Confronting Discrimination and Inequality in China
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Since the 1980s, rapid industrialization in China has given birth to two dramatic events. One is the double digit average annual economic growth rate that has lasted for more than twenty years, and which has transformed what was a predominantly agricultural society into the 21st century’s “workshop of the world.” The second is the unprecedented speed and scale of ecological destruction and environment pollution by far unmatched by any country, nor rivalled by any previous period of human history, including that of the Great Leap Forward in the 1950s.

In fact, if we could decipher the usually ambiguous language games¹ in the *Environmental Status Bulletins* published by the various levels of environment administration, supplemented by honest documentation by journalists and writers, we should be able to produce a close enough account of the environment’s general deterioration: ecological destruction brought on by the Chinese mode of industrialization² has long passed the point of “crisis” (a designation the importance of which is dubious in any case): instead, it has now entered a phase in which a full-scale war is waged against nature on home ground.

This war has already gone on for more than two decades. Although the true gravity of its consequences has yet to emerge, some situations that have surfaced suffice to bring home its capacity to devastate, and to instil terror. Persistent outcries for humanitarian intervention by Chinese leaders concerned for the country’s future have been, “let the people drink clean water, breathe clean air….”¹ Nevertheless, with globalization as the general backdrop, two formally incompatible institutions are joining forces. Together, they wield enough power to derail China’s industrialization train. With the war engine ramming away, the war on nature will go on.

We cannot predict when we will see the end of this war on our environment. But the clearing up of calamities brought forth by this war — and they are not mere “losses” — is possible and necessary. In the next phase of our work,³ we shall focus on the battlefield where fighting is most intense — the province of Shanxi⁴— a land filled
with the legacy of ancient civilization, rich with coal, inhabited by 33.75 million people and spanning 156,000 square kilometres. We shall examine the degree of ecological destruction, the disasters inflicted and their distribution, as well as their destructive impacts on the farmers’ livelihoods and the society of the countryside.

With most of China entrapped in a serious “ecological environment crisis,” there are two reasons for selecting Shanxi as the object of study. The first relates to technique and considerations of methodology: studying the problem from the macro level may affect the depth of our study, given China’s size. Superficial and general studies have been done by many local and foreign academics. For in-depth study, we must target a particular provincial area or river basin in order to obtain a “middle view.” Second is Shanxi’s representativeness: Shanxi typifies China in its abundance of resources, mode of economic growth, and the universality, degree and social outcomes of ecological destruction.

Most data used in this study are the results of the author’s on-site investigation in certain areas in Shanxi. Extensive use has been made of media reports and official statistical bulletins on the state of Shanxi’s environment. It also includes a small number of qualitative studies done by researchers.

I. THE EXPANSION AND DISTRIBUTION OF WEALTH AND ITS ECOLOGICAL PRICE

Known as the “heaven of black gold,” Shanxi is rich in coal deposits. It has coal buried under 70 percent of its land, and, with 264.5 billion tons in available reserves, it has 26 percent of the country’s total proven coal reserves. Since the early 1980s Shanxi has been declared a State “energy base” (nengyuan jidi) (assuming an even more important role in the 1990s as an “energy and heavy chemical industrial base”), and the policy of the central government has been to encourage coal mining activities wherever possible and by whatever means (youshui kuaili). Intensive coal mining has been carried out on a large scale. For a long time, coal output in Shanxi accounted for approximately a quarter of national production. Especially since 2001, coal prices soared with the country’s rapidly growing economy. Countless coal mines, legal and illegal, have contributed to the rush for black gold. Coal output in 2005 was 600 million tons, nearly the output for the entire decade of the 1970s. Reports also indicate that total output over the last twenty years was close to eight billion tons. Coal-related industries, such as coking, electrical power, smelting, chemical engineering and building materials, have also developed swiftly.

The total economic wealth of Shanxi indeed multiplied quickly. Based on total output of the entire provincial region, annual output increased by 13.1 percent during the period of the tenth five-year plan, five percentage points higher than the 8.2 percent growth during the period of the ninth five-year plan and the original target. Output
value during 2006 was RMB 474.7 billion, 2.9 times the 2000 level. Shanxi leaders said, "the tenth five-year plan period is the time during which Shanxi grew fastest and grew best, and in which people benefited most substantially." 9

Undoubtedly, the greatest beneficiaries from such new found wealth are the "coal bosses"—nouveaux riches and the government—rather than the "masses of the people" (to embrace a highly political concept). Despite the unavailability of accurate statistics on the "coal bosses" and the amount of wealth they have amassed, an article from the First Financial Daily quoted the head of the Xinjiang Office of the Shanxi Provincial Government saying "there is at least RMB 409 billion in the hands of private coal bosses seeking out investment avenues." This amounts to 2.7 times the income of the province's entire urban population of 14.51 million in 2006 (RMB 145.54 billion), and

Table 1: Shanxi's Economic Growth and Wealth Distribution (1980–2006)

<table>
<thead>
<tr>
<th>Year</th>
<th>Regional Output RMB 100m</th>
<th>Total Fiscal Income RMB 100m</th>
<th>General Budgeted Income RMB 100m</th>
<th>Urban Residents per Capita Disposable Income RMB</th>
<th>Farmers per Capita Income RMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>108.6</td>
<td>-</td>
<td>21.0</td>
<td>380</td>
<td>156</td>
</tr>
<tr>
<td>1985</td>
<td>219.0</td>
<td>-</td>
<td>25.0</td>
<td>595</td>
<td>358</td>
</tr>
<tr>
<td>1990</td>
<td>429.3</td>
<td>-</td>
<td>51.8</td>
<td>1,291</td>
<td>604</td>
</tr>
<tr>
<td>1995</td>
<td>1,092.5</td>
<td>129.4</td>
<td>72.2</td>
<td>3,306</td>
<td>1,208</td>
</tr>
<tr>
<td>2000</td>
<td>1,640.1</td>
<td>194.5</td>
<td>114.4</td>
<td>4,724</td>
<td>1,906</td>
</tr>
<tr>
<td>2001</td>
<td>1,774.6</td>
<td>243.7</td>
<td>132.6</td>
<td>5,391</td>
<td>1,956</td>
</tr>
<tr>
<td>2002</td>
<td>2,001.8</td>
<td>292.4</td>
<td>156.7</td>
<td>6,234</td>
<td>2,150</td>
</tr>
<tr>
<td>2003</td>
<td>2,445.6</td>
<td>369.6</td>
<td>186.0</td>
<td>7,005</td>
<td>2,299</td>
</tr>
<tr>
<td>2004</td>
<td>3,042.4</td>
<td>533.5</td>
<td>255.2</td>
<td>7,903</td>
<td>2,590</td>
</tr>
<tr>
<td>2005</td>
<td>4,121.2</td>
<td>757.9</td>
<td>368.2</td>
<td>8,914</td>
<td>2,891</td>
</tr>
<tr>
<td>2006</td>
<td>47,46.5</td>
<td>1,048.0</td>
<td>583.1</td>
<td>10,028</td>
<td>3,181</td>
</tr>
<tr>
<td>2006/2000</td>
<td>2.9</td>
<td>5.4</td>
<td>5.1</td>
<td>2.1</td>
<td>1.7</td>
</tr>
<tr>
<td>2006/1980</td>
<td>43.6</td>
<td>-</td>
<td>27.8</td>
<td>26.4</td>
<td>20.4</td>
</tr>
</tbody>
</table>

6.5 times that of its 19.23 million rural population in 1923 (RMB 61.17 billion) — a definite indication of the immense amount of their wealth. Official statistics provide a glimpse into the additional wealth accumulated by the government: fiscal income has been growing faster than residents' income since the 1980s; and government income has experienced exponential growth in the new millennium. Total fiscal income in 2006 was 5.4 times more than the 2000 figure, 2.6 times that of urban residents and three times that of rural residents. This implies that even if we were to disregard the "unbudgeted income," the government is, compared to the urban and rural residents, the greatest beneficiary of economic growth.

Behind the rapid expansion in the wealth of "coal bosses" and the government lie ecological destruction and grave environmental degradation. The 2001 Shanxi Environmental Status Bulletin reported that Shanxi's emission levels of key pollutants far exceed the environment's tolerance, and that all its cities, key regions and river basins are seriously polluted. The total per capita pollution load for every square kilometre is 3.7 times the national average; per capita pollution load for pollutants such as industrial smoke and ash, sulphur dioxide and dust is many times, even tens of times, higher than the national average. In September 2002, a vice mayor of Shanxi made a public request in Beijing, asking the central government to include Shanxi as a "key province for national environmental protection." Thereafter, over the next three years, dozens of members of the National Committee of the Chinese People's Political Consultative Conference (CPPCC) would petition for "the nomination of Shanxi as a key province for national environmental protection at every National People's Congress (NPC) and CPPCC meeting in Beijing." They would also request funding and policy support to prevent and treat the pollution of the Huai River, similar to the similar support given to Beijing. What is really behind this repeated call for help? We may look at it systematically from four perspectives:

1. A Different Kind of "Mine Accident"
The lack of protection for miners' safety is a well-known fact. The Shanxi public conjures the image of "blood-stained" coal due to frequent mine accidents. However, what is here reduced to mere "mine accidents" is in fact more than the innumerable number of miners who have lost their lives to an unknown hand. Even more, they themselves tell of the devastation of the environment and the ecosystem.

