

Environmental and Social Responsible Investment

An opportunity or an Illusion?

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Association for Sustainable & Responsible Investment In Asia



Why choose environmental investment?

Ecosystems provide services to us

- Forest, grasslands, mangroves, water and soil provide different services to society
- They provide products and regulate temperature
- Ecosystem services affect human well-being and needs such as food, shelter, health and security
- Detoxify and decompose wastes
- Control agricultural pests
- Generate and preserve soils and renew their fertility
- Contribute to climate stability
- Regulate disease carrying organisms



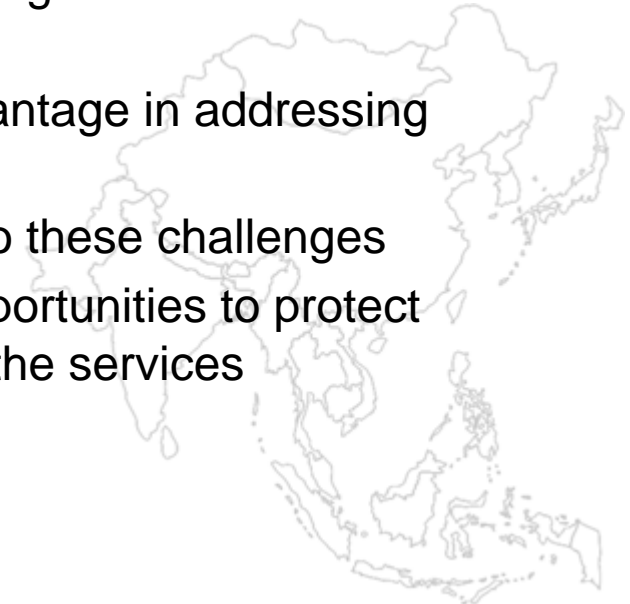
How business related to eco-system

- Everybody and every business rely on eco-system services
- Everybody and every business also contributes to ecosystem change
- Most of the ecosystem services in the world are being degraded or used unsustainably
- If current trends continue, ecosystem services will cease to be available or become more costly in the future
- As an investor, we can and we have the power to change the trend



Business implication of eco-system change

- Eco-system services are severely threatened through growth in the scale of human enterprise
- A lot of businesses creating mismatch between short-term needs and long-term social well-being
- Businesses are facing increased governmental regulation or stakeholder pressure
- Leading companies are seeking first-mover advantage in addressing these issues, in an effort to build reputation
- Businesses need to take integrated responses to these challenges
- Investment opportunities arise via identifying opportunities to protect eco-systems and help maintain the provision of the services



How are eco-systems services disrupted

- Pollution of land, sea water, surfaces water, underground water and air resources
- Introduction of alien species
- Over-harvesting of fisheries
- Destruction of forest and farmland
- Over-mining causes the erosion of soil
- Green house gas emissions
- Urban sprawl
- Runoff of pesticides, fertilizers, and animal wastes



Identify investment opportunities

- Earth's natural capital is being eroded at a rapid rate
- There is still time to lessen the impact by business engagement
- Every threat creates opportunity
- Innovation and technology help minimize the damage to ecosystems and create new business opportunities for those who are aware and prepared
- Opportunities from the above eco-system services disrupted :
 - Water projects
 - Emission reduction
 - Good practice fishery
 - Forestry
 - New energy
 - Organic farming and organic fertilizer
 - Urban development



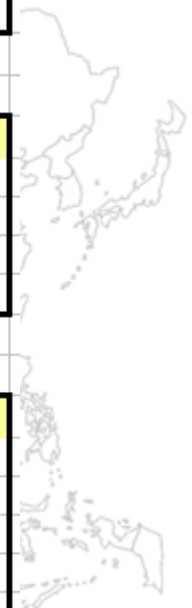
Project screening method – a personal experience

- Set up a basic investment criteria based on the standard of IFC
 - The Environmental and social standards of IFC applies to all projects it finances
 - The standard include investment screening criteria and implementation process
- Design the criteria into a comprehensive and measurable system
- Allocate scores before proceeding
 - Environmental score: external and internal
 - Social score
- First round screening
- After first round screening, use a self-developed check list for social and environmental audit during normal due-diligence process



