JGPG (2015) 22: 51-68
DOI 10.14666/ 2194-7759-4-2-003

PAPER

An International Public Goods Perspective upon China's Resource Governance: the Function and Invalidation of REO(rare earth oxide) Economic Diplomacy

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Abstract The defeat of China's REO lawsuit in WTO reflects the worsening international environment of China's REO trade and failure of China's REO economic diplomacy. REO trading system under the WTO framework is essentially an international public goods provided by both REO consuming and supplying countries. China and Western countries are assumed the responsibility of providing material and normative public goods. However, China's high cost of providing public goods and profit outflow resulted in China's practical dilemma in REO trade. Although China's economic diplomacy committed to reverse this imbalanced situation, due to the block between capability and power conversion, the dominance of REO resources in China failed to translate into a trade advantage, thus proclaiming the failure of REO economic diplomacy and leading a more serious imbalance.

Keywords REO - International REO trading system - International public goods National power - Economic diplomacy
JEL Classification F50 - Q34 - Q37

On March 26th 2014, WTO judged in first instance that China's REO export restriction policy violated WTO's principles of free trade, and ordered China to stop trade protection policy in REO export.[1] Although China's diplomatic tug of war in the WTO has not ended, China's REO export policy adjustments have been inevitable. China's defeat in the WTO lawsuit means that China failed to maintain its dominant position in the international REO trade. China's REO economic diplomacy suffered

1 Li, G. (2014): 李光磊《WTO稀土案中国"一□"□□或引□行□市□化松□》,(*CHINA's defeat in the first lawsuit in WTO may arise a loosen industrial policy,;* in Financial Times, (2014):may)

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a major setback, and we need to rethink the rationality and effectiveness of economic diplomacy strategy urgently. China owns monopolistic resources in the international REO trade, but China has not been matched to the interests compared to its capability. in recent years, China has been trying to minimize its own loss by executing specific export quotas, but limited by WTO principles of free trade, China could no longer continue to implement such restrictive policies. China's REO Economy diplomatic confronted failure , leaving a serious threat to China's national interests.

In recent years, along with the continuous heating of international REO trade, frictions among China and foreign states have been more frequent, and thus researches on China's rare earth trade became increasingly enriched in academia. By analyzing trade datas, some scholars came to the conclusion that China's current Rare Earth Industry existed following contradictions: low added value, serious environmental pollution and imbalances in the international reserves and mining structure. [2]And they found the reasons why the REO price was too low and why we lacked international competitiveness were that our understanding of REO price determination mechanism was inadequate and our domestic rare earth market was far from perfection. [3]Foreign scholars placed China's rare earth monopoly characteristics in worldwide as the starting point. They attributed China's REO trade issues, from an economic supply and demand perspective, to the profit-driven behaviors of enterprises.[4] However, all these researches only focused on economics and trade disciplinary, few scholars underlying the causes in a deeper point of view, such as international strategy or economic security, let along seting economic diplomacy as the core to resolve the plight of China's rare earth trade exposition.[5] Therefore, it is high time that we pursued economic diplomacy as the path to analyze the status of China's rare earth trade and explored the implicit contradictions behind the veil.

From the roots of study, the essence of rare earth trade issue is the reflection of globalized resource allocating contradiction, and so it's reasonable to use resource diplomacy as the path to understand, analyze and resolve the disputes in REO field. Current researches on resource diplomacy have had some successes. Some scholars gave the connotation of resource diplomacy from an power politics perspective, and

2 Guo, M., Jia,Z., Liu,C., Dong,J. and Zhang, C. (2009):郭茂林、□志琦、刘翠玲、董建忠、□□《中国稀土□□□状及□略安全的几点建□》(The feature of China's REO industrial security and several suggestions,; in Sci-Tech Information Development & Economy，(2009):32，pp. 95—98)

3 Li, H. (2011): 李□：《我国稀土出口定价□□□探析》(Reseach on REO export pricing power of China,; in China Business & Trade, (2011):6, pp.213—214); He, J.(2011):何家□：《我国稀土价格波□的特点及成因分析(The fluctuation of China's REO pricing and its causes,; in Price:Theory & Practice, (2012):2, pp.42—43); Wan, Y. (2011): 方玉泉：《稀土价格形成机制初探》(Analysis on REO price forming mechanism,; in Northern Finance Journal, (2011):12, pp.51—53.)