Destruction of the ecosystem first manifests itself in the attenuation of water resources. Geological exploration indicates that Shanxi's coal and water systems are both located within the same geological structure: the mining of coal and the discharge of pit water thus destroys the natural equilibrium of groundwater. Water flows towards the pit, forming a cone of depression, with the shaft at the centre, and the water table falls when the original water-bearing layer becoming an impervious water bed. Based on calculation, 2.48 cubic metres of water will be affected, destroyed or lost for every ton of
coal extracted in Shanxi. If we then calculate based on the amount of coal extracted in 2005, 600 million tons of coal extracted translates into 1.5 billion cubic metres of water wasted. This is equivalent to one fifth of the entire province's groundwater reserve.²⁴

Intensive coal mining causes critical geological calamities. Studies by the Land Resource Administration Bureau of Shanxi Province discovered that, as of 2004, there were as many as 20,000 square kilometres or more of goaves left over from various mines in Shanxi, which means that more than one seventh of the total ground surface of the province consists of "suspended areas." Geological disasters affect more than 6,000 square kilometres, spanning more than 1,900 villages and affecting 2.2 million people. Sinking due to mining was found in 1,842 places, and mining-induced depression areas increase at a rate of 94 square kilometres per year.¹⁵ Geological calamities include cave-ins, cracking and collapse of housing, damage to water and road facilities, and flows of mud and debris. Every ton of coal extracted will cause 1.07 persons in the province to be affected by cave-ins and destruction to housing and infrastructure. Also, coal mining is increasingly affecting surface waters. A study that ended in 2004 indicated that destruction to water resources due to coal mining covers as much as 20,352 square kilometres, or 13 percent of the total area of Shanxi. Six million people and tens of thousands of large animals suffer as a result from serious water deprivation.⁶

2. Shanxi's Sky
Public data shows that every year dust produced from coal mining, coking and power generation activities in Shanxi amounts to approximately 900,000 tons, or nearly six tons per square kilometre. Intensive discharge and unfavourable geographical conditions have resulted in the major cities in the province suffering under a perpetually envelope of "medium" or "heavily" polluted air. Air quality of eleven municipality cities and many county towns are often rated at Grade Three, or Grade Four, or even Grade Five and lower. These are levels which are "fairly" or "extremely" hazardous to human health. Among the country’s 30 most polluted cities in 2001, thirteen were from Shanxi. And among the top ten polluted cities in China for 2004, Linfen, Yangquan and Datong were ranked top three, while Changzhi, once among “China’s ten cities of charm,” was ranked ninth. In 2005, during a nationwide city environment quality evaluation, air quality for nine prefecture cities, including Datong, Yangquan, Lüliang and Linfen, and seven county-level cities, including Gujiao, Jixiu and Xiaoyi, were rated at Grade Four or lower, accounting for 37 percent of the country’s “Grade Three inferior cities."¹⁷

The provincial capital, Taiyuan, and Linfen, capital of the ancient kingdom of the ruler Yao, are two representative cities. Since 1989, when assessments of overall environmental conditions for 32 major cities in the country were conducted, and for more than ten years thereafter, Taiyuan’s air quality has always ranked dead last. The World Bank reported in 1997 that among the world’s twenty most polluted cities, ten were in China, and Taiyuan ranked first. As we step into the 21st century, Taiyuan was
overtaken by Linfen. During the 1980s, Linfen was a “city of flowers and fruits on the Loess Plateau,” well-known in the country, whose fame attracted many foreign visitors. But after the 1990s, rapid development of coal mining, coking and iron industries gave it a new name: the city with the worst air pollution for 2004 and 2005. It was also propelled by such development to the ranks of the world’s most polluted cities in 2006. Environment experts once jested, “if you have an enemy, let him live permanently in Linfen!” In 2006, a Taiyuan reporter once described his experience in Linfen in the following terms:

You walk into a grocery store to buy an ice cream. You leave the store and stand by the roadside, only to find that the naked ice cream is coated with a layer of black soot within minutes. You will not want to wear light-coloured clothes in summer, for you have hard time coping with one washing, or perhaps more, per day. You can only learn of the weather situation, whether sunny, cloudy or overcast, from the weather forecast, because a cloud of grey fog is forever billowed up in the city’s sky, obsuring your vision. This is living, the way of life in Linfen.

Needless to say, there is more than one place like this to send your “enemies.” In Baode County of northwest Shanxi, three Xinhua Agency reporters recounted what they saw in the spring of 2004, during an on-site investigation with officials of the State Environment Protection Administration (SEPA):

A troubled-faced old lady told the reporter: “20 years ago, the skies here were exceptionally blue and air particularly fresh. Now, we don’t even want to go outdoors in broad daylight. I only long for the arrival of the Lunar New Year. Come New Year, they will go on holiday, and we won’t have to cover our noses when we go out. We really have not seen the sun for 20 years!” [...] Many wear a mask when they leave the house; even when standing beside health equipment, some old folks were wearing masks and exercising. A middle-aged woman wheeling a pram told the reporter, “the kid insists on coming out, but the air is really toxic. I heard that our babies here have lungs as black as those smokers out there.” [...] A Mr. Yuan told the reporters, “when production is on-going for these two factories, you won’t see the sun before ten in the morning, and you cannot tell a sunny day from a cloudy day. On the most serious days, you can’t see anything within a few metres. You go in the morning and return at noon, and your nostrils will be all black; even the phlegm which you cough out is black.”

Luliang was a very beautiful city. But its air quality fell to the worst among the eleven major cities of Shanxi in 2006. A recent report described it in the following terms:
Coking industries and resident dwellings enveloping (embracing) development, and the entire Liliang city seems to be enshrouded within a huge tank armoured with coal dust. Rarely do we see blue skies. The occasional sun was a jumbled sight, enwrapped in dark clouds. Coal dust found its way to every nook [...] inside and outside the house, at the foot of hills and on the treetops, even concealed within the laughing lines on the face [...] the coking plants that fill the city spaces makes the sun as precious as gold.\textsuperscript{21}

Air pollution presents an even more breathtaking sight in the various counties and cities under Liliang’s jurisdiction. In January 2007, on their way to Jiaokou County, SEPA inspectors discovered a large quantity of mini-turbine boilers and coking furnaces, which were ordered to be discarded and closed down. “Smoke and soot was tumbling forth, flames were blazing into the sky, visibility was low and the stench was choking,” was their description of the sight in Jiaocheng County, Fenyang County and Lishi District located along the freeway. “Fenyang and Xiaoyi are places where coking factories congregate; and the sky looks as if it is encapsulated by a ‘grey screen’.”\textsuperscript{22} In a village called Tianjiagou in Xiaoyi City, a CCTV reporter once recorded her conversation with a six year-old and what she had seen:

“Have you seen stars?”
“No.”
“Have you seen white clouds?”
“No.”
“How does the air smell?”
“It stinks.”
She fanned her hands in front of her nose.

This is the world in the eyes of Wang Hui, a six year-old Shanxi resident. The odour she smells is that of tar. But what is more dangerous is the odourless gas which she cannot smell. This is a highly carcinogenic substance known as benzopyrene, and emissions have exceeded the safety standard by a factor of nine. 50 metres from her classroom is a slope on which stands a coking plant with an annual production of 600,000 tons; opposite the plant, 100 metres away, are two chemical engineering factories. And she has to pass a coal washery on her way home from the classroom. But even at such proximity, she cannot see clearly these huge shops, for visibility is no more than 10 metres.\textsuperscript{23}

3. Shanxi’s Rivers and Well-Springs
Compared to its rich coal deposits, Shanxi’s water resources are extremely scarce. Nonetheless, Shanxi has chosen to “capitalize on its coal abundance to make up for its water shortage” to grow and build wealth.
Annual rainfall in Shanxi ranges between 350 and 700 mm, decreasing from the southeastern to the northernwestern region. Rainfall in the northern region of the province usually fall short of 400 mm, with rainfall in the Sanggan River basin at less than 300 mm. Results of a water resource census carried out some years ago indicated that total water resources in the province amounted to approximately 12.38 billion cubic metres, translating to a per capita amount of 376 cubic metres, one fifth of the nation’s average, and lower than the international “standard of severe water shortage” of 500 cubic metres per capita. Water resources available for arable land averaged 192 cubic metres per acreage (per mu, or 667 square metres), one ninth of the national average. According to the national water resource index ranking in the *China Sustainable Development Research Report 2000*, published by the Chinese Academy of Social Sciences, Shanxi was ranked 29th. Since the 1980s, Shanxi has been suffering from low rainfall, resulting in continued reduction in the province’s total water resources. Between 1980 and 1999, average water resources stood at only 10.2 billion cubic metres, 28 percent lower than the previous 25 years. Calculations in 2006 indicated only 8.85 billion cubic metres of water resources available for the year, or a per capita average of 262 cubic metres, losing another 30 percent from the census figure many years ago.

Reduction of water resources is due to reduction of net water volume in, and perhaps even the drying up of rivers. Between 1982 and 1992, 1993 and 1996, and 1997 and 2001, were three periods during which the instream flow of rivers in the entire province fell by 59.3 percent, 21 percent and 52 percent respectively. Looking at the situation of the three major rivers in the province, the Fenhe, Qinhe, and Sanggan rivers, as early as the late 1980s, a writer noted, “[b]etween 1949 and the 1980s, most of Fenhe River’s tributaries have dried up; likewise water in more than half the springs.” And in the most recent ten years, water volume in the three rivers fell by 44.8 percent, 48.9 percent and 13.4 percent, respectively, from their long-time averages; the Fenhe and Sanggan rivers actually dried up for as long as 270 to 320 days per year. And the Yuhe River, the largest in Datong, “had abundant water historically, but not a drop is seen even during flood periods in recent years, and downstream river courses are relegated to car parks or driving practice centres.”

The rivers are not alone, for the wells and springs too are attenuating and drying up. There are a total of nineteen karst springs in Shanxi. Actual volume measured during the period 1956 to 1984 was 2.93 billion cubic metres, and the volume fell to 1.95 billion cubic metres between 1985 and 1996. Three had completely dried up several years ago, two were near to drying up, and twelve had decreased instream flow. As a result of coal mining and ground water extraction at the Xishan coal mine in Taiyuan, water flow from the renowned “Evergreen Spring” (*Nanlaoquan*) in the Jin Temple complex (*Jin Ci*) has been drastically reduced, plunging from 2 cubic metres per second during the 1950s to 0.54 cubic metres during the 1980s; by the 1990s, the figure was reduced to 0.26 cubic metres. And, in April 1994, the spring dried up completely. Water flow for Shentou Spring, an important water source for Shuozhou city, has also
reduced from its peak of 9.28 cubic metres per second to 4.45, leading to the fall in the instream flow of the Sanggan River. The Sanggan River’s water flow fell from ten cubic metres per second during the 1960s to five in the 1990s; its water flow fell further to three in the new millennium. Reduction in water flow has also resulted in the reduction of the river’s irrigation area by more than 100,000 acres.27

There is something that lies behind this attenuation of the horde of well-springs, and it is the intensive extraction of groundwater leading to a fall in the water table. In 1971, groundwater consumption for the entire province totalled 1.1 billion cubic metres; by 2006, the figure had swelled to two billion cubic metres, accounting for 61.5 percent of the province’s water consumption; of this figure, 700 cubic metres was attributed to over-extraction. As extraction volume far exceeds recharge volume, the water table falls at a rate of two to three metres per year. Since the 1980s, water tables within Shanxi have fallen by 40 to 300 metres. The five major basins - Datong, Xining, Taiyuan, Linfen and Yuncheng - have all been subject to over-extraction of groundwater. In Yuncheng and Linfen, attainable well-drilling depth has gone down to 700 or 800 metres, attaining even a kilometre at times.28

Water pollution is even more rampant in the province than the reduction of water-bearing volume. Among more than 20 rivers and 100 sections in Shanxi that are subject to regular checks, 80 to 90 percent of the sections were polluted since 2001; among these, 60 to 70 percent have been classified as “Grade Five Inferior,” having lost all functional capabilities. More than 80 percent of the province’s 1,000 or more rivers are polluted, and 70 percent have lost their functional capabilities.29 Shanxi now tops the list of Chinese cities in terms of the extent of its water pollution.

