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RESEARCH ON THE CURRENT SITUATION AND COUNTERMEASURES OF URBAN ECOLOGICAL PROBLEMS IN GUANGXI, CHINA

ИЗУЧЕНИЕ ТЕКУЩЕГО СОСТОЯНИЯ И МЕРЫ ПРОТИВОДЕЙСТВИЯ ГОРОДСКИМ ЭКОЛОГИЧЕСКИМ ПРОБЛЕМАМ В ГУАНСИ, КИТАЙ

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The article presents a brief analysis of the characteristics of urban environmental problems in the process of urbanization of Guangxi. The problem and the current situation with urban waste were especially noted. Based on this, the technology of industrial waste management was analyzed using the example of an automobile production enterprise. The advantages and significance of urban ecological construction are summarized. An example is the production of automobiles. Enterprises and national measures for energy saving and emission reduction are proposed, as well as proposals for macro energy saving and emission reduction.

В статье представлен краткий анализ характеристики городских экологических проблем в процессе урбанизации Гуанси. Особо отмечена проблема и текущая ситуация с городскими отходами. Исходя из этого проанализирована технология обращения с промышленными отходами на примере предприятия автомобильного производства. Обобщены преимущества и значение городского экологического строительства. Примером послужило производство автомобилей. Предложены предприятия и национальные меры по энергосбережению и сокращению выбросов, а также предложения по макросбережению энергии и сокращению выбросов.

Keywords: urban ecology, industrial waste, Automobile manufacturers problem solving strategy.

Ключевые слова: экология города, промышленные отходы, стратегия решения проблем автопроизводителей.

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Guangxi city process introduction. China's urbanization process has accelerated. According to the National Bureau of Statistics, the urbanization rate of permanent residents at the end of 2021 was 64.72 percent and increased by 0.83 percentage points from the end of the last year.

In 2020, the permanent urban population of our district was 27.171 million, and the urbanization rate of the permanent residents was 54.20 %. Compared with 2010, the urban population increased by 8.752.3 million, increasing the proportion of 14.18 percentage points. The permanent rural resident population was 22,955,800, with a decrease of 4,652,100 people compared with 2010. Nanning, Liuzhou, Beihai, Fangchenggang and other cities have obvious population aggregation effect and a net population inflow. Among them, Nanning, as the best district in Guangxi, has a permanent population of 8.7416 million, accounting for 14.48 % 10 years ago to 17.44 %, increasing by nearly 3 percentage points, and the population growth rate ranked first in the region at 31.22 %. In addition to Nanning, the top five cities with permanent resident population are 5,796,7 million in Yulin, 4,931,1 million in Guilin, 4,316,200 in Guigang, and 4.157,9 million in Liuzhou.

Guangxi urbanization development goals. By 2035, the new type of people-centered urbanization will be deepened, the urbanization rate of permanent residents will reach about 68 percent, the citizenization of the migrant rural population will be completed, and basic public services will be equal. Guided by the integrated construction of Nanning metropolitan area and Beiqin defense, it has become a megacities with a permanent population of more than 5 million, a type I city with a permanent population of 3 million to 5 million, and three urban cities with a permanent population of 1 million to 3 million.

Urban solid waste problem and its current status. The benefits of the urbanization process are obvious. First, it improves resource utilization, such as public facilities, including schools, hospitals, shopping centers, entertainment venues, and will be more concentrated, thus making it manage more effective and reducing management costs.

With the development of the economy and the improvement of people's living standards, the problem of garbage is becoming increasingly prominent. There are about 13 cities in Guangxi, one-third of which is surrounded by garbage belts. The garbage was buried and burned, causing a series of serious hazards.

In 2020, general industrial solid waste in Guangxi, 90,3004,600 tons, 43,891,700 tons, including 2,299,800 tons, 13.955,5 million tons, including 686,400 tons, 35,441,100 tons and 2,500 tons. In addition, the hazardous waste produced 2.522,100 tons; the utilization disposal of 2.766,100 tons, including 344,400 tons of previous disposal and 433,500 tons; the annual storage of 630,300 tons, dumping disposal of 0 tons.

Industrial waste hazards. 1. Polluting the land. After the production of industrial waste, it must cover an area of stacking, the larger the accumulation, the more the area. Waste stacking, in which the harmful components are easy to pollute the land. When the pathogenic microorganisms in the contaminated soil and other harmful substances along with the natural precipitation, runoff or seepage into the water body may further harm people's health. Industrial solid waste also damages the ecological balance within the soil. Soil is the place of many bacteria and fungi. Industrial solid waste, especially hazardous solid waste, so to acidify the soil, alkali, hardening and other deterioration phenomenon, serious pollution and even vegetation does not live. 2. Polluted water bodies. The discharge of a large amount of industrial solid waste into rivers, lakes and seas will cause siltation, thus blocking river channels, eroding farmland and endangering water conservancy projects. Toxic and harmful solid waste into the water body, will make a certain amount of water area into a biological dead area. It has contact with water (rainwater, surface water), the toxic and harmful components in the waste will inevitably be filtered out, so that the water body is acidic, alkaline, eutrophication, mineralization, suspended matter increase, and even toxic and other changes, endangering biological and human health. 3. Air pollution. Air pollution of industrial waste has three aspects: (1) the fine particles of waste are blown by the wind, increasing the dust content in the atmosphere and aggravating the air dust pollution; (2) a large amount of dust is directly discharged from the exhaust cylinder to the air environment; (3) the stacked solid waste produce toxic gases, and leads to air pollution.

