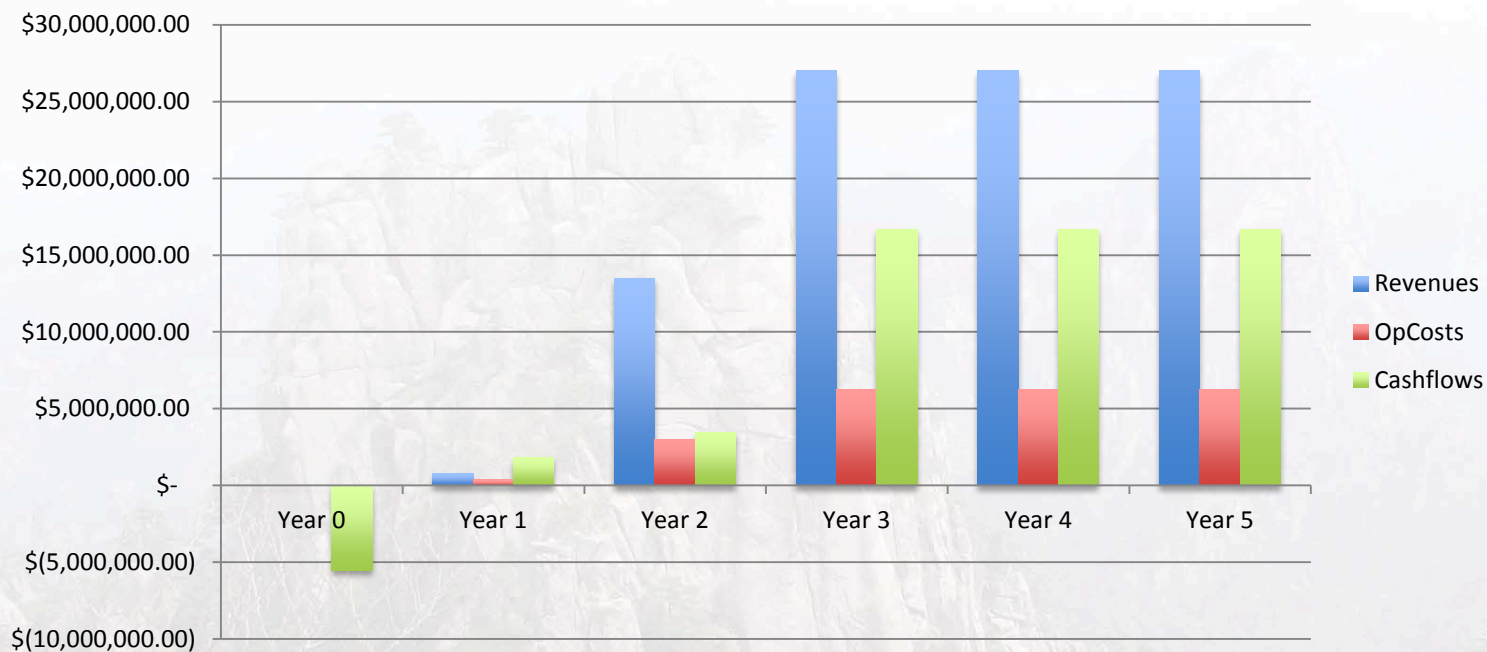


- Government pledged \$3.5 billion towards environment over 10 years (2004)
- Deadline for the ending of storage of PCB ends 2011
- Soil Remediation and Industrial Sludge Standards
- Ontario government initiated Land Disposal Restrictions in 2008
- TPS meets Canadian environmental regulations

Revenues/Costs/Cash Flows



China PCB REV/COST/CASHFLOW



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Sources



- <http://www.phaseparation.com/>
- <http://www.economist.com/blogs/banyan/2012/11/air-pollution-india>
- http://tabemono.info/report/former/pcd/2003/china/e_1.html
- http://www.forbes.com/fdc/welcome_mjx.shtml
- <http://www.ec.gc.ca/bpc-pcb/default.asp?lang=En&n=663E7488-1>
- http://www.foxriverwatch.com/monsanto2a_pcb_pcbs.html
- <http://www.ehs.utoronto.ca/services/environmental/pcb.htm>
- http://www.pops.int/documents/implementation/nips/submissions/china_NIP_En.pdf