We will continue to use the Fenhe River as an example. The largest river and second largest tributary of the Yellow River, the 710 kilometre Fenhe traverses Shanxi in a north-south arc. However, since already the early 1980s, with the exception of the upstream section before the Lancun Reservoir, the river’s mid- and downstream sections have been nearly catastrophic, while the Taiyuan and Jixiu sections have literally become sewage drains. Examinations show that heavy metals such as cadmium, copper and mercury in the Taiyuan section exceed the maximum levels, and average annual level of volatile phenol exceeds the Grade Three standard for surface water by 313 times - thus the name “Fen” (phonetically the same as “phenol” in Chinese) for the river, coined by experts. It has been reported that the chief engineer of the Shanxi Environment Protection Bureau even told inspectors to “[f]orget it. What is there to test? It’s all polluted water. What is the point of meddling with the alarming numbers? […] Biologically, this is literally a dead river, with no animal or plant, not even the hardiest algae.”30 During the summer of 1999, a reporter from the China Environment Protection Foundation described the scene on the Fenhe River’s mid- and downstream sections so: “[t]he river waters are black and exude a foul stench; either that, or they simply vanish, exposing the river bed…”31
By the 21st century, even the upstream sections have become polluted. Tests of 21 river sections carried out in 2003 indicated that only the section at Leimingsi of Xinzhou, located at the river source, met the national Grade Three quality standard for surface water; the other three sections, including the Fenhe Reservoir located in Taiyuan, were under Grade Five. Even worse, the 17 sections located downstream are all classified Inferior Grade Five. By calculating the average concentration of the main pollutants in the 21 sections, concentrations of chemical oxygen demand (COD), volatile phenol, ammonia nitrogen and petroleum exceeded the national Grade Three quality standard for surface water by 2.2 to 36.5 times. And following large scale coking sewage discharge in the mid- and downstream sections, a new phenomenon is detectable: benzopyrene, a highly carcinogenic substance, grossly exceeded the maximum limit. Tests performed in 2005 showed that the substance's average concentration in Linfen exceeded the limit by 196 times, and the highest concentration of which exceeded the limit by 374 times.

The reservoirs, groundwater and well water all suffer from pollution in general. The original intent of the Shanxi Wanjiazhai Yellow River Diversion Project was to resolve the gravity of Shanxi's water shortage problem. After ten years and more than RMB 10 billion, the project was completed in October 2003. However, an inspection conducted in 2005 discovered that Wanjiazhai Reservoir, responsible for delivering water to Taiyuan and even Beijing, contained Inferior Grade Five quality water. And water quality tests conducted in recent years on the Fenhe Reservoir, another important water source in Taiyuan, and on the Cetian Reservoir in Datong (which delivers water via the Sanggan River downstream to the Gongting Reservoir in Beijing), have also discovered that their waters are of Grade Five, therefore, not advisable for human exposure. Penetration of polluted surface waters and coal mining have also led to the degradation of groundwater. For example, coal mining caused Datong's groundwater to increase in mineral concentration and hardness, to the extent that the maximum levels have been exceeded. In certain locations, the concentration of hazardous substances exceeds the limits by as much as 26 times.

4. Shanxi's Lands
With smoke, gas and dust looming from above, irrigated with Inferior Grade Five polluted water for a long time, subject to the unchecked use of chemical fertilizers and pesticides, Shanxi's lands could not have escaped unscathed by pollution. In fact, land and soil have eventually become the key substrate for different kinds of pollutants.

According to a report published on 14 October 2004 in the Shanxi Daily, information in the Shanxi Agricultural Environment Inspection Centre showed that total farmland in the province classified as "seriously polluted" amounted to 1.2 million acres, and that more than 10 million acres were in a "relatively serious" condition. Most of the polluted lands are located in major food and cotton production areas in Taiyuan,
Linfen and Yuncheng. And agricultural and livestock products from these regions have shown the most acute pollution by pesticides, chemical fertilizers and heavy metals. The report did not elaborate what was meant by “serious” or “relatively serious”; however, some inference may be drawn from other pieces of information. A report at the end of the 1980s provided the following: according to tests performed by the Agricultural Environment Inspection Centre, average cadmium and lead levels of all Taiyuan soil exceeds their natural background values by more than twenty times. Water quality tests conducted for seven irrigation ditches in the irrigation areas of the southern suburbs in Taiyuan discovered more than ten types of chemical substances, including phenol, cyanogen, mercury, chromium and fluorine; most heavy metal detection rates exceeded 90 percent, and detection rates of 100 percent were discovered for eight pollutants. For pollutants whose concentrations exceeded the National Standards for Irrigation Water Quality, the situation stood as follows: chromium, 4.8 times; zinc, 5.7 times; total salt, 8.2 times; sulphides, 13.4 times; lead, 28 times; phenol, 102 times; and, based on the highest concentration of mercury detected, 4,169 times.

The safety of crops is naturally compromised if they are cultivated in an environment where the air, water and soil are hazardous. A test carried out at specific points within the polluted irrigation zone in Taiyuan during the 1980s indicated that key detected substances in grains and vegetables were toxic substances or heavy metals, such as phenol, cyanogens, arsenic, as well as chromium and mercury. The detection rate for chromium was 24 percent. “Jin Ci rice,” produced in the Jin Ci irrigation zone, contains chromium level equivalent to 20 times that of the “chromium rice” prohibited for consumption in Japan. Detection rate for lead was 75 percent, the highest concentration of which exceeding the maximum limit in foreign countries by fourteen times; mercury was 41 percent and 45 percent in grains and vegetables, the concentration of which exceeds the national limit by several times, and up to more than ten times. Based on tests performed on twenty sample points within the Fenhe River irrigation zone at the southern suburbs of Taiyuan, and looking at grains, vegetables and fruits which contain pollutants exceeding the national food hygienic standards, more than one-quarter of the areas were found to contain excessive quantities of lead, half for mercury, and two-thirds for chromium. Among the different types of agricultural products, the concentrations of mercury in wheat, cucumber and Chinese cabbage; chromium in tomatoes, eggplant, Chinese cabbage and cabbage; and lead and chromium in paddy rice, are classified as “heavily polluting.” Many vegetables are also polluted by arsenic, copper and zinc.

The same article cited above from the Shanxi Daily reported some results from tests conducted in the new century. The Shanxi Agricultural Environment Inspection Centre conducted sampling tests for 99 samples taken from three types of vegetable sold in 33 markets in eleven cities within the province. The test results were as follows.

Vegetables from the different cities were polluted to different extents. Mercury was “seriously exceeding limits” for some types; heavy metal pollution seemed to be
deteriorating. Based on two separate investigations carried out during April to June 2005 by the Shanxi Department of Agriculture and the Taiyuan Bureau of Agriculture, among the 76 samples picked at random at some of the vegetable wholesale markets, supermarkets and production bases in Taiyuan, 45 contained excessive pollutants, and these pollutants exceeded the limit by on average 59.2 percent. Among 28 samples selected from the vegetable production bases in Yanqu County and Qingxu County, eighteen exceeded limits, with an over-limit percentage of 64.3 percent.

The above study indicates that the ecosystem destruction and environmental pollution in Shanxi is systemic, complex and real. It is a systematic and thoroughgoing process. We can better understand the situation by looking from a few perspectives. The first is to see its status relative to the big picture. The China Sustainable Development Strategy Report published annually since 2000 by the CASS showed that Shanxi's ecosystem and environment support systems rank among the last three nationwide; the two systems were ranked last in 2004. Second, we may use the more easily understood words of a leader in Shanxi to summarize the situation: "The mountains and rivers are destroyed. The sight is startling!" Third, a judgment that encompasses these two conclusions, and which forewarns devastation: some areas no longer hold the possibility of life sustenance. A recent report disclosed that the ecological and natural environment of the Datong mining zone have been rated by environment authorities as "no longer possess[ing] basic conditions for the survival of human beings."

II. DISASTER DISTRIBUTION: ANOTHER KIND OF INEQUALITY

Economic parameters such as "direct economic losses" and "green GDP" may be used to measure part of the consequences of the environmental challenges in Shanxi. Research organizations and researchers in Shanxi have already made some effective inroads. For example, the Shanxi Coal Industry Sustainable Development Policy Research Group calculated the losses incurred from coal mining. Between 1978 and 2003, total coal production in Shanxi was 6.53 billion tons; losses incurred as a result of environmental pollution and ecological destruction amounted to RMB 398.8 billion. Studies by the Shanxi Social Science Academy showed that, at present, financial losses due to environmental pollution account for approximately 15 percent of provincial GDP. If we take the results of the latter study to derive the losses incurred in 2006 due to environmental pollution, the amount will be RMB 71.2 billion, or 116 percent of the aggregate income of the province's entire rural population. In other words, the losses are greater than the GDP growth of the province's entire rural population.

However, a substantial part of the consequences of such a war are immeasurable by economic standards, and cannot be translated into monetary terms. For example, non-economic parameters such as scars, disasters, adversities, or the pain, torture, struggle, fear, anger, and even hopelessness suffered every day. These are part of life, emotions and
humanity, and symbolize the moral qualities of a society, system and civilization. These are qualities which can only be experienced and discerned, and cannot be “calculated.”

It may be important to perceive the problem from this angle, but it hardly suffices. This should not be the focus of a sociologist. My focus is rather: the “losses” and “disasters” brought on by environment war and their distribution, and if such “distribution” or “allocation” is in line with the allocation of wealth.

Strictly speaking, even if all members of a society eventually share the fruits of long-term economic growth, they will also have to pay for the price of that growth, including the adverse consequences of long-term degradation of the ecological environment. A sandstorm will not bypass Zhongnanhai if it hits Beijing, and the government officials located there, including “Party and State leaders,” may just become victims as well. However, what may seem to be an “objective and complete” understanding has not touched on the crux of the problem. As revealed by the many findings of environment studies in the west and in Japan, and as in the case where growth does not translate into equal distribution of income or wealth, the “allocation” of calamities brought forth by environmental degradation is not equal. Such allocation has a clear differentiation by the “level of fitness” biologically and sociologically; in it there are differences of class and even race at work. Study of the local distribution of such disasters is important not only for the study of social justice in China, it also provides the key to comprehending the impetus necessary to overcoming the country’s ecological crisis. This is because the distribution of environmental calamities necessarily determines the different levels of understanding, or the “sense of pain” on the general “eco-crisis,” by different groups and classes; this understanding in turn influences their actions, eventually affecting the results of crisis management and the direction that the crisis will take; that is, whether it eases up, “maintains steady,” or whether the situation continues to deteriorate.