Sample on my own score system

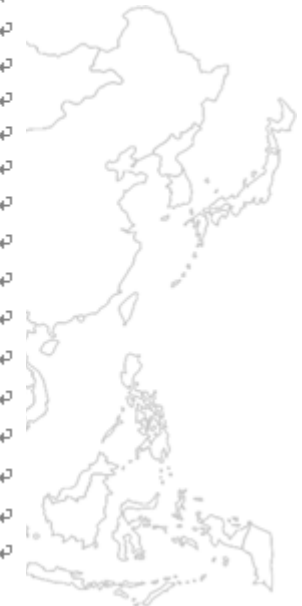
	A	B	C	D	E	F
1	Items					
2	1. Total GHG					
3	worksheet	GHG Source	Tons of CO2 Equivalent			
4		Fuel combustion				
5		Electricity				
6		CHP				
7		Road Transport				
8		Process Related GHG Emission				
9		Paper				
10		Total CO2				
11						
12	2. Normalising CO2 Potential					
13	Normalising Factor	Consolidated Company Figures	Tones of CO2 per normalising factor			
14	Turnover					
15	Employees					
16	unit production					
17						
18						
19	3. GHG Profile Over Time					
20	Year	Tones of CO2 Equivalent	% change			
21	2006					
22	2007					
23	2008					
24	2009					
25	2010					



Sample on pre-investment audit form

1. Wages

★ What is the local legal minimum monthly wage for factory workers?	RMB	
★ What is this factory average monthly wage for trained workers?	RMB	
★ What is the surrounding area average monthly wages of same industry?	RMB	
◆ Are there any workers paid by an hourly or on a piece rate system? If by piece rate, is there an effective system to record the number of pieces produced?		
□ Is there an enhanced payment for overtime?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
□ If yes, does it meet local legal requirement?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
◆ Are payments made to the worker directly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
□ Do workers get paid during training?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
□ If yes, does the payment meet legal requirement?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
★ How are workers paid? By cash, check, other means?		
◆ Are detailed pay slips provided showing workers pay calculations?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
★ Deductions from gross wages:		
Meal	\$	<input type="checkbox"/> N/A
Dormitory + utilities	\$	<input type="checkbox"/> N/A
Pension fund	\$	<input type="checkbox"/> N/A
Health insurance	\$	<input type="checkbox"/> N/A
Unemployment insurance	\$	<input type="checkbox"/> N/A
Accident damage insurance	\$	<input type="checkbox"/> N/A
Total	\$	
◆ Is this total deduction less than 50% of the legal minimum wages?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
□ What deductions are not allowed in accordance with local laws?		



Sample on special industry pre-investment audit form

▪ **Land base aquaculture audit form**

▪

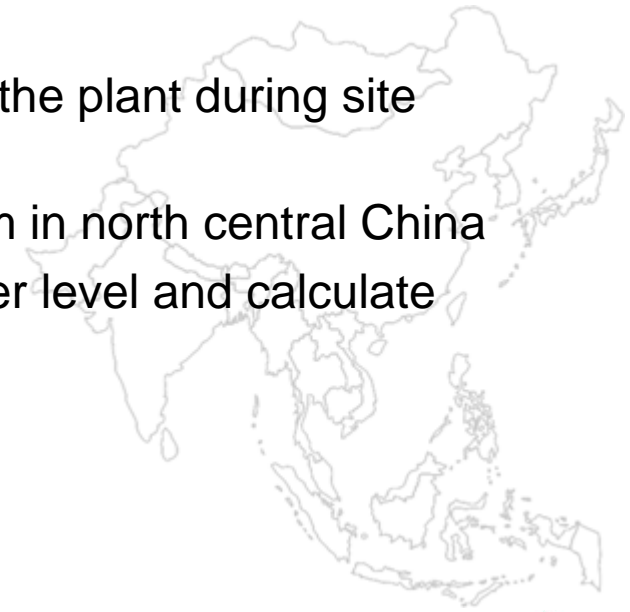
Evaluation Date: ↕ ↕	
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Farm Name: ↕	↕
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Farm Address:↕	↕
↕	↕
Country:↕	↕
↕	↕
Accessibility :↕	Takes ↕ Min.↕ from↕ Shenzhen↕ to ↕ farm↕ by↕ Taxi↕
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Phone :↕	↕ Fax :↕ ↕
Email:↕	↕
↕	↕
Language Spoken: ↕	Mandarin ↕
↕	↕
Auditor : ↕	↕
↕	↕
Title : ↕	↕
↕	↕
Phone :↕	↕ Fax :↕ ↕
Email:↕	↕
↕	↕
Relationship Of Auditor With Farm :↕	↕
↕	↕



