

Sustainable Development Problems of Ecological Environment in Alar City and its Countermeasures

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Abstract: Industrial construction as a main driving force of local economic development, it is also one of the criteria to measure the region or city economic development levels. With the rapid development and growth of Alar industrial zones, some of them appearing pollution problems that more scholars and experts are paying attention to. Meanwhile, residents have more requires on their living environment. This paper based on the analysis of industrial construction situation in Alar city, comparing the five zones and proposed its impact on ecological environment and the existence problems, analyze its causes and proposed appropriate measures, and provide technical support for related departments to constitute environmental protection policies which is the basis for some companies to protect environments.

Introduction

Ecological environment is the foundation for human survival and development, and the basis of economy and social development. Our fragile ecological environment, inadequate resources per capita, coupled with violation against ecological laws and misuse of resources will inevitably lead to sharp contradictions between man and nature, development and environment. Only by insist on the strategy of sustainable development, protection the environment, can we balance the relations of social, economic and ecological, realizing the harmonious co-existence between man and nature.

Sustainable development of urban ecological environment

Traditional society thought natural resources like environment are inexhaustible rather than limited resources. With the irrational exploitation of natural resources, there appearing a series of ecological environment problems, such as soil erosion, desertification, decrease of forestry and grass resources, water pollution, sound pollution, air pollution, municipal solid waste pollution and others which severely restricted the economy development. Therefore, the strategy of sustainable development can maintain its ability to optimize engineering through self-regulation, and creating an urban ecological system in harmony with nature is the target and needs of environment protection. To achieve sustainable development of urban ecological environment, the theory of sustainable development must be the guidance, and the harmony between man and nature is the value orientation, setting up a correct environment values that pay equal attention to both social-economic and environment protection in its construction process and striving harmonious development.

Development status of Alar industrial zone

Since the Autonomous Region established in 2008, an area of 135000 square kilometers, they focusing on the development of agricultural and sideline products deep processing, cotton spinning agricultural machinery, electric power industry and other basic industries, gradually developing the petrochemical industry, forming five industrial zones, food processing zone, heavy industry zone, photovoltaic zone, Alar students pioneer zone and workers pioneer zone.

First, the total output value reaching 6.015 billion Yuan, an increase of 76.13%, the growth value realizing 1.801 billion Yuan an increase of 78.79%, accounting for 44.58% of the city's industrial economy, a more than 60% contribution rate, preferably completed the goal "the economic gross of the zone account for 40% of the city's industrial economy" proposed in City Party Committee Expand Meeting. Second, the fixed assets investment plays a leading role. It expected to complete the fixes assets 4.013 billion Yuan throughout the year, accounting 22.9% of total planned investment, among which have 3,543 billion Yuan of industrial fixed assets investment, 470 million Yuan investment in municipal infrastructure. Third, tax revenue reaching billion Yuan first time, an increase of 78.57%, 22.2% of the city planned tax revenue. Forth, efforts of revitalize the stock, expand the incremental is obvious. So far, the number of listed companies in the zone reached 26, in which six new companies added in this year, and expected to achieve industrial output value 1.09 billion Yuan accounting for 23.23%; generally revitalized military, science and carbon materials three companies, expected to achieve total industrial output value 480 million Yuan accounting for 10.28%; adding five new enterprises which accumulated vital forces for industrial development in next year. Fifth, cotton textile enterprises further expand its production capacities. Facing the unknown and downturn cotton market in the country, the zone through various subsidies policies to revitalize the stock, and achieving total output values of 1.028 billion Yuan, an increase of 32.66 percent and successfully complete the scheduled year tasks. Sixth, the output values of agro-food processing industry achieved double increase and expected to achieve output value of 1.104 billion Yuan, an increase of 135.86%. The sustained and rapid development of agro-food processing industry has effectively promoted the development of agricultural industrialization, but meantime, we shouldn't ignore the environment problem.

Empirical analysis of the ecological environment impact of Alar industrial zone

Inadequate investment in green environment. Since 2014, the per capita GDP of Alar is growing rapidly. In the industrial structure, the first and tertiary industries showed a downward trend, the second industry is rising with an average annual growth rate of 1.9%, indicating the city still in the primary stage of industrialization, but comparing with 2005, it has entered the rapid developing period. While beside the achievements, there exist several environment problems. The total public green area is considerable which mainly concentrated in several main roads like Merino Avenue, Victory Avenue and ignored other areas like industrial zone, University Road, etc. and the percentage of pollution management investment in GDP and other important ecological environment construct indicators have never been counted, indicating the environment protection has never given sufficient attention. This kind of economic mode is developed at the price of damaging environment and wasting resources, and the faster developing pace lead to greater resource and environment costs and eventually lose the foundation and stamina of development.