4 NabeelA. Mancheri: *Chinese Monopoly in Rare Earth Elements: Supply- Demand and Industrial Applications,* China Report2012 48: 449, Jan 18, 2013,pp.449-468.

5 Li, B.(2004): 李宝林：《新世□前中国"□源外交"透□》(Retrospect on China's new century resource diplomacy,; in Natural Resource Economics of China, (2004):5, pp.9—11); Zhu, F.(2006): 朱□：《中国的□源外交尚需大智慧》(China needs more diplomatic wisdom in resource diplomacy,; in China Rare Earth Information, (2006):6, pp.35—37); Jiang, S. and Su, W. (2011): 江升、□文：《当前国□形□下的中国外交□源构想》, (Depiction of China's diplomatic resources at the present international environment,; in International Journal of Mining Science and Technology, (2011):s1, pp.8—10)

detailedly depicted the differences between resource diplomacy and diplomacy in general.[6] And then, starting with the utility of resource diplomacy and synthesizing the current situation of China's comprehensive resources and results of practice by foreign countries, scholars tried to envisaged the top-level design of China's resource diplomacy. The only drawback is, however, that the focuses of resource diplomacy were too complex, covering many aspects like economic, trade, geography, science and technology. And the analysis has put too much weight on the efficient use of resources and trade geography changes, making the overall study showing a polarized trend, which is either too microscopic or too macroscopic. Consequently, previous researches lack systemetic integration and theoretical support, leaving serious fragmentation in the demonstrations. In view of this, this paper selects international public goods theory as the approach to analyzing China's rare earth trade issue, attempting to integrate issues into a theoretical framework under an economic diplomacy background, only hoping to explore ways to solve the problem.

The international public goods perspective this paper selected has been widely applied in the field of economics and international political economy (IPE), and academic researches on international public goods mainly focused on the reinterpretation of international monetary and trade system and environmental issues, providing an analysis paradigm of the theory through the process of public goods supplying, cost – profit relationship and inherent contradictions.[7] However, when it came to the application of international public goods, scholars discussed more theoretically than practically, and more confined to the macro-level perspective, lacking in attention to the meso-and micro-phenomena.

Therefore, we synthesized previous researches of rare earth industry and current grim situation China's rare earth industry faced, under the grand theoretical background of economic diplomacy.We will try to analyze the reasons for the failure of China's REO economic diplomacy. Based on the international REO trading structure, the first part of the paper will assess the effectiveness of REO economic diplomacy in strategic level, thus clarifying the economic diplomacy nature of rare earth industry issues. Furthermore, in the second part we will select international public goods theory as an analytical perspective, in turn to demonstrates the international public goods nature of international REO trading system, the supply and demand contradiction of international public goods among states and the profit model of China's behavior in the international REO trading system. By an analogy with the evolution of the Bretton Woods system, we will come to the theoretical explanation of the failure of China's REO economic diplomacy which is due to the cost and profit imbalance while providing international public goods. In the third part, we will integrate the "current international REO trading structure" from the first part and the "supply and demand imbalance in international public goods "from the second part to analyze the specific cause of China's failure in

6 G. O. Gutman: *Resources Diplomacy*, The Australian Quarterly, Vol. 47, No. 1 (Mar., 1975), pp. 36-50.
7 Pang, X. (2012): □珣：《国□公共□品中集体行□困境的克服》, (Overcoming the predicament of collective action in international public goods,; in World Economics and Politics, (2012):7, pp.25—27); Li,X. and Xi, Y. (2011) : 李新、席□□：《国□公共□品供□□□研究□述》, (Analysis of the providing of international public goods,;in Economic Perspectives, (2011):3, pp.132—137)

REO economic diplomacy. During the analysis we will use the concept of capability and power conversion in economic diplomacy discipline to analyze the crux of the imbalance, which are conversion channels, approaches, effectiveness and focus, etc. Finally we'll come to the conclusion that only by reshaping the pattern of China's REO economic diplomacy, can the cost-benefit imbalance in international REO trading system be corrected, thereby maintaining the security of resources and realizing national interests.

1. REO Economic Diplomacy: Trump or Chronic Poison?

1.1 China's Dilemma in REO Trade

REO as the most important strategic resource in the world, the ratio of its global distribution and exploitation is extremely imbalanced. From the view of the world's proven reserves in 2011, China ranks first in the world, accounting for 36% of the world reserves; Russia ranks second, accounting for 19%; United States ranks third, accounting for 13%. Judging from the exploitation, 97% of the world's REO supply are related to China's exports, and in 2013 China's REO exports accounted for almost 91% of the world's REO trade.[8] Compared with China, if 87 rare earth mines in United States all came to production, it would meet the world's REO commercial needs of approximately 280 years.[9] But United States in 2002 closed all the mines on the grounds of environmental pollution, including the world's largest Mountain Pass mine.