Of course, it is difficult to measure the distribution of disasters the way we quantify the distribution of wealth and poverty; that is, disasters cannot be divided into “five equal portions,” and neither can we use the “Gini coefficient” as a parameter for their measurement. Part of the reason is because a “disaster” is subjective and social in nature, and therefore difficult to measure. The other reason is that there can be no complete and methodical investigation; or, if there were any investigation, it is difficult to obtain investigative results. The only possibility is to interpret and analyze fragmented results, to determine the geographical distribution of disaster zones, as well as the distribution of the key social groups.

1. Distribution of Disaster Zones

(1) Social and Geographical Characteristics of Serious Disaster Areas
The Shanxi Environmental Protection Bureau designed an “Environment Improvement Project Plan for Major Cities and Major Areas” in 2005, selecting eleven major city
planning zones and 51 counties (cities, districts) where there is "greater industrial concentration, more serious pollution and greater public concern" for environment improvement.\textsuperscript{53} We may infer that the areas selected as "major" are regions where ecosystem destruction and environment pollution are serious, and, to a great extent, areas with a high concentration of disasters. This implies that a large area is affected: eleven major city planning zones means that all the urban areas of eleven prefecture cities are included; 51 county-level cities and districts represent 43 percent of the province's 119 counties and cities. If the fifteen or so "urban zones" (chengqu) under the major city planning zones are included, this percentage would be 55 percent instead. To take it one step further, if "greater industrial concentration" and "greater public concern" are the prerequisites for the major areas where improvements are to be made, then the area involved may be even bigger. Experience has shown that many areas heavily inflicted by disasters may not be areas where industries congregate, and where the polluting sources are located externally. The "public" who are not familiar with polluting sources may not show "concern" in a manner that sufficiently arouses the government's notice.

Aside from simply looking at the size of the disaster area, we should also be concerned with the distribution of such serious disaster areas based on their administrative and socio-geographical characteristics. The aforesaid "Plan" of the Shanxi Environment Protection Bureau may have listed two characteristics — "greater industrial concentration" and "greater public concern" — but they are ill-defined. My guess is that although "medium" or "heavy" pollution generally occurs in medium-sized and large cities, if we were to look at the entire province, from large or medium-sized cities, small towns and townships, to villages, we would find there is increasing eco-destruction and environmental pollution throughout.

This conclusion has two key bases, both of which are related to cities being the centres of power and their natural advantage. First of all, urban environment governance is the "most important priority" for environment departments of all levels. The fact that most "environment protection efforts" have yet to "go rural" means that rural areas become the dead ends for pollution prevention and control efforts, and heavens for polluting industries. Secondly, urban areas are better equipped for disaster prevention and treatment than rural areas, which implies that rural areas are susceptible to harm. We shall look at the issue from three perspectives as follows:

\textit{Air pollution.} For years, the air quality of eleven prefecture cities has been rated Grade Three or lower. Many cities have been in SEPA's pollution discharge rankings. However, this does not necessarily imply that the situation in county cities and villages that have not been checked regularly is any better than that in the urban areas of prefecture-level cities. New reports have shown that the air quality of many county-level areas, especially villages, is worse. Take Yuncheng's Hejin city for example: in December 2002, air quality tests conducted over the 210 square kilometre area surrounding the operations of Daxing Group, a large coking enterprise, discovered that many pollutants were "seriously over limit." During the first half of 2003, there were more than nine
weeks in Hejin during which the air quality was lower than Grade Five. If air quality is lower than Grade Five, "the area would be unfit for inhabitation by human beings. The public were extremely dissatisfied because of the poor environment quality. Thus, there has been no more publication of local air quality weekly reports since July." Especially benzopyrene, recognized internationally as one of the most formidable carcinogens, is found to exceed the maximum limit by six to 55 times in all eleven surveillance sites, and so much so that the locals said that "one would rather stay in Xia County for one year, but not in Hejin for a day." Villages with chemical factories and coking plants would experience "thick smoke rumbling," "sky-blasting flames" and "pungent and choking" odours, bespeaking not only the unsuitability for living, but even for a stay.

Water pollution. Seriously polluted areas are of course located at river sections where environment agencies have rated their water qualities as Inferior Grade Five. Generally, the situation is more serious on sections located along cities or industrial areas; downstream sections are worse than those upstream. Nonetheless, these are sections where "scientific tests" have been conducted. Many rivers in villages, especially small ponds and ditches, were not checked. The impression of "black and smelly" drawn merely from sight and smell, without using any scientific means, should suffice to conclude that they could be of "Inferior Grade Five." To take this one step further, sewage has a different relationship with rural and urban areas; as such, both areas fall victim to pollution differently. Urban residents may stay far away from sewage, as domestic water used is "tapwater" that has been treated to some extent. Rural residents, however, use the same water for irrigation and drinking. The use of polluted water is closely woven into their daily living. According to official data published by Shanxi, nearly half the rural population in Shanxi use "unsafe" drinking water.

Mining-Induced Ecological Disasters. Mining-induced eco-disasters are mainly found in villages where underground mining is carried out. A small number of towns and townships may be involved, but medium-sized and large cities are excluded. This is because underground mining in larger cities is usually prohibited or subject to stringent controls. The same activities in villages are usually carried out in private and without control. As mentioned earlier, as at 2004, geological disasters caused by mining activities have afflicted more than 1,900 villages and 2.2 million people. Of course, mining-induced destruction of water resources does affect cities more. Reports have indicated that fourteen of Shanxi's 22 cities, and 42 of its 91 country-level cities, have been affected. Still, the most severely affected are rural areas, including as many as 8,503 villages and a rural population of 4.96 million people. This number represents nearly 80 percent of the affected population size.

(2) Areas of High Disease Incidence
There is data indicating that there are at least three environmental pollution-related diseases for which Shanxi is a high incidence area, with perhaps the highest rate of incidence in the country.
The first is cancer. A report in 2005 revealed that, "Shanxi's cancer incidence is higher than the national average, and many 'strange diseases' appeared in major disaster areas." An article printed on 22 April 2007 in the Taiyuan Daily reported that in recent years, the Shanxi Tumor Hospital alone has been receiving as many as 200,000 cancer patients, among whom 20 percent suffered from lung cancer. Based on statistics published by the relevant departments, Shanxi's number one cancer has been lung cancer for the last ten years.

The second is pneumoconiosis. A report printed in the China Youth Daily in 2002 stated that "serious air pollution has put Shanxi in the number four ranking in the country, in terms of the number pneumoconiosis patients." This is in stark contrast to its population size (which ranks nineteenth in the country). And, according to investigations made by the Shanxi General Labour Union, between 1990 and 2002 the aggregate number of new pneumoconiosis patients diagnosed was more than 36,000, one one-thousandth of the province's population size, and the highest among all Chinese provinces. Aggregate deaths resulting from the illness were more than 8,000, and the mortality rate was 23 percent.

The third is birth defects. The Ministry of Health implemented the “China Birth Defect Surveillance” program as part of the national science and technology project of the seventh five-year plan. Results of the project indicated that the national total birth defect incidence rate was 9.96 per thousand births, the highest in the world. The country was hence called the world's “Mount Everest” for birth defects. Yet, Shanxi's rate of birth defects is twice the national average. Its 18.99 per thousand rate of birth defect incidence makes it the highest in the country. Retrospective investigation carried out by the province in 1997 indicated that the total incidence rate for birth defects was 18.65 per thousand. This was a figure close to that found five years ago. If we calculate based on approximately 500,000 new births per year in Shanxi during the 1990s, the number of newborns with birth defects would exceed 9,000.

Of course, any disease with a high incidence rate is not equally distributed within the province. Certain regions are more notable than others. Existing information mentioned the situations in the following counties and cities:

- "Now, the incidence of cancer in Linshi is increasing multifold."
- "The incidence for cancer as well as its death rate in Yanquan is increasing every year. Cancer death rate is number two in China."
- "According to an investigation in 1997, 37 percent of the people in Taigu and Zuoquan suffer from respiratory diseases; rate of incidence of aesophageal cancer and lung cancer is three percent."
- "Hejin is a region of high incidence of respiratory diseases and pneumonia."
- "Lishi has a high incidence of respiratory and digestive diseases. Investigations discovered that this phenomenon is directly related to the congregation of coking factories, heavy air pollution and poor groundwater quality in the area."
There is some fairly detailed information concerning the concentration and distribution of birth defects. A report from the end of 1980 revealed that in nearly a hundred villages in five townships along the Fenhe River in Qingxu County, "the rate of deformed births in recent years averages between 45 and 50 per thousand." Among these, the rate in the village of Bokui is 408 per thousand. The most common deformity is *spina bifida*, a congenital defect in which the spinal column is imperfectly closed such that part of the meninges or spinal cord protrudes. The lower limbs are limp, and the patient is unable to stand erect. Also, the number of mentally impaired children is also increasing. A report in 2002 said that in certain mining areas, the rate of birth defects is as high as 44 per thousand. An epidemiological study carried out by the Beijing Pediatric Research Institute in Zhongyang County and Jiaokou County in the Lüliang mountain areas between 2000 and 2004 showed that birth defects in these two areas were as high as 71.8 per thousand and 91.7 per thousand, i.e. between seven and nine newborns out of a hundred are defective births.

The results of an investigation by researchers at the Shanxi Medical University on the state of health of primary school students indicated the distribution for a few types of respiratory diseases: among 203 students near a Tufa Coking Zone, 137 or 67.8 percent suffered from rhinitis, 176 or 86.8 percent suffered from pharyngitis, and 174 or 85.7 percent had tonsillitis. The relative percentages of 208 students, a control group in a different area, are 4.9 percent, 24.1 percent and 1.1 percent. The white blood counts of the same students from the Tufa Coking Zone are also worse than those from the control group.

Owing to a lack of clear information about relevant diseases in Taiyuan, the province's political and economic centre, and from the other ten prefecture cities, we are unable to obtain a clear picture of the distribution in the entire province. However, from the above information, we may roughly deduce that the distribution of the relevant diseases is skewed towards the rural areas in the county and county-level cities, and lower. Also, news reports from recent years about Shanxi's environment problems and the high incidence of diseases often mention specific villages (see references). These reports seem to verify the conclusions of this study. In fact, the exceptionally high incidence of certain special diseases in the rural areas, disasters resulting from the environmental war, is related to the fact that pollution in certain rural areas is more serious than in the urban areas as a whole, as explained above; it is also related to the fact that most rural residents are forgotten by effective medical security systems, and to their lack of the capacity and means of self-protection.