Blindly introduce heavy industry. August 30, 2012, Alar formally approved upgraded to state-level economic and technological development zone by the State Council, and gradually

formed an industrial pattern that cotton fiber, natural gas chemical industry, energy and power, new material and Chlorine alkali chemical industry as the guidance, food processing and textile industry begun to shaping. The total output value of Alar city industrial zone is 6.015 billion Yuan and promoting its economy development. But there exists the phenomenon of focusing economic growth while ignored environment protect, like managers' lack of environment protect awareness, low access standards and remains introducing serious pollution projects in the process of industrial zone construction.

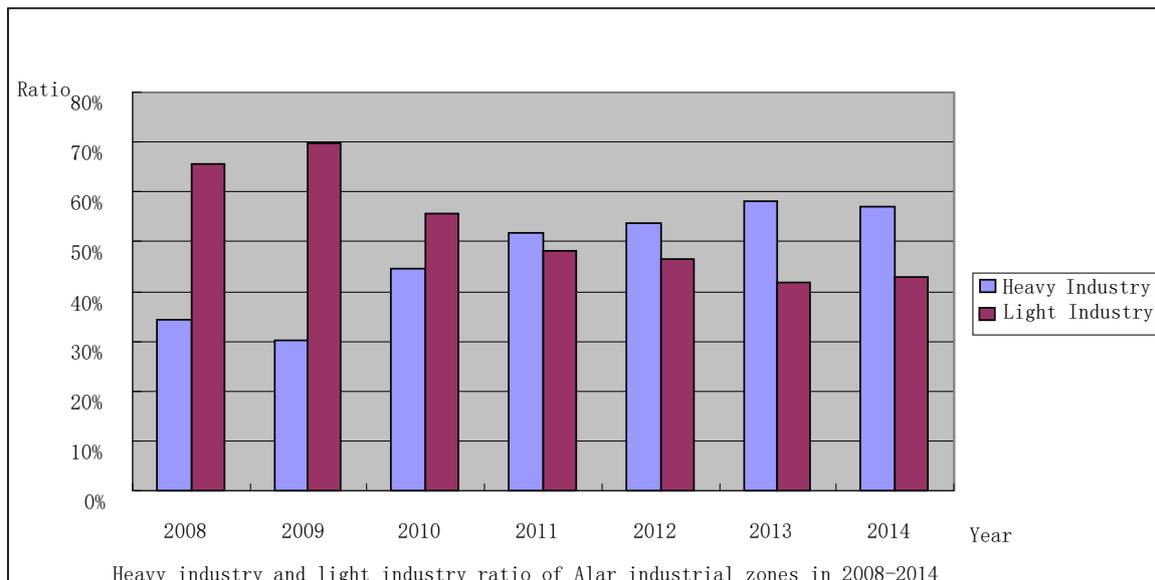


Fig. 1 Proportional change of light industry and heavy industry in Alar city

From figure 1 we can see that, the proportion of heavy industry in 2008 is 66.7:33.3, and turn to 41.4:58.6 in 2012, upgrading 25.3%, which in certain extent indicates its environment pollution problem is serious. Chlorine-alkali chemical industry located in the second zone, ten kilometers from Alar city and when there is prevailing north wind or northeast wind, the pollution air can easily covering the city.

Insufficient enforcement efforts in environment protection. The Alar environmental monitoring unit only has three staffs, no vehicle configuration and lack of equipment. Such “pollution first, treatment later” attitude resulting the lag behind of environmental protects infrastructure and some industrial wastewater direct emissions without treating. Although recent years Alar government invest several municipal infrastructure projects like afforest, water supply and sewage treatment and urban road what alleviate the pressure of environmental protection (the GDP energy consumption of the zones in 2014 decrease 38% than 2013), because the mismatch between investment and development, the protection are still in high-pressures. Per capita resource consumption is increasing. Some important environment related indicators are never collected, such as emission and purification rate of industrial waste air, the emissions of industrial waste air per ten thousand Yuan output value, projects of arranging pollution management, levy amount and expenditure amount of sewage charge and others. The development of circular economy is a strategy choice to realize sustainable economic development and environmental protection, and for the current status of Alar, the achieving of circular development has a long way to go.

Highlighted cotton manufacturing pollution problem in light industry. According to the data released by Earth Oath (Earth Pledge), “In the world, at least 8000 kinds of chemicals used in the process of textile raw materials, about 25% pesticides are used to plant non-organic cotton, which will causing irreversible damage towards human and environment, what’s more, about two-third

carbon emissions will continue to occur after the purchasing of clothing”. In the process of machining clothing fabric, tens of gallons of water are needed, especially in the process of fabric dyeing, which need 2.4 trillion gallons of water.

Chinese environmental statistics shows that in the industrial of focus searching, the textile industry is a large sewage. The wastewater emission in textile industry forefront in the country 41 industry wastewater emission, among which the wastewater produced in the process of dyeing accounted more than 70%. Alar industrial zone introduce Zhejiang Lijieye Cotton Company, which played a significant role in solving the employment, promoting local textile manufacturing industry and increase economic growth, but some problems in environment protection need to be solved.