China is the only county who supplies REO products in different levels and varieties. Since China introduced the REO development guiding principle "let the water flow " in 1981, it became common to export rare earth regardless of the cost.[10] Since 1984, China's rare earth production and exports continued to rise, while other countries continued to decline. In the international REO market, China was gradually replaced the United States as the world's "oligarchs" in REO supply .(Figure 1) The average share of China's rare earth production accounted for around 90% of world's production. (Table 1) In 2013, for example, China's rare earth production accounted for 91% of the world share, export volume ranking first in the world, of which 48% were for export, accounting for more than 53% of international REO trade.[11]

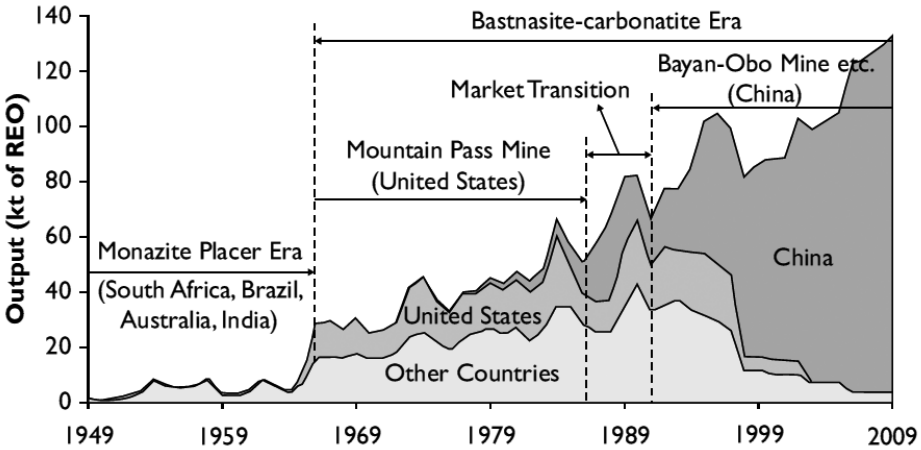
Figure 1 Int'l environment of China's REO industrial

8 Zhang Shujing: *Problems and Countermeasures of Rare Earth Industry in China,* Canadian Social Science, Vol. 9, No. 3, 2013, pp. 9-14.

9 For more detailed information of US REO industrial, see Sun, Z.(2010): □章□：《美国稀土生□、□□与□易研究》, (Research on US REO manufacture, reservation and trade,; in Finance and Economy ,(2010):12, pp. 27—29)

10 *Let the water flow* means that in 1981 China formulated a guiding policy in energy and resource industrial, when the market economy reform boomed, which aimed to export regardless of environmental, ecological and security costs . For detailed researches , see NabeelA.Mancheri: *Chinese Monopoly in Rare Earth Elements: Supply- Demand and Industrial Applications,* China Report2012 48: 449, Jan 18, 2013,pp.449-468.

11 Liu, X.(2014): 刘小芳：《2013年我国稀土主要□品出口□状》, (Present feature of China's REO export in 2013,; in China Rare Earth Information, (2014):2, pp.20—32)



Resource: Centre for Strategic and International Studies, 2010.

Table1 2009-2013 Global REO production (t)

Year	China	USA	Brazil	India	Australia	Russia	Malaysia	Others	Total	China / Total
2009	129000	—	550	2700	—	—	350	—	133000	97.00%
2010	130000	—	550	2800	—	—	350	—	133000	98.00%
2011	105000	—	250	2800	2200	—	280	—	130000	81.00%
2012	95000	7000	300	2800	4000	—	350	—	110000	86.00%
2013	100000	4000	140	2900	2000	2400	100	—	110000	91.00%