**Reports on Shanxi Villages with High Incidence of Diseases**

- Since 1980, 17 people in Nanyan Village, located in the southern suburbs of Taiyuan, have died of cancer. Ten deformed births, eight still births, and five abnormal births occurred. (MaTianshu, 1989)
Since 2001, when a refractory brick factory lit its first fire in Zhuang Village of Yuejia in Chakou Township, Pingding County, the villagers have been living among dust, noise and waste gases, and often choking and suffocating, and feeling giddy and nauseous. Many villagers suffer from gastrointestinal disorders, respiratory diseases, cerebrohaemorrhage, cerebral infarction, and other infliction. (Xinhua Daily Telegraph, 19 September 2005)

In 1998, 190 goats in Wujunsi Village in Tongyu Township, Zuoquan County died as a result of drinking waste water discharged from the town's papermaking factory; ten people in the same village died due to water pollution within the same year. Due to heavy pollution of well water, most inhabitants in Shiluomen Village of Wugong Township in Taigu County have left their village to find a livelihood in another location. The village's farmland of 750 acreages has been left barren. (Jiao Ruilian et al., 2000)

In recent years, 60 villages in Linshi County had to drill 25 deep wells, driven by drinking water deprivation as a result of pollution in the Fenhe River. But tests have indicated that hardness of water in the wells was 519 times in excess of the standards, sulphides were thirteen times over limit [...] And cancer incidence rate in Linshi nowadays increase multifold. (Mai Tianshu, 1989)

Affected by pollution from the Zhuozhang River, more than ten thousand inhabitants living in Xiangyuan, Pingshun and Licheng counties located along the river were found to have a significant increase of incidence rate of gastrointestinal diseases and cancer. (China Water Resource News, 28 July 2000)

In Beilu Village of Liucun Town in Yaodu District, Linfen, abnormal illnesses continued to emerge, as a result of clusters of highly-polluting enterprises mushrooming in the vicinity. More than 200 people have suffered from such illnesses. More than twenty cancer patients have died during the recent years, the oldest being older than 50, the youngest only fourteen. (Zimin, 2005)

At Xiakang Village in Duandian Township in Raodu District, many suffer from malignant illness, such as paralysis. This is how the name “The Village of the Cripples” came about. More than 50 people have suffered from paralysis due to cerebral thrombosis; nearly twenty have died in 2004. The little village streams and wells are polluted. The villagers said, “The water in the well tastes either salty or bitter. Drink it, and you suffer from diarrhea.” (Shanxi Youth Daily, 15 June 2006)

Around 1999, a huge congregation of coking plants congregated in Duizhu Town of Fenxi County. A strange phenomenon appeared on the scene, together with the coking plants: for many successive years, no one from the town joined the army. And the reason was because no young man of age managed to pass his physical examination. (Shanxi Youth Daily, 15 June 2006)

Water in several wells in Chenguo Village of Chengguan Township, Xiangfen County was found to contain hexavalent chromium at levels nearly 100 times
higher than the maximum limit. The results are an annual progressive increase in incidence rates of diseases; health conditions deteriorating, aches in backs and legs, grey hair at a young age, skin diseases, and cancer. The taste and odour of well waters in the villages nearby were also found to have turned bad. (Gao Aizhi et al., 2000)

• Near Taixing Group’s coking plant in the city of Hejin stands Yin village. There, “Many little kids suffer from pneumonia and tracheitis.” Dust discharged by the coking plants fall on the maize, wheat and padi rice. Crops are prevented from pollinating, and harvests are drastically reduced. (Market News, 22 June 2004)

• Many in Chenliuzhuang in the Gujiao Township of Xinjiang County suffer from aching legs in recent years. The village’s air is often filled with the foul odour of the Fenhe River; villagers have to travel far to obtain drinking water. (CCTV, “Sannong Focus” (jujiao Sannong), 11 July 2005)

• Due to water pollution, the villagers in Niudu Village of Linyi County, Yuncheng City have been suffering from cerebral thrombosis, paralysis and cancer in recent years. The numbers are increasing every year, and most patients are between 40 and 60. In their complaint letters, the villagers said that, by June 2004, 42 have already died of abnormal diseases, and another 28 are suffering from abnormal diseases. (Ban Yue Tan, 28 June 2005)

• In recent years, an increasing number of people in Nanzhiguang Village in Meiyang Town of Liyi County are suffering from abnormal diseases. Some who are in their prime years have lost all capacity to work, and young people suffer from growth impairment. Many villagers in Dijiaying Village are inflected with different types of cancer, and villagers generally do not live beyond the age of 50. Other villages suffering from a similar phenomenon include nearby villages as Qirenzhuang and Xizhiguang. In Xu Village, a seventh-level township in the county, no young man from the entire village could join the army because of failure to pass the physical examination. Many middle aged and older villagers suffer from abnormal diseases. Among the 79 households inhabiting Chengzilei Village of Kaizhang Town, Yongji City, just next to the downstream Sushui River, 72 suffered from diseases. Among them, many suffered from leukaemia and aseophageal cancer. (http://tangyuanhh.bokee.com/1866573.html; http://www.sxrtv.com, 12 May 2005; http://blog.sina.com.cn/hanzhenyuan)

• The existence of illegal enterprises and pollution has led to the successive deaths of persimmon trees in a certain village in Caochuan Town of Pinglu County. The village suffered from reduced or even no harvest. Some diseases continue to threaten the lives of the villages, the most prominent of which being myocardial infarction and cerebral thrombosis. (CCTV, “Half-Hour Economy” (Jingji Ban Xiaoshi), 14 April 2007)
2. Disaster Distribution by Groups and Social Strata

As a result of the lack of statistics from systematic investigations, there is a lot of difficulty detailing the distribution of ecological disasters in Shanxi among the different occupation groups and social strata. Here, we will combine deductions based on observations and case studies to illustrate the level at which disaster has befallen the main groups and strata, and to discover the overall distribution trend.

(1) Government Officials and Entrepreneurs: Geographical Differentiation Versus Level of Affliction.

Generally, the ecological destruction and environment degradation of the overall environment of Shanxi should affect all its inhabitants, from ordinary farmers and townspeople, to intellectuals, big and small entrepreneurs and senior officials. However, the probability of exposure to areas with degrading ecosystems differs among people located at different geographical locations, and among people with different occupational backgrounds and political, economic and social status; the types of pollutants inhaled are different, likewise the abilities to respond to and overcome the crises vary. Based on the ecological degradation and environmental destruction in Shanxi, we will explore the relevant conditions of a few major groups: 1) government officials; 2) entrepreneurs; and 3) farmers living in heavily polluted areas.

Government officials and entrepreneurs living in a city with polluted skies may breathe suffocating air; but power and financial resources enable them to live in staff residences, estates for senior officials or “high-class residences,” as they are promoted by developers and advertisers. The air may not be fresh, but at least no apparent source of pollution is present. They do not have to be subject to irritating chemical odours throughout the day, as do residents living in the periphery of coking or chemical plants. Their mode of transportation is the car, instead of the bicycle or public transport. They do not need to wind down the window for ventilation if they do not wish to, and they do not need to cover their noses faced with the dust and waste gases outside the window. They move around mainly in spaces with air conditioning, such as offices, meeting rooms, restaurants, hotels, instead of having to stand beside blazing coking furnaces, around which dust is afloat, or in the wilderness and farmhouse courtyards where pungent smoke and gas fill the air. All this is rather different from life for the “coal bosses.” All in all, the differentiation of their living space from that of “general society,” and of moving and activity spaces from the “normal natural” spaces, enables them to stay far away from heavily polluted areas and avoid harm.

If the river is black and stinks, the government officials and entrepreneurs will be affected; at the very least, they lose aesthetic enjoyment, like that from scenic spots and swimming in its water. Nonetheless, they have enough substitutes: they can swim at a commercial swimming pool or relax and entertain themselves at a sauna club. Looking at a black river that exudes a foul stench does bring physical and mental discomfort.
However, these people are free to look away. And even the small minority who “must look” because of responsibilities are not perpetually faced with it all the time, as are residents living along the river. The river bank inhabitants face dramatically reduced or even zero harvests.

Furthermore, the victims of coal mining accidents were neither government officials nor entrepreneurs. Those who perished in mining accidents were always “migrant workers”; not-government cadres or coal bosses. Government officials and entrepreneurs are not confronted with the problems of having cracks in their houses, drying up rivers and wells, and caving-in of lands; they do not live in constant fear; and they do not become true-blue environment refugees (see below).

Of course, as mentioned earlier, this does not negate the fact that these two advantaged groups will not be able to completely escape unscathed. They will be affected, either directly or indirectly, if the air is bad, tap water of low quality, and if numerous “unknowns” exist in the quality and safety of agricultural products. However, this for them is only a necessary price which they pay for driving or inducing “development.” The price they pay for the outstanding “political performance” and enormous financial returns is negligible. This implies that to government officials and entrepreneurs, the more generally defined eco-crisis means only temporary discomfort; at the very most, it is “trouble” that will be eventually resolved. In sum, they are positioned in the centre of the “circle of benefit” and at the periphery of the “circle of harm.”

To the rest of the people, these same ill effects may be a perpetual torment, probably a disaster from which they have no idea how to escape, or in which they are trapped for the rest of their lives. Or perhaps, the next generation is ensnared into the same turmoil of pain emerging from biological or social processes. For the next section, we turn our attention to farmers, inhabitants of areas that are heavily polluted and where ecological destruction is serious. We shall examine the state of the lives of this group inhabiting the periphery of the “circle of benefit” and the centre of the “circle of harm.”

(2) Victims of Depression Areas (Areas with Mining-Induced Subsistence)

It is difficult to draw a conclusion about the living conditions of farmers living in highly polluted and depression areas using social science terminology. What the author has done here is take cases from some recent news reports in order to try to provide an objective description of how they live:

In the vicinity of the villages of Gan ting and Li of Gan ting Township, Hongdong County, the Shanxi Fenhe Bio-Chemical Company plant (one of the city of L infen’s “key protection enterprises”) was constructed in 2000, and production commenced in 2002. There was no sewage discharge facility, and the sewage discharged into the Fenhe River via the drains carried an unbearably foul stench. Windows of every household are firmly closed even on warm nights, and the
floating dirt and soot are woven into a thick blanket of dust, covering crops that stretch over miles in radius. Finding it intolerable, the angry villagers organized a meeting with the plant, demanding that the pollution discharge be stopped. The company was compelled to install sewage treatment facilities; these however only operate during inspection tours by their superiors and the relevant authorities. Massive discharge of sewage is carried out in the night, and villagers live in constant torment of the revolting odour. (Zhang Hong et al., 2005)

About 500 metres outside the compound of Li Aixian, a villager of the Ji village of Jingmao Township, Xiangfen County, thick yellow smoke is emitting from a coking plant and shooting skywards; thereafter, it dissipates into the surroundings. "It can choke you to death," Li lamented. The biting odour pays its visit to the Li family almost every day, and clothes that are left hanging to dry in the courtyard would be quickly coated with a layer of black soot. The water tank may be covered, but a layer of black powder on the water surface and at the bottom of the tank would still be discernible. For five years, since the coking plant commenced production, strange phenomena have appeared in the village: some villagers would suffer from occasional giddiness and nausea; jujube trees would only flower but would not bear fruits. Apples would be clothed in "black armour"; they would all be cut down, and their master could only squat at a side, lamenting. "Now they've chopped all my trees, and why are they not paying a cent as compensation?". (Shanxi Youth Daily, 15 June 2006)