Problem solving strategy. At the technical level, breakthroughs need to be made. At present, the main treatment methods include compaction, crushing, sorting, curing, incineration, biological treatment, etc. In world practice, six fundamental methods of waste recycling have found industrial application [1].

Taking the "New Energy Bus Co., Ltd. Production and Construction Project of Guangxi Automobile Group Co., Ltd." as an example, we analyzed the new construction land, product scale and environmental protection measures that it needs, focusing on the environmental protection strategy of the enterprise. The project territory includes two parts: Guilin Factory and Liuzhou Technology Center. The factory site is located in Guilin City and Liuzhou City, respectively. The main measures are as follows:

Welding residue, packaging waste and other general industrial solid waste shall be collected and stored in special bags and storage areas, recovered by suppliers and professional companies; domestic waste shall be recovered by Guilin Sanitation Station. 2. Hazardous waste such as waste paint residue, phosphorized waste residue, waste solvent, sewage treatment station sludge, waste oil, waste activated carbon, waste paint buckets and plastic containers are temporarily stored in the temporary storage room of hazardous waste and regularly submitted to corresponding qualified units for disposal. The temporary storage room of hazardous waste shall be strictly in accordance with the Pollution Control Standards for Hazardous Waste Storage formulated by the State (GB18579-2001) and the requirements of the 2013 amendment sheet (Announcement No.36,2013) for construction, and strict standardized management of hazardous waste. 3. Implement various industrial waste measures according to the working principle of zoning. Reasonably set up monitoring points, entrust qualified monitoring institutions to carry out regular and dynamic monitoring, and do a good job of pollution early warning and forecast. 4. Implement the pollution prevention and control measures during the construction period, and strengthen the environmental protection and management during the construction period. Implement the existing project rectification measures in Guilin and Liuzhou factories. Waste generated from the existing testing workshop shall be collected, and the waste gas cannot be discharged after treatment. 5. According to the relevant requirements of Record Management Measures of Environmental Emergency Plan for Enterprises and Institutions (Trial) (No. 4,2015), carry out enterprise environmental emergency risk assessment, determine the risk level, formulate environmental emergency emergency plan and report to the local environmental protection department for the record, organize emergency drills regularly; formulate environmental safety hazard investigation and management system, establish hidden danger investigation and management files, and implement relevant environmental risk prevention and control measures. 6. The implementation of the construction project environmental impact assessment information disclosure mechanism plan (162,2015), open project environmental information, accept social supervision, and take the initiative to do the project construction and operation communication and coordination with the surrounding public, timely solve environmental

problems of the public, adopt reasonable of the public opinion, meet the public reasonable environmental demands. 7. Guilin Ecology and Environment Bureau and Liuzhou Bureau shall conduct daily supervision and management of environmental protection in accordance with the regulations, and report environmental problems in time.

Conclusion. According to the actual situation of China and Guangxi, the nature and harm of waste in Guangxi urbanization are briefly expounded. Through literature analysis and the environmental protection technology of Guangxi Automobile Group Co., Ltd., the characteristics of major industrial waste collection and treatment are studied. Waste disposal methods that need to be broken at a technical level and are in use are discussed. It mainly includes compaction, crushing, sorting, curing, incineration, biological treatment and other six major technologies. On this basis, the further analysis of the circular strategies of the enterprise – government – social supervisor, the three, which is of great significance for the research of environmental protection strategies.

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ВЛИЯНИЕ СВЕРХМАЛЫХ ДОЗ ЛАЗЕРНОГО ИЗЛУЧЕНИЯ НА РОСТ МИКРОЗЕЛЕНИ КРЕСС-САЛАТА

THE INFLUENCE OF ULTRA-LOW DOSES OF LASER RADIATION ON WATERCRESS MICROGREENS GROWTH

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В ходе работы была проверена гипотеза о стимулирующем воздействии сочетанного излучения на рост микрозелени кресс-салата. В эксперименте использовались дозы 0,6-18 Дж, оценивались некоторые биометрические и биохимические показатели проростков. Установлено, что значительный прирост биомассы наблюдался при облучении дозами 2,4-4,2; 5,4-6,0 Дж.

In the course of the work, the hypothesis of the stimulating effect of combined laser radiation on the growth of watercress microgreens was tested. The doses of 0.6-18 J were used in the experiment, some biometric and biochemical parameters of seedlings were evaluated. It was found that a significant increase in biomass was observed when irradiated with doses of 2.4-4.2; 5.4-6.0 J.

Ключевые слова: кресс-салат, лазерное излучение, фитомасса, хлорофилл.

Keywords: watercress, laser radiation, phytomass, chlorophyll.

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На сегодняшний день основными методами повышения урожайности являются внесение химических соединений в почвенный субстрат и предварительное стимулирование посевного материала. Однако негативное последствие химизации сельского хозяйства заключается в отравлении продуктов питания и компонентов окружающей среды чрезмерным количеством нитратов, фосфатов, пестицидов, синтетических регуляторов роста. Данная проблема подвела к необходимости поиска альтернативных способов повышения урожайности, которые, помимо прочего, не будут наносить урон окружающей среде и собственно потребителю.

Перспективным направлением является разработка экологически безопасных физических методов биостимуляции семян. К современным альтернативным способам обработки относятся сверхмалые дозы ионизирующего излучения, кратковременная тепловая и ударно-волновая обработка, озвучивание, экспонирование в электромагнитном поле [1]. Требования, выдвигаемые к новым методам обработки – безвредность по отношению к семенам и рабочему персоналу; стабильное повышение урожайности и качества получаемой продукции; меньшая подверженность различным заболеваниям. Так, например, электромагнитная обработка семян не сопряжена