Data Resource: US Geographical Survey

However, China's "oligarchs status" did not bring about discursive power to China in rare earth trade. Since 21st century when China monopolized the REO exploration and export of the world, China has been unable to decide on production, exports and prices of rare earth. From 1990 to 2005, Chinese REO exports grew nearly 10 times, but the average price was shrinked by 60%. [12]Taking the important military material cerium carbonate for example, in July 2012 the price of rare earth carbonate in Baotou was 68,000 yuan / ton, while in July 2013 the price dropped to 27,000 yuan / ton, down 60%, with China's macroeconomic regulatory fatigued and weak.[13] As the world economy in the field of high-tech and military industry is heavily dependent on China's exports of rare earths, so whenever China attempts to control prices or reduce the quota, other stakeholders tend to unite to oppose or even threaten to retaliate, compulsing China to make compromises. In addition, Chinese domestic exporters often export disorderly without consideration of environmental costs and compete viciously, the consolidation of domestic rare earth industry is extremely difficult. Consequently, China

12 Li, X.(2012): 李□莉：《□狂的稀土》, (Crazy rare earth,; in China Small & Medium Enterprises, (2012):1, pp.42—43)

13 Han, H.(2014): □□明：《2014年中国稀土面□□峻挑□》, (China faces severe challenges in REO field in 2013,; in China Nonferrous Metals News, (2014): Feb. 27, Vol.7.)

suffers both at home and aboard in world REO market, resulting in pricing sidelined. Although China has actively pursued export quota as counter measures, in fact this can not prevent massive outflow of domestic rare earth resources. Instead this will cause rampant resource smuggling.[14] So far, China is still blocked in predicament, and trade disadvantage has not improved yet.

1.2 The Failure of China's REO Economic Diplomacy

On the one hand, China's rare earth resources outflow to the world at low price, and China has no right to decide the price; on the other hand, China has dominated the world's REO supply, and then can strategically manipulate the market by particular export restrictions, shaping REO export as one leveraged for other international issues, promoting the realization of national interests. In this sense, China's REO economic diplomacy will accomplish much. Current understanding and academic researches on China's REO economic diplomacy are mostly optimistic, and the basic point is: China owns the world's most scarce resources, and the world's rare earth market exhibit a typical seller's market nature. China should take advantage of this opportunity to fight for its national interests, relying on resources for long-term strategic benefits.[15] Many foreign scholars have pointed out that China's exports of rare earths "was a trump for China in the 21st century." Yoichi Sato from Mitsui Group in Japan believes that China's rare earth trade will not only be able to give a chance to national prosperity and development of high-tech industry, but also to force foreign companies to move its high-tech factories into China for rare earth quotas, with China to achieve its industrial upgrading.[16] Rare expert Jack Lifton believes that China will likely intimidate or threaten other countries for the world economic position, especially for relative advantages of foreign trade by executing rare earth quotas.[17]

However, we think that China's dominance in the rare earth field is only in form, and such a nominal dominance will not give China the corresponding interests, but make China distress in international trade. From a long-term perspective, China's REO economic diplomacy is in great uncertainty and such kind of view that China's economic

14 For detailed researches on rare earth smuggling, see Cao, C. and Dong, X. (2010): 曹昌、董□苹：《稀土！稀土！》(Rare earth!! Rare earth!,; in China Economic Weekly, (2010):36.); Nabeel A. Mancheri: *Chinese Monopoly in Rare Earth Elements: Supply- Demand and Industrial Applications,* China Report2012 48: 449, Jan 18, 2013,pp.449-468. The export of REEs through normal channels is 50,000 tons in 2009, and the smuggling of REEs is over 20,000 tons. The smuggling takes about 40% of the normal exports.

15 Related discussion, see Guo, M., Jia,Z., Liu,C., Dong,J. and Zhang, C. (2009):郭茂林、□志琦、刘翠玲、董建忠、□□《中国稀土□□□状及□略安全的几点建□》(The feature of China's REO industrial security and several suggestions,; in Sci-Tech Information Development & Economy, (2009):32 , pp. 95—98); Liu, Y.(2007):刘余九：《中国稀土□□□状及□展的主要任□》, (Current situation of China's rare earth industry and its main task,; Journal of the Chinese Rare Earth Society, (2007):3, pp. 257－263); Wang, J. (2011): 王珺之：《中国稀土保□□》,(China Rare Earth Battle, Beijing: China Economic Publishing House, (2011))

16 英媒：稀土成□中国□□武器》,(New York Times, rare earth became China's economic weapon,; in China Powder Industry, (2009):2, pp.37—38)

17 Cao, C. and Dong, X. (2010): 曹昌、董□苹：《稀土！稀土！》(Rare earth!! Rare earth!,; in China Economic Weekly, (2010):36.)

diplomacy can gain the access to long-term strategic profits is unrealistic.