Address keys issues

Example I

- A paper pulp project in Hebei
- Buy the asset of the bankrupted project by open tender
- The original paper pulp plant has a very bad track record
- Paper pulp usually utilize a lot of water
- We discover over 10 well within 500 m radius of the plant during site visit
- Underground water shortage is always a problem in north central China
- Researched the past 10 years underground water level and calculate the natural water compensation



Address keys issues

Example II

- An organic honey project in Chang Bai Shan
- The project owner gave training to the suppliers and help shift from conventional to organic operations
- The owner also helped the farmer to apply for organic accreditation and undertook all the expenses
- China has suffered from alien invasion of honey bee for many years
- We have to research on the detail information of the bee species, year of introduction to China, their ecological impact, etc



Dark side of environmental investment – corn ethanol

- A well known example
- US government heavily subsidized the corn ethanol industry
- Corn ethanol energy efficiency is only 1.2 unit from 1 unit input
- Can only save 12% of carbon emission
- To produce a gallon of ethanol takes 1700 gallons of water
- Thirty million acres of land is going to produce the corn ethanol
- Corn prices worldwide have increased by 50% over the past year



Dark side of environmental projects – wind

- The risk that wind turbines pose to birds is well known
- Bats are massively killed by wind turbines because:
 - Moving blades cause a drop in pressure
 - Delicate lungs of bats suddenly expand, bursting the tissue's blood vessels
 - Similar as scuba divers
- Resettlement problems
- Landscape alteration



Dark side of environmental projects – biodiesel in China

- Biodiesel can be produced with wide variety of feed stock
- The feed stock of some biodiesel plant in China is acidified oil
- Producers use strong acid to extract the remaining oil from the residue of edible oil production plants
- They choose those edible oil production plants in sub-urban or village to avoid environmental monitoring
- After the extraction, they buried the waste without further treatment



Dark side of environmental projects – forestry

- China has a tight forestry protection law and system
- The provincial government will issue quotas to the forestry owner and the owners can log certain amount of trees every year
- Some investors bought in old growth forest, make faked report with the local people and get quotas to log down old growth forest
- They grow plantation forest after the log down of old growth forest
- It happened in many parts of China in the past ten years



Can Environmental and social investment make money?

- No different from other PE fund
- Investor's IRR expectation will be the same, i.e. 20% or above
- We treat it as an industrial fund, somebody choose property, some body choose IT, we choose environmental related company
- All asset management process will be the same
- Favorable points for environmental and social investment:
 - Some projects may enjoy the extra income from CDM
 - Most of the environmental projects can have the favorable policy from the government include direct money subsidy, lower VAT, etc



Investment opportunities – wind

- In the end of 2007, China's installed base of wind power totaled over 6 GW
- In 2020, China's installed base of wind power will total 100 GW
- From 2007 to 2015, 100 billion Yuan will be spent on equipment and component purchases
- The government has mandated that all new wind farms need to have at least 70% local component
- Wind power equipment manufacturers now enjoy a 50% discount on VAT
- Unlike solar, wind equipment manufacturers don't have very strong market players (the scale of Goldwind is much smaller than Suntec)
- Existing manufacturers don't have their proprietary new technology
- None of the major market player can produce 2 MW permanent magnet direct drive generator turbine (information up to April 2008)

Investment opportunities – forestry

- Until recently, all the forest in China is managed under the Forestry Department or under collective ownership management
- They have tight regulation to protect forest, but because of poor management and lack of economic incentive this causes a great waste of natural resources
- The second forestry reform started in 2003 and is still undergoing, the basic concept is to decentralize to household management
- Farmer households, a group of farmers, outsiders are all entitled to contract and manage state own forest
- The government also started to issue land titles and allow transaction of land titles
- By setting up appropriate management system, forestry has huge potential in China



Investment opportunities – Coal bed methane

- Coal contributes heavily to air pollution
- Until recently, most of Chinese coal mines have wasted the methane in coal mine by releasing it directly into the atmosphere
- Methane contains 21 times more carbon than carbon dioxide, releasing of methane to atmosphere does much more damage to the ozone layer than burning coal
- The Chinese government has rolled out preferential policies for the extraction of coal bed methane, they waived the import duties of those equipments
- The industry has skyrocketed in 2007, but there is still room for new investment
- Most of the investors now are only invested in Shanxi and Shaanxi, but there are still a lot of opportunities in Guizhou or other provinces rich in coal mines



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