Since four years ago, when a large coking facility of the Shanxi Zhonglii Coking Co. found a home in the village of Xiaogaojiagou, the nights that used to be crystal clear are now as inaccessible as their dreams to the 700 or so families in the village. The entire village is permeated with a barbed stinkiness, and people struggle with adversity amidst the stench. "You don't know how it bites, like rotten eggs. No one can breathe at all!", a 50 year-old women said, covering her nose with her hands, even when production is already semi-halted, yet she still seemed to be smelling the stench which she cannot evade and which gives her a splitting headache. "When the power fails, you can't see anything but a white expanse of smoke. The dust is formidable too. You go out wearing a white outfit, and it turns into a black outfit within an hour." (Zhao Xiaojian, 2007)

These three scenarios depict the situation of polluted villages located at the vicinity of coking and chemical plants. We are not sure how many such villages there are in Shanxi, and how many farmers live in them. In comparison, what is apparent is the condition of villagers and farmers located at "serious geological disaster areas": as at 2004, this accounted for more than 1900 villages, with a farming population of 2.2 million. A recent issue of the China Youth Daily reported the details of the total caving-in of a
village. Called the Da’antou village, it is located on Kele Hill, approximately twenty kilometres northeast of Jincheng City. During the “Learn from Dazhai in agriculture” campaign, the village was a national model for its high productivity of cotton. Li Yin, an ex-Party Branch Secretary, was twice received by Prime Minister Zhou Enlai. When the extraction machine of a mine drilled into Kele Hill in the spring of 2003 to dig beneath the village, it was also the beginning of its physical and social downfall. This is an exceptionally precious specimen of the ruins left in the wake of the environmental war. As the author has already given an in-depth account of the situation, the rest of this section consists of material already published; the original text is simply reorganized and certain parts deleted to avoid excessive interpretation and analysis.

As early as the summer in 2003, the villagers would start getting busy. Work stopped; no one bothered with work in the fields; few men drank or gambled; women no longer gossiped. People scurried around in the village with only one purpose in mind: find a house which they can make do, a shelter for the family living in constant terror. People are always moving in and out. Many pieces of luggage and packages are not even opened, as they are prepared to be move at any time. Some families are broken up and installed in different households, others don’t eat and sleep at the same place. Those who really could not find shelter would simply leave the village. Since 2003, only twenty percent of the households in Da’antou village have never moved. More than a hundred houses in the village are damaged; half are new homes, and 70 percent of them are not habitable.

Soon after, cracks appeared in the cave dwelling in which Wang Yuzhen’s family made its home. Although courageous by nature, she started living in horror. “I was afraid when it rained. I was also afraid to sleep.” When the rain was heavy, she would not dare even lie down; she would either sit up, or drag her husband along to find somebody else’s house in which to stay, returning home only after the sun came out. Almost every night, she would sneak her ears to listen for any commotion in the house. Sometimes, she would suddenly sit up, and start checking around the house. “A few times, I dreamt that the house collapsed, and I was buried alive.” She even hoped at times that the cave dwelling would quickly collapse. That way, she no longer needed to be bothered by its impending implosion […] The three room cave dwelling which had been seizing Wang Yuzhen in terror finally collapsed in May 2004 during a rainstorm. Startled, her husband fell ill, and she had to take her husband along to look for shelter. She found one, after much effort, but it was also in imminent danger of falling after a while. She once again had to go house-hunting. Many turned her away, “fearing that it was inauspicious having an old man at home.” Eventually, the head of the town came forward to mediate, and she moved into the village committee’s old office. But her husband died only a few days afterwards. “The old man said he wanted to die at home before he gasped his last breath,” she said. To treat him, she spent nearly all her savings. But when he died, “I couldn’t find even a place to put his coffin,” said Wang.
Wang Yuzhen's paranoia is not rare. Chen Xiao suffered from more severe symptoms. She always left the light switched on at night, and slept fully dressed, waiting for the moment when she would have to flee for her life. That September, when she was about to lie down, the sound of cracking glass left her panic-stricken. She stood at the balcony, crying the entire night. One month or so later, she moved into her husband's elder brother's house. But she finally fell ill, after the many scares. She often felt dizzy and palpitations, and weak; sometimes she would faint. She spent between five and six thousand yuan in medical treatment, but saw little improvement. Chen Xiao's two-storey house was built in 2000. Today, the walls are filled with cracks, and the building is obviously slanted. The house's main door and courtyard are now completely overrun with weeds.

Li Xiaozhi, the village doctor, can no longer recall how many times he has changed homes. His two-storey house was only completed in 2002, but was no longer fit for habitation after one year. In April 2004, Li and his wife changed houses for the first time. Nine months later, even the temporary shelter became a dangerous structure. They had to move for the second time. Not long after, they had to move again. By then, all the houses in the village which had not become dangerous were filled with people. Some even had to accommodate three or four families, with more than ten members. The couple had no alternative but to scrounge around for shelter and food, drifting from one house to another, staying for as long as a month, and as briefly as a couple of days. They have slept on the floor, in sheds, and squeezed on brick beds, leading a life of destitution for three months. "This was horrifying guerrilla warfare!", Li said, standing in his desolate courtyard, "A perfect home is now ruined." A young wheat seedling was sprouting in the yard.

Like everyone in the village, Wang Yuzhen is confronted with a mind-boggling problem: the hills are dug empty, and all the water is pumped dry. Water used to run in unrestrained abundance in the mountain streams located at the eastern end of the village. Wang would always wash her clothes there, and the children would frolic there too. Now, the river bed has run dry, and the well at the eastern end of the mountain stream no longer oozes water. The well platform is left abandoned, leaving behind only weeds, rubbish and rotten sewage. Only a tiny stream runs in a ravine at the village's west end. During the dry season, this would become the only source of water for the entire village. To fetch a pail of water would require between half and three quarters of an hour. When fetching water, every village family would take out their water containers and specially deploy someone to wait in line. Often, disputes would arise because someone had cut the queue, and a fight among those waiting in the line would ensue.

At this moment, this land is torn apart by deep-set crevices and overwhelmed by weeds. Due to water shortages, economic crops such as cotton and the broom cypress fruit (saozhoumiao) no longer thrive. Villagers had to give up their income of approximately RMB 3000 per acreage. As there had been incidents of plough machines
being trapped in the crevices and their drivers thrown out, machines which cost more than RMB 4000 became mere display pieces, and farmers had to revert to hoes and spades. The hills are covered with these crevices, and many cracks are hidden among the rough tussocks and thistles; even goatherds who wander frequently on the hills have to stay vigilant, as goats often fall into the cracks.

The houses have become catalysts for more frequent quarrels between husbands and wives. Many have ended up in divorce. Different cliques are formed, and relationships between cliques are increasingly strained. “The general climate in the village has changed; people are increasingly plotting against each other. And hostility seems to come between certain people.”

As this village gradually caved in, something else too slipped away. The village committee’s old office in which Wang Yuzhen now lives has long been classified dangerous. She did not even have her reunion dinner during this year’s spring festival, and no making of jiaozhi (a dumping prepared during new year). “With everyone’s life now in such mess, who would have thought of making jiaozhi?” Outside the house stands a huge courtyard – profuse with weeds, and rubbish abounds – empty; and long gone are the days of song and dance.

For four or five years, no bride has married into Da’antou Village. “The village young men are going crazy, hoping to have a bride.” There are almost 30 over-aged men of approximately 30 years of age. “A home does not resemble a home; neither does the village.” It is now a lackadaisical village, completely lifeless.

III. WHERE BOTH LAND AND INSTITUTIONS ARE “HOLLOW”

From what has been said thus far, we know that damages and disasters emerging from the war on the environment can take different “directions” because of different degrees of environment degradation and socio-economic complexity. Many adverse consequence have been concentrated on farmers in many rural areas. These farmers, therefore, have become “ecological refugees” or “war refugees.” What we shall next examine are the different responses and self-help capabilities of different social groups and strata during ecological crisis. People who are at the periphery of the circle of disasters escape more, while those located at the centre may be entrapped. Let us look at two major groups: the “coal bosses” and farmers in depression areas.

1. Different Migrant Groups

Since 2006, several local media have reported that different classes of “Shanxi house hunting groups” have been buying properties in other provinces. After the Wenzhou house hunters, “Shanxi people” have become the second group going around the country buying housing properties. Some astute real estate property developers from other
provinces used “eco-friendly” as their selling point and set up sales offices at Taiyuan, the provincial capital, and other heavily polluted county-level cities. For example, in Xiaoyi city, a first-tier county-level city, alone, Yintan Real Estate Company from Rushan, Shandong, has set up six agencies. And in Linfen, a prefecture city where air pollution is very serious, agencies of twelve Shandong and Hainan real estate companies have been set up along an over 200 metre long lane lined with coal chemical industries; particularly eye-catching are advertisements such as “National AAA Grade Original Ecology Holiday Resort,” “A City Most Suitable for Living,” and “A Dream Garden, A Return to Nature, A Health Reservoir.”

Most news reports stressed that the Shanxi people buy their houses for a different purpose than their Wenzhou counterparts. They are not speculators who are profit driven, as are the latter; but they instead are “eco-migrants.” Reports focused on the *nouveau riches* coal bosses, who have already developed something of a preconceived image. In fact, “coal bosses” have gone extra-provincial house-hunting since a few years ago. The target cities of their migration are mainly major cities, such as Beijing, Shanghai, Guangzhou and Dalian. There was a report that a coal boss once bought all the sun-facing units of an entire block of luxurious flats. At the end of 2005, “a Shanxi group of coal boss house buyers first arrived at Shanghai. Within two days, sixteen units were bought up; after one week, 45 units of a development in Chongqing were purchased.” In July 2006, another house hunting group made up of coal bosses with “net worth in excess of RMB 50 million” flew into Shanghai and “snapped up six developments within two days.” “Even the youngest coal boss makes four to five million a year. The older ones earn tens of millions, even a hundred. That is why they buy properties as they wish; they buy to stock.” Usually, the rest will follow suit when one buys. One of them, called Wei Dong, even said, “this is for the convenience of our mahjong games.” Wei’s family shifted from the mining district ten years ago. At first, they shifted to Xiaoyi; later, they moved to Taiyuan. He has not been to the mine back in the village for years. His manager manages his coal business, while he concentrates on public relations in Taiyuan. Wei Dong said that he is temporarily staying put in Taiyuan as his child is still young, and that he needs to look after his business in Shanxi. However, “he will want to migrate to Beijing eventually.”

