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## **PATH OPTIMIZATION OF CHINESE ALUMINUM CORPORATION FOR A CIRCULAR ECONOMY STRATEGY BASED ON A RESOURCE VALUE FLOW MODEL: A CASE STUDY OF CHINALCO**

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### **Abstract**

The objective of this paper is to propose an optimal path for a circular economy strategy of Aluminum Corporation of China (CHINALCO) by constructing a circular economy evaluation model. Based on CHINALCO's resource circulation and the regularity of material balance, and by depicting the value information in the process of resource input, consumption, output and waste, we build a comprehensive evaluation model for the enterprise circular economy - a resource value flow equation based on the integration of resource efficiency, value cycle efficiency and environmental efficiency. This model and its additional deformation form act as analytical tools that can be used to research of the development of a circular economy of CHINALCO at three different levels of the enterprise's production systems, branch office, and head office. With this research, we then analyze the periodic characteristics of the circular economy of CHINALCO. By analyzing the single factor static and multi-factor linkage, this paper illustrates the optimal path for CHINALCO to achieve its circular economy objectives. This research can provide the basis for the future development of both a circular economy and also the enhanced use of technology in China's aluminum industry. In the meantime, the data resulting from the case study are likely to provide guidance for a technical and economic practice for China's aluminum recycling economy.

*Key words:* aluminum corporation, circular economy strategy, path optimization, resource flow model, value flow equation

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