First, the monopoly of China's rare earth resources has a clear time limit. It is estimated that China's rare earth reserves in 1996-2009 dropped 37%. Although after 2010 China increased its rare earth mineral exploration, making China's rare earth reserves reach another peak in 2013, it was still unable to meet the world growing demand for rare earths.[18] At the current production rate, China's medium and heavy rare earth reserves can only maintain 15 to 20 years and by 2040-2050 China has to import rare earth to meet domestic demand.[19] On the contrary, potential rare earth exporters like United States, Russia and Mongolia have always taken a frozen strategy. In terms of the long term supplying , the world's dependence on China's rare earth exports is relative, and China does not have the absolute dominance.

Secondly, the current development model of China's rare earth industrial is not sustainable. Rare earth mining are heavy polluting industries. The cancer rates among villagers and the proportion of livestock distortion in Bayan Obo mine are terrifically high.[20] Su Bo, vice Minister of China's Ministry of Industry and Information Technology once revealed that, it required 300 billion yuan to control the pollution in Ganzhou Rare Earth Mine, far exceeding the total earnings.[21] China's rare earth export overdrafts environmental interests and this will ultimately act on the economic development chain. As a result, national interest will incalculable suffer losses.

Therefore, China's current REO economic diplomacy has not matched with REO trading. academia and government expect too much on REO economic diplomacy, and there is also a misjudgement between reality and target, coupled with the deviant implementation of existing policies. China's present failed REO economic diplomacy will mislead China into "a predicament of scarce resource", eventually resulting in a double failure of trade and diplomacy.

2. The Essence of REO Economic Diplomacy

2.1 REO Trading System: An International Public Goods

In domestic politics, national security, public order provided by government are public goods. With the development of globalization, interdependence in different areas among countries enhanced and domestic problems spillover, showing an international trend. When one country alone can not deal with complex issues, multinational cooperation is imperative, which spawned a variety of international public goods. International public

18 Butler, Charles J. :*Rare Earth Elements:China's Monopoly and implications for U.S. National Security,*The Fletcher Forum of World Affairs,38.1 (Winter 2014): 23-39.

19 Xue, M. and Qi, Y.(2010): 薛牧青、□云□：《中国□当如何善待稀土□源》, (How should China treat REO researches friendly, in Youth Reference, (2010): Nov. 09.)

20 Xie, C.(2008): 解□□：《四箭□□整□稀土开采乱象》, (Four measures to recomfile the chaos in exploiting REO,; in International Business Daily,(2011):Aug. 25.); Related researches on rare earth pollution can be found in Inner Mongolia Hefa Rare Earth Company：《内蒙古稀土企□生□及□染治理状况（上）》, (Inner Mongolia Rare Earth production and pollution control status (I),; in China Rare Earth Information, (2008):10, pp.6—8)

21 Yang, Y., Liang, J. and Li, M.(2012):□□、梁倩、李美娟：《工信部称稀土□染代价触目惊心》, (MIIT said the pollution of rare earth was shocking,; in Economic Information Daily，(2012):Apr. 09.)

goods are often immaterial, mostly demonstrated as different kinds of rules, agreements and cooperation mechanisms.[22] "Kyoto Protocol" designed to control carbon dioxide emissions in Environmental area, Reporting system for disease control and prevention in World Health Organization and free trade principles under WTO framework are all within the scope of international public goods.[23]

From the theoretical point of view, whether a product or service is public good, we need to inspect whether it has two major characteristics, that is, non-exclusive and non-competitive in consumption.[24] The principle of non-discrimination in WTO framework known as MFN gives countries an equal opportunity to trade and compete, where each country has the right to interact free trade with another with no prejudice to other countries. To this degree, non-exclusive and non-competitive can be guaranteed in the trading system. As an important part of WTO free trade framework, the REO trade system also has attributes of international public goods. In REO trading practice, countries need to cross borders to interact outside the domestic laws, to negotiate rules governing the behavior of REO trade and to set norms to resolve trade disputes. When the criterion for trade are default or established, countries are able to comply with the norms to reduce transaction costs and trade friction. Therefore, REO trading system is essentially an international public goods.