Many middle-class “ordinary citizens” echo the somehow exaggerated house-buying spree and migration of the “coal-bosses” by buying housing properties outside their own province. Data indicate that in February 2005, 82 people from Shanxi rushed to buy up four seaside apartment blocks in Rushan, a county governed by Weihai City, Shandong. This was the cause of the moves by the Shandong real estate companies. Business was truly good. A Linfen agent for the Yintan Real Estate Company revealed that weekends are the times where the agents set off to Rushan for house viewing. He said, “The coaches were always filled to the brim. We had to negotiate with clients to delay their viewing.” The company sold three to four hundred units shortly after
coming to Linfen. "House buyers included doctors, teachers and civil servants. Many purchases were group purchases." A state-owned power plant in Linfen which operates as a monopoly and in a highly polluting industry "just bought 50 units here," he added. According to the agent, at least 2,000 Linfen families have bought homes in Rushan. Reports said that "Linfen people with extra cash would go out and buy properties [...] Most of these people intend these new homes to be their retirement homes. Few buy for investment. A large proportion of the residents bought homes in Weihai, and the families will stay at these homes during festive seasons."

Intra-China and extra-China emigration for Shanxi inhabitants has just begun. At this moment, no one can predict how much the exodus will increase, and if major "braindrain," "capital outflow" or some other unforeseeable outcome will result. Certainly, we need to be concerned. But something else demands concern: the nearly 2,000 villages and the rural population of 2.2 million located at the caved-in mines! If they are "refugees" who do not have the ability of escape from disaster, then what has happened to the Shanxi government's or society's "refugee relief" or "crisis response" mechanisms? Clearly, this is an issue of social justice that goes beyond being simply an ecological environment issues. It involves the minimum rescue capacity of a society when confronted with a large-scale humanitarian disaster.

2. Farmers in Depressed Areas: Walk Out or Wait
The general deterioration of the state of the environment prompted the Shanxi provincial government to launch the Green Water and Blue Sky Project (bishui lantian gongcheng) in 2006. The project was launched with a huge impetus and much determination. However, absent was the most critical and urgent element – a "comprehensive" relief package for the eco-environment refugees. Based on existing information, most victims living in the villages of the heavily polluted areas could only deal with the disaster by pushing their resilience. Actions taken through lawful means such as letter writing and visits (shangfang), or through extreme means such as barricading roads or blocking river flows or preventing factory production, were often abandoned. A typical case was the blocking of the flow of black water in the Sushui River by the villagers from Chengzilei village in Kaizhang Town of Yongji City. As for economic damages and high incidence rates of diseases clearly attributable to pollution, a uniform mitigating policy is absent.

Shanxi had not enacted any prior policy to address the issue of the areas depressed by mining. However, investigations were carried out in the same year, and the investigation found that there was more than 1,000 square kilometres of coal mining-induced depression in nine major state-owned coal mines. Nearly 600,000 people in more than 170,000 households as well as 71 hospitals and 312 schools were affected. In 2005, the National Development and Reform Commission (NDRC) approved the treatment and rectification plan for the nine depression areas; RMB 6.87 billion was channelled to them; the plan was initiated in 2006 and to be completed within three years.
Such treatment and rectification aim to resolve the housing problem of residents of depression areas. The plan does not include rectification for the destruction of water resources, ecological degradation or land desolation. Based on their level of damage, residences in the depressed areas were divided into four grades, A, B, C and D; reinforcement and repair subsidies of RMB 67.5 and RMB 135 per square metre will be given to each owner of a Grade A and Grade B house. Urban residents of the latter two categories may move into new estates, whereas rural residents will be allocated RMB 450 per square metre as reconstruction costs. Although an additional compensation land area of 50 square metres per household is also given over and above the RMB 450 per square metre financial compensation, and although such rural housing land (zhaijidi) is provided by the government, the level of compensation falls far short of the amount required for the cost of reconstruction on another piece of land. Most importantly, the plan included only the “nine depression areas of major state-owned coal mines,” which means that “local mines” were excluded from the plan. Based on the implementation of this policy, we shall explore the overall disaster relief mechanism by studying the following cases in four villages.

**The Daantou Village of Yangcheng County**

When the housing problem emerged, the villagers had repeatedly reported the problem to the cadre members of the village and township and to the Sihe Mine, hoping to find some means of mitigation. But the Sihe Mine maintained that compensation in excess of RMB 4 million had been paid to the village. The villagers then turned to the village cadres, approaching the village Party branch secretary for compensation. Some received financial compensation; some of those whose homes were basically undamaged but which were determined to be dangerous structures received compensation; while some others received nothing. “Those who received compensation were basically those who had a close relationship with the village Party branch secretary.”

After the collapse of her cave-dwelling, Wang Yuzhen would find time to “work” in town. She went to the town government to speak to the official in charge, to find out what she should do in the future, and what the villagers should do, but to no avail. After the collapse of her house, the village committee and the mine had deployed personnel to inspect the site of the collapse, but no one told her what she should do in the future. She also did not receive any compensation. Wang said, “I have been running around for years, and I know that my efforts might be futile. But I cannot think of any other way out, except to seek audience with the government time and again.” Some said that there were instances in which all the people of a village move as a group. But they were still moving within the depression areas. No one knows when another problem might emerge one day. Others said that new problems surface after moving out, such as the farmland issue that remains unresolved. “It’s been so long. It’s about time that the government comes up with a solution,” she said.
Haojiazhai village, located in Xiaoyi city under the jurisdiction of Luliang city

Haojiazhai village was originally called Goudi. In 1979 and 1986, the villagers were moving to the hills when sinking in Goudi village was getting serious. The original Goudi village became a place of ruins where weeds and long grass luxuriantly grew. Water in the Duizhenhe River, a river that flows past the village, is also getting black, and villagers call it "heilongjiang" ("hei" means "black" in Chinese). For more than two years, the number of mines has been multiplying, and the amount of mining activities has been increasing. Now made up of "New Villages" (xincun) and "New New-Villages" (xinxincun), Haojiazhai is seeing a worsening of its sinking in recent years. Even the "heilongjiang" has dried up.

In early 2002, the villagers initiated an appraisal by the Mining Damage Technical Appraisal Committee of the China Coal Society, and the results of the appraisal showed that the damages to the houses were due to the surrounding mining activities. From then on, there had been unending conflicts between the villages and the private mine at the foot of the hill. Previously a collectively owned mine in Haojiazhai village, the mine was sold to a private owner by the village administrator. Thereafter, the villagers were subject to actions of reprisal whenever they sought out the mine or when they complained to the government. A villager called Hao Huali reported to the provincial government's committee of the CCP during mid-September 2005. One month later, on 21 October, five to six strangers climbed over his garden wall and entered his house in the middle of the night. They forced open his bedroom door, and beat up Hao and his mother. Both suffered from bone fractures. Hao wanted to call for help from the villagers, but his phone line was cut, and the garden gate was sealed with iron wires. He did not know who the mastermind was, but the village administrator sent someone to deliver RMB 6,000 for him.

Now, Haojiazhai is preparing for another collective house-moving. A notice of "House Construction Agreement" newly posted by the village committee said that RMB 516.38 per square metre must be paid for newly constructed houses. The new village will be located at Yugou, a subsidence area two miles away. There are two closed down black coal mines; before they closed, mining activities were carried out day and night for five to six years. The land was long hollowed out. The village administrator decides where to move, without discussing it with the villagers. The village administrator operates coal mines in other places, and his family long ago moved to Xiaoyi. He would use a mobile phone to give instructions to the village committee. Only half the villagers remain. The younger ones who could work left; the remaining ones waiting to move are the old and the the weak. The village primary school shut down due to reduced enrolment, and this had expedited the villagers' exodus.

Villagers of Haojiazhai do not know if their village is part of a state-owned mining zone, and if it is under state governance. The village is located within the mining zone of the state-owned Shuiyu Coal Mine, yet the coal mine at the foot of the hill is privately
owned, i.e. it is a typical "mine within a mine." An official at the Xiaoyi subsidence treatment office (zhichenban) said, "There is one way to determine if Haojiazhai is within the state-governed area. If the government sends someone to inspect the degree of damage in the village, it means you are within the area of the state-owned mine; otherwise, you are not." No one had inspected the Haojiazhai Village. And yet the villagers refuse to give up. They stubbornly believe that the state policies will have their interests at heart, and patiently wait amidst the sounds of blasting from the coal mountains.

**Taoniu village at Linshi County**

Situated on a mountain more than 1,000 metres in height, Taoniu village sits on a depression area of a major state-owned mine. Mining operations on the mines surrounding Taoniu village are carried on the Fujiatan Mining Zone, owned by the Fenxi Mining Group. Cracks were long found on the walls of the village homes. Some cave-dwellings started collapsing during the 1990s. Today, nearly all the walls in the homes of the 100-odd households are lined with cracks, and some cave-dwellings have subsided.

The wells dried up seven years ago. Villagers had to resort to pumping water from the foot of the mountain. Water is thus drawn from the Fujiatan Mining Zone, passing through two levels, and travelling five kilometres to reach Taoniu village. Everybody in the village depends on a single water pipe. Villagers could not bear to use the water that costs RMB 5.5 per ton, and that is barely adequate for their living needs, for watering the lands. They could depend only on the "sky" for harvest. Wheat production fell from its previous level of 500 katis to the current 200. Due to water shortages, fruits trees on the mountain have withered.

Of the 530 people living in the village, 300 have moved out. Some moved to nearby locations such as Fujiatan and Linshi County City; others moved as far as Taiyuan, or even out of the province. Yang Jianguo’s family of four had also moved out. They rented a dilapidated cave dwelling at Fujiatan for RMB 100 a month. Compared to the three really good cave-dwellings in the village, Yang is very unhappy with his current home. Still, he had no alternative. People in the village who are slightly better-off have left, and fewer children are left behind to go to school. Taoniu’s primary school had to shut down because of a shortage of students. With his daughter turning eight, Yang had to leave. But being unable to find any work in Fujiatan after moving out, Yang had to return to the village to farm. He planted wheat on ten acreages of land. But with a harvest of 2,000-plus katis, he would not have enough to even feed his own family.

In 2004, the local government sent someone to Taoniu Village to check on the geological disaster caused by coal mining-induced depression. A decision was made to move the entire village. The villages also heard that the government may provide some compensation for the subsidence area. But two years have passed, and there is still no news of the moving.
Jiaozhong Village, also located at Linzhi County, and not far from the renowned Wang Courtyard (wangjiadaying).

Two years ago, the villagers heard the low blasting of cannon sounds under their homes, and cracks began appearing in their homes. Seventy percent of the homes of the hundred-odd households found their homes cracking, even the structures of the village committee and the village-run primary school. A dozen places on their farmland were found to contain crevices. There was also a long and deep cleft. Then there was the drying up of the water source, and then the withering of fruit trees that spanned nearly one thousand acres. The withered fruit trees could only be chopped up and used as firewood. Disaster infected the villagers’ lives with fear. Some villagers left. And the students of the village-run primary school, originally catering to student intake from other villages, transferred out.