In addition, as an important source of water pollution, Chinese textile industry also consumes a huge water resources, and the utilization efficient is far behind the rest of the world. According to the “the industrial pollution prevention and management report of national major industry” published by China Environmental Science Publishing House, in the case of produce similar products, the average pollutant content of dyeing wastewater is 2-3 times higher than abroad, water consumption is 3-4 times, meanwhile, the handling of waste soil generated by dyeing wastewater is difficult. Alar city located in the edge of the Taklimakan Desert with less rainfall, and the agricultural, domestic, industrial water are relying on the Tarim River and groundwater, but with the unlimited exploitation in recent years, even in summer the water is not sufficient and the groundwater level keep declining which is a severe test for textile enterprises and a matter concerns survival for the city.

Countermeasures and suggestions

According to the requirement of “eyeful rural scenery, with blue sky and white clouds, retaining corps memories with the air of modernism”, we should insist on the both wealthy and healthy living, based on the goal of “greening, brighter, beauty” to fully complete the work of greening and environmental remediation in industrial zone, and build a beautiful city which is livable, enterprises, and eco-industrial development.

Protecting the environment, insist on the road of industry sustainable development. Sustainable development is a model focus on long-term development, which meets the needs of present without compromising the ability to meet the needs of generations. Economic development and ecological environment is an indivisible whole, the ecological environment supplies the material basis for people to survival, and thus its quality will directly impact the sustainable development of urban economy and society. In 2014, the GDP comprehensive energy consumption per ten thousand Yuan in the zone is decreased 7.8%, more than 3.27% decreased compared with year target 4.53%. Industrial wastewater, sulfur dioxide, smoke (powder) dust discharged based on standards; introduce supporting sewage management practices, and 50000tons of sewage treatment project is around the corner, at which time the zone wastewater discharge will reach the A standard which water can recycle and reuse.

Strengthen the propaganda of environment protect, establish and improve various regulations. First, increase the investment in environment protect, strengthen the advocacy efforts, so workers and citizens will realize the serious consequences of environment degradation and the urgency of environment protection, then positively devoted to the management and protection of environment. Then, in the legal aspect, there are less enacted environment protection laws, thus the legal system should be improved. In addition, government should strengthen the supervision and law enforcement on Zone Administrative Committee, implement the responsibility system for administrative and discover the enforcement activities which benefit public supervision.

Construct water-saving industrial enterprises, protect water from pollution. Developing efficient urban sewage treatment system and water-saving technology, alleviate water shortages by increasing conventional and high-tech efforts to improve the utilization of water resources. Setting real-time water monitoring on polluting enterprises, controlling pollutant emissions, establishing efficient urban sewage treatment system to control the development of water polluting, enhance the unified management of water resources, realizing the scientific configuration of water exploitation, utilization, management, conservation and protection.

Establish an ecological environment index system for the sustainable development of Alar city. Urban environmental evaluation is a necessary prerequisite to protect its environment and achieving sustainable development. Construct an optimized reasonable evaluation index system for Alar city, based on its sustainable development, identify a representative and monitoring and warning comprehensive index, to scoring the ecological environment, achieving dynamic monitoring and providing foundations to institute further development strategies.

Based on “Garden City” to create a green development zone. Increase greening investment, expanding the green space; introducing cleaning companies through market-oriented means for environment management and protection; carrying out environment remediation work in fallowing season; smoothing the forestry ground, winter planting; implement “contract the three matters in front of the door”, creating a new visage in forest, sanitation and order.

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References

- [1] Yang, S. Study on sustainable development of urban ecological environment: take Chinese urban for example. *Journal of South China Normal University (Natural Science Edition)* 1997 (1) (In Chinese)
- [2] Yang, S. Guo, H. Study on sustainable development assessment of urban ecological environment. *Journal of South China Normal University (Natural Science Edition)* 2000 (4) (In Chinese)
- [3] Song, R. Sun, H. Research on sustainable development capacity of urban ecological environment. *Research on Financial and Economic Issues* 2007 (7) (In Chinese)
- [4] Chen, F. Guo, Y. Development status of Alar city and its impact on social stability. *Legal System and Society* 2012 (17) (In Chinese)
- [5] Luo, Y. Huang, D. Research on the environment protects problems of Alar city industrial zone construction. *Legal System and Society* 2012 (13) (In Chinese)
- [6] Liu, K. Wang, W. Status and analysis of agricultural water use in Alar reclamation area. *Journal of Hebei Agricultural Sciences* 2009 (10) (In Chinese)
- [7] Guo, Y. Ecological environment status quo in China and the select of sustainable development strategy. *Journal of Liaoning Normal University (Natural Science Edition)* 2002 (5) (In Chinese)