Unlike domestic public goods providing, there is no governmental authority to provide public goods in the world, thus the providing subject has characteristics of diversification.[25] International public goods are not provided by single country, but rather relies on the collective action of all countries. As an international public goods, the providing subject of REO trading system consist of two group of actors: REO providers and REO consumers. States confirm trade rules, stabilize supply and demand relationship and resolve trade disputes through trade, after wihich a tacit trade regime under the WTO framework eventually forms. The characteristics of current REO trading system are: China as the only major rare earth supplier meets world REO demand through exports , acting as a stabilizer in supply and demand relationship, providing international public goods from the material point of view; Meanwhile, the United States led WTO rules, in essence, highly consistent with the interests of the developed countries, consuming countries like Japan and US acting as rule makers and referees. China and Western countries exercise a clear division of labour when providing international public goods, but consume obviously unevenly in the international public

22 Wang, Z.(2007): 王□ : 《全球公共□品与多□□易体制改革》, (Global public goods and reform of multilateral trading system,; in Productivity Research, (2007):16, pp. 89-90)

23 For a detailed discussion of international public goods, see Pang, X. (2012): □珣 : 《国□公共□品中集体行□困境的克服》, (Overcoming the predicament of collective action in international public goods,; in World Economics and Politics, (2012):7, pp.25—27); Li,X. and Xi, Y. (2011) : 李新、席□□ : 《国□公共□品供□□□研究□述》, (Analysis of the providing of international public goods,;in Economic Perspectives, (2011):3, pp.132—137)

24 Wang, Z.(2007): 王□ : 《全球公共□品与多□□易体制改革》, (Global public goods and reform of multilateral trading system,; in Productivity Research, (2007):16, pp. 89-90)

25 For a detailed discussion on the subject of international public goods, see Qin, Y.(2006): 秦□ : 《□公共□品的本□——兼□公共□品理□的局限性》, (On the nature of public goods - On the limitations of the theory of public goods,; in Economist, (2006):3, pp. 77—82)

goods consumption structure. Along this logic, both providers and Consumers together maintain an unstable international REO trading system.

2.2 The Cost – Profit Imbalance: China's Dilemma in REO Trading System

Cost – Profit is the core issue that international public goods providers should consider, and the cost – profit imbalance will affect the provider will to continue to provide. In the domestic domain, the cost one government would spend when providing public goods is a series expenses including social security, defense, bureaucracy and other expenses incurred to maintain state apparatus, and its profits are public recognition to government's legitimacy and obedience to authority.[26] If and only if the profits overweight the costs, the political rule is considered valid, on the contrary, if imbalance occurs between costs and profits, state will face crisis and soon decline. Impact of this imbalance is more prominent in the international arena. For instance, the US-led Bretton Woods system in the first 20 years after WWII played an important role in maintaining stable exchange rate and international balance of payments, and of course it was a typical example of international public goods. The United States as a major provider of international public goods, its behavior was affected by the cost – profit relationship. In the early system, the U.S. dollar with its gold reserves and credit guaranteed the operation of the system, as providing public goods for the world, then U.S. dollar jumped to the International Monetary and thus stimulated the U.S. foreign trade to flourish. In this case the profits of providing public goods outweigh the costs, so the United States' willingness to provide was high. However, due to the inherent design flaws of the Bretton Woods system - Triffin dilemma, in the latter system, when the world's fortune continued to accumulate and fixed amount of dollar could no longer pay off large international trade, the United States had to assume a greater credit and gold outflow risk. At this point, the cost of the United States to provide international public goods was far higher than the profit , with imbalance between the two, the United States' willingness to provide sharply decreasing. Finally in 1971, the United States announced that the dollar and gold decoupling, which declared the collapse of the Bretton Woods system.

As for providing REO trading system, countries still comply with the logic of cost and profit balance. Due to the instability of the REO international trading system, there exists a serious imbalance between the costs and profits amongst rare earth consuming countries and supplying countries. And the REO trading plight China confronted now is the reflection of this imbalance.. For China, providing stable rare earth material as input to the REO trading system, the cost is too high to pay, including the loss strategic resources, low rare earth prices and serious environmental pollution. In contrast, the profit is minimal. On the contrary, other rare earth consuming countries, whose main costs are only the maintenance of original WTO rules and judgment of violations. Moreover, as long as consuming countries could ensure sufficient damand of rare earth to stabilize the supply and demand relationship, REO trading system will be maintained. In the process of providing international public goods, the profits of these countries far

26 Cheng, H. and Guan, L.(2002): 程浩、管磊：《□公共□品理□的□□》, (Understanding of public goods theory,; in Journal of Hebei University of Economics and Business, (2002):6, pp. 10-17)

outweigh the costs. This is why western countries strongly oppose China to modify the rule or implement export controls. At present, China faces serious cost – profit imbalances, and if China continues to provide international public goods , it will only bring serious loss to itself.