Coal under the land of Jiaozhong village had long been completely extracted by the state-owned Hongqi Coal Mine. The villagers suspected that their problems were caused by the safety coal pillars left behind by Hongqi. In July 2005, they reported the matter to the State Land and Resources Bureau of Linshi County. Upon approval by the Land and Resources Department of Shanxi Province, an assessment team, made up of the State Land and Resources Bureaus of the relevant counties and cities, geological exploration agencies and the Jiaozhong Village Committee, was formed. However, when the actual in-well testing was to be conducted in early August, the staff of the Jiexiu State Land and Resources Bureau of Jiexiu surprisingly proposed that the Jiaozhong Village Committee members should not be allowed to enter the well. Technical personnel who entered the Houdangyu village border to conduct inspection of surface structures were stopped. When the Land and Resources Bureau of Jizhong city was about to continue the investigation, the Land and Resources Department of Shanxi Province ordered investigations to be stopped, giving as its reason that the province’s office would take over the investigation. But more than one year has passed, and the province’s land and resources office as well as its authorized technical assessment unit had never set foot on Jiaozhong Village.

Information thus shows that the our villages, which belong to three different counties and cities suffer from similar damage: houses cracking up, land subsidence, heavy pollution and shortage of water resources, as well as the impossibility of habitation on their existing lands, and the inability of villagers to produce and live normal lives. Some or a majority of the villagers moved away of their own accord; yet, not all were willing or able to move. Those who stayed put could only wait for the government to reach out a helping hand.

However, there were apparent distinctions among the four villages. Only Taoniu village really found its way under the government’s relief spotlight; yet nothing happened two years after the government had investigated. The remaining three villages are still trapped in the government’s blind spot. Among them, Haojiashai was at the junction
of "two possibilities," but because the government did not carry out any investigation, the villagers could not enjoy the reconstruction subsidy of RMB 450 per square metre. Instead, the address of the "new village" decided by the village administrator would still sit on top of a hollowed out mine. Da'antou Village is not under the government's relief plan. Although the mine responsible had paid "more than RMB 4 million in compensation," only some villagers received their compensation. The villagers had "repeatedly sought out the government," but the government did not help them devise a "solution." As for the last example, Zhongjiao Village seemed to be in the worst position: disaster had hit it, without doubt. But complex interests and relationships have prevented the villagers from even knowing the reasons for their plight.

Therefore, villagers and villages sitting on "hollowed" areas are also located in an institutionally "hollow" zone. The various scenarios in each village not only fully exposes the "crisis of governance" at the base level, and even the mid- and upper-level regimes, they also reflect the disunity and disharmony within the local societies. On the tumultuous eco-environment battlefield, we can truly feel the exact and intrinsic implications of the phrase "social disintegration."

**CONCLUDING REMARKS: LOOKING TO THE FUTURE THROUGH A WINDOW ON THE PAST?**

Since the end of the previous century, many intellectuals in non-mainstream circles have been discussing China's future. This is a topic which bears huge risks no matter which perspective is taken, and it is avoided by most "prudent" academics in China. However, when I began research on the agricultural areas of China and learned of the eco-environment, I became interested by the state of affairs in Shanxi. After years of groping and studying situations like those cited above as a "bystander," I have found myself having difficulty side-stepping something which I had been diligently avoiding.

If we examine the eco-environment crisis objectively and from a different angle, China is definitely approaching a dangerous zone. It is difficult to predict if this road will eventually lead the country to disintegration, or perhaps destruction. But if we shift the subject of our discussion from all of China to just a part of it, Shanxi villages, then the sociological or physical disintegration or destruction will no longer be just "scenarios" to be predicted, but rather realities to be discovered and recognized. The problem lies in the many influencing and blinding elements, so much so that the government and government officials, even academia and intellectual circles, have become accustomed to the circumstances -- something they regard as a *state*, not an *event*. Perhaps we have lost the ability, or courage, to restore our sense of how a dramatic event should be perceived.

This could mean that China truly needs another "revolution" -- a social revolution to fight for the right of survival -- triggered by environmental problems, and aiming at their resolution. Of course, the possibilities, methodologies and outcomes still remain
unknown. But the author has to stress that an unpolished version of "revolution" has
occurred in Shanxi, the subject of our study. Because occasional flashes amidst the
storm of revolution may leave behind petrified memories that offer eternal value, the
author attaches a brief explanatory postscript. I hope it can provide some insight.

POSTSCRIPT

When the Cultural Revolution was engulfing the lands of China, the "rebel party" that
was first established in Lingshi County on the middle section of the Fenhe was neither
"Jinggangshan" nor "Wutaishan," neither was it called the "Red X" nor the "Fight X." It
was called the "Drink to Revolt Army" (Chizshui Zaofan Bingtuan). The Army's soldiers
(mainly farmers residing along the river) rushed into the office of the county Party
committee and county government, took a ladle and scooped the muddy waters from
the Fenhe River, and put it on the desk of the committee's general secretary. They forced
the "party in power" to drink up the water. They said, "we drink this everyday. Now
we want you to have a taste of it!" The committee secretary was powerless, as it was
indeed a polluted river. The "rebelling warriors" charged into the provincial capital and
surrounded the county Party committee, sitting down in silence. They wanted a "clean
Fenhe River" and "a mouthful of fresh water." From then on, the dozens of villages
along the Fenhe River in Lingshi County had two cars, three tractors, and started a life
of pulling drinking water (la shui chi) (Mai Tianshu, 1989).

ENDNOTES

1 A tactic used usually to "conceal problems." The language is usually ambiguous, the results
seemingly apparent, and the problems always indistinct. For example, a frequently used
term to describe the environmental condition is "maintained steady," the true implication
of which could mean "irreversible" deterioration.

2 This article adopts this concept based on the two purports as follows: first, compared to
normal market economies, China's ruling party and government clearly play a role in
the promotion of and support for industry-driven economic development. Second, the
lack of an effective checks and balances mechanism results in both the government's and
enterprises' frequent disregard of the basic rights of workers and the protection of the
environment. Consequently, growth had resulted in vicious competition — a race to the
bottom, accompanied by huge economic, social and ecological costs.

3 See the Government Work Report of Premier Wen Jiabao at the Third Session of the Tenth
National People's Congress, People's Daily, 6 March 2005.

4 The author has conducted macro studies on the overall impact on the sanmeng issues (those
relating to agriculture, farmers and the countryside). Studies by region during the recent
two years have focused on Henan, the Yangtze River Delta, and Zhejiang province. See

5 This conclusion is based on what an official of the Shanxi Environment Protection Bureau
had said: Shanxi has always been called "one of the most heavily polluted provinces in
China; but when the new governor knew of it, he removed the words “one of” during internal meetings. See the Southern Metropolis Daily, 24 September 2006.

7 The Beijing News, 10 January 2007.
10 That year, disposable income of the urban residents in Shanxi was RMB 10027.7; net rural income was RMB 3180.9. See Shanxi Bureau of Statistics, Communiqué of Shanxi Province on the 2006 National Economic and Social Development. http://www.stats-sx.gov.cn/tjgb/default.htm.
11 Based on logic, fiscal income should be “public income”; however, as China’s fiscal institution lacks transparency and supervision, “public finance” often carries a strong flavour of “department finance,” or even “personal finance.” Here, we call it “government’s wealth” in keeping with its actual behaviour.
12 Economic Information Daily, 21 March 2002.
17 An environment expert in Shanxi said that there were only five prefecture cities which were included among the major surveillance areas by the State in 2004. If the rest of the eleven prefecture cities were included, then the province will take up the first nine positions among the top ten cities with the worst air pollution. For relevant information, please refer to Economic Information Daily, 21 March 2002; Wen Wei Po (Hong Kong), 15 July 2005; Shanxi Daily, 29 December 2006.
18 Economic Information Daily, 1 March 2002; Zhang Kejia, 2002; Wen Wei Po (Hong Kong), 15 July 2005.
20 Xinhua Net, 29 March 2004.
23 Southern Metropolis Daily, 2 July 2007; CCTV News Probe (Xinwen Diaochu), 9 September 2007.
25 China Environmental News, 9 October 2001; Shanxi Commercial Daily, 10 May 2007; Market News, 27 November 2006; Mai Tianshu, 1989; Shanxi Wan Bao, 21 April 2006. The three rivers flow through ten cities and 45 counties in Shanxi, with a river basin spanning 43.8 percent of the province, and accounting for 70 percent of the province’s GDP in 2005.
There were fifteen items included for damage computation, including permanent damage to water resources, soil erosion, water shortage, damages to building and housing structures, etc. Shanxi Wan Bao, 28 April 2005.


The development of the "Misery Index" and the partial use thereof should be regarded as a kind of attempt. But some of the "indices" which we see nowadays do not seem to be able to truly reflect the level of "misery."

Wen Wei Po (Hong Kong), 15 July 2005.


Xia County is a poor county in Yuncheng.


Wen Wei Po (Hong Kong), 15 July 2005.

Which is equivalent to 5.93 per thousand of the entire population in Shanxi in 2006. If all patients were regarded as Shanxi residents, it implies that out of every 1000 Shanxi residents in that year, nearly 6 would have to go to the Shanxi Tumour Hospital for cancer treatment.

Zhang Kejia, 2002; Chen Hongai, 2006.


He Yanwei et al., 2006.

Chen Hongai, 2006. Date of investigation uncertain.

"Circle of benefit" and "circle of harm" are a pair of concepts used by Japan's environmental social science circle to analyze environment problems. See Nobuko Iijima et al., 2001.


A campaign organized by Mao in the early 1960s encouraging peasants from all over China to follow the example of the village of Dazhai, in Shanxi province.

Li Yang, 2006; Chen Yanhui, 2006.

No detailed information on the extra-China emigrants is available, the same way we are ignorant of similar circumstances in the country. However, when many urban newspapers introduced a special section on "migration agents," we have to think: does this, to some extent, reflect the other facet of China's overall "eco-migration" problem?

Shanxi Wan Bao, 22 November 2006.
For information on the four villages, refer to Guo Jianguang, 2007; Li Yang, 2006; *The Beijing News*, 10 January 2007; *People's Daily*, 26 December 2006.

The subsidence treatment office (zhichenban) official of Xiaoyi City revealed the deceptiveness and awkwardness of the institution during his interview with the reporter. According to him, Xiaoyi City had planned a new district at the southern part of the city, occupying an area of more than 500 acreages. The intention was to move all the residents located at the caved-in areas. “However, this matter cannot be made known publicly, otherwise, the residents located at private mines will look them up, demanding why housing is given only to those living on state-owned mines,” he said. Li Yang, 2006.