In Post-Bretton Woods system era, U.S. continued to provide international public goods to the world known as Jamaican system by cancelling dollar-gold linked system and implementing floating exchange rate. The amended international monetary system corrected the cost – profit imbalance when US providing the international public goods, and through the devaluation of U.S. dollar and the conduction of floating exchange rate, US reduced its responsibilitiesby by shifting part of them to other countries. The result was that the cost to maintain international monetary system reduced while willingness to continue to provide public goods increased, without any doubt, up till now US still benefiting from such system. China is also facing the dilemma of cost – profit imbalance and lowering providing willingness, so taking national interests into account, only by reducing the providing cost as well as promoting profits, will China reverse such an imbalance and achieve sustainable development in REO trading system.

2.3 Earning Profits from REO Trading System: Economic Diplomacy's Function in International Public Goods

The purpose of the REO economic diplomacy is to achieve, extend and protect the interests in REO trading process, however China's current economic diplomacy not only failed to realize interests, but also made itself in an adverse situation where interests were under threat and the risks of credit loss increased. This result is totally contrary to the original intention of China's REO economic diplomacy, and the reason is that the imbalance of international public goods supply and demand offset the expected utility of economic diplomacy, leaving a giant gap between practical profits and expected returns. In a word, the providing cost is too high while profits sink, and this ultimately impedes China from earning profits in the international public goods.

However, China's frustration in REO trade can not be attributed solely to economic diplomacy, and the effectiveness of economic diplomacy in the trade should not be questioned either. We believe that in the current REO international trading system, the essence of REO economic diplomacy is an approach that helps to earn profits from international public goods. Its role is to associate "providing international public goods" with "consuming international public goods" ,and decide to what degree can "consuming international public goods" be achieved.

From an interest point of view, the national purpose to provide international public goods lies in that states have the potential to earn much more profits than its providing costs. Consuming public goods is where the national interests exist and thus the will whether one state would like to provide is closely related to how much it may earn from the public goods. Nevertheless , the process from providing to consuming is not spontaneous, that is, providing international public goods does not necessarily bring about consumption. The reason is that international public goods are not provided

by single state, and the division of labor and diversified provision will undoubtedly grant those normative providers some advantages over material providers. The result is the realization of national interests of disadvantaged states often need to be recognized by advantaged states. In this pattern, an act of state has become the key factor to break through this limitation, that is, states can contributes to recognition of its own providing and consuming behavior and determines the scale of its interests, and economic diplomacy is accordingly a vital approach to accomplish that. For example, China by exporting large amount of rare earth resources realized its international public goods providing. Based on export dominance position, China's interests were to have the pricing powers as well as rule-making right in REO trades. But the reality is that China's interest demands was strongly opposed by western countries. Due to the division of labor between China and western countries and existing differences in the providing process, although China did provide international public goods, consumption was restricted. In order to achieve the targets of earning profits, China has actively carried out various forms of economic diplomacy, such as rare earth export quotas, export controls, economic and political problems linkage and other means in order to achieve its own interests. Hence, the essence of the current REO economic diplomacy is an approach to earning profits from international public goods, or specifically, from international REO trading system. its principle is to build bridges between "providing " and "consuming" and decide the "width" of the bridge – the degree of profits. China's defeat in REO economic diplomacy at present is the problem of such bridges, and with those uncompleted bridges , China's national providing behavior could not efficiently transformed into profits, appearing the imbalance feature in REO trades.

3. Root Causes of China's REO Economic Diplomacy Failure

To achieve sustainable development of REO trading system, the premise is that the cost – profits imbalance in international public goods providing can be eased. However, as the main international public goods provider and the biggest victim of imbalance, China's diplomatic efforts to ease the imbalance were very constrained. The key of China's REO economic diplomacy is to change its role in the process of proving international public goods, that is to say, China should not merely just provide material goods but be a complex provider who contributes both material and normative goods, and by adjusting rules to compensate for its own insufficient profits. The conversion from material to normative providing is essentially a conversion from capability to power. We argue that the reason why China can not be like the United States to correct imbalances in the late Bretton Woods system is rooted in the failure of conversion between capability and power .

3.1Channel Block between Capability and Power Conversion

China's REO economic diplomacy is largely constrained by domestic political process to a great extent, and the competition between national interests and enterprise interests

blocked the conversion channel from capability to power. China's capability in the field of rare earth trade mainly embodies the current monopoly of rare earth exports, but the actual participants in the rare earth trade is not state, but a number of rare earth enterprises. Unlike states, the issue enterprises concern about is not earning profits for states when providing international public goods at strategic level. What they will pay attention to is how much profits they may actually gain by doing business. State and enterprises will inevitably diverge upon the question "What will capability converse to eventually?", henceforth there exists a competition between state and enterprises on how to deal with REO resources. Enterprises argue that relying on abundant rare earth resources and brisk international demand, it is a wise choice to export in small profits but quick turnover. Meanwhile, current Chinese rare earth trade policies adapt to the development of enterprises and export at lower price will bring them low costs and high profits. That is why enterprises are indifferent to the conversion between capability and power. In contrast, at the national level, unlike enterprises' simple pursuit for economic profits, state's concern are strategic interests such as the reservation of scarce strategic resources and the struggle for rule-making power, and the core goal of China's REO economic diplomacy is to generate power based on capability. The differences between goals become a obstacle between the conversion and the divergences between practical operation and strategic design hinder the operation of economic diplomacy. Consequently, economic diplomacy lacks fundamental source of dynamics.

Meanwhile, foreign speculators' illegal behavior aggravated the blocking. To solve the problem that state and enterprises compete for profits, Rare Earth Industry Office and Industrial Coordination Division under National Development and Reform Commission, along with Ministry of Land and Resources (MLR) has long been committed to improving enterprises' short-sighted behavior. For example, National Development and Reform Commission has promulgated "Limited land project directory" and "Ban land project directory" to regulate the behavior of rare earth mining enterprises;[27] issued "on the control of some high energy consumption, high pollution and resource based products export notice", to strictly limit over-exploitation of rare earth resources.[28] MLR released "China Mineral Resources Report" every year, with particular emphasis on the management of specific minerals such as rare earths.[29] However, the state's regulatory policy has led to large-scale smuggling, and bolstered rare earth enterprises to compete with state underground and conflicts between intensified. Foreign enterprises took

27 National Development and Reform Commission, People's Republic of China:《关于□布□施<限制用地□目目□（2006年本）>和<禁止用地□目目□（2006年本）>的通知》, (*Notice on promulgating "restrict land for the project directory (2006 version)>"and "prohibited land for the project directory (2006 version)"* ,2006, Dec.30.)
http://www.ndrc.gov.cn/zcfb/zcfbqt/200612/t20061230_497022.html, logging on 2015, Mar. 15.
28 National Development and Reform Commission, People's Republic of China: 《关于控制部分高耗能、高□染、□源性□品出口有关措施的通知》,(Notice on the control of some of the high energy consumption, high pollution, resource products export of relevant measures), 2005,Dec.14.),
http://www.ndrc.gov.cn/zcfb/zcfbtz/200512/t20051214_53372.html，logging on 2015, Mar. 15
29 Ministry of Land and Resources of the People's Republic of China:《中国□□□源□告2012》,(China Mineral Resources Report 2012), 2013, Nov. 29.),
http://www.mlr.gov.cn/zwgk/qwsj/201305/t20130502_1210124.htm，logging on 2015, Mar. 15

the opportunity to increase their speculative efforts while importing from China, this causing serious damage to the China's state power building, and offsetting the effect of REO economic diplomacy.

The implementation of REO economic diplomacy cannot be without the involvement of enterprises for which they are the cells of national economy. Either neglecting or rejecting enterprises' interests will undoubtedly lead to the failure of economic diplomacy. Therefore, how to rationalize the relationship between the state and enterprises, taking enterprises' interests into account in the power conversion process, eliminating enterprises' opposition against state policies , guiding enterprises to develop sustainably, and coordinating enterprises' and state's interests will will be the key to lubricate the conversion channels.

3.2 Approach Invalidation between Capability and Power Conversion

In REO Economic diplomacy China tried to use its resource dominance to intimidate and deter the consuming countries, hoping to change the rules of REO trading system, but with little success. The essence of the problem is that China has chosen the wrong approach to conversing capability into power. In the 21st century where globalization and interdependence simultaneously Increased, using power and strength by forcing other states to acknowledge one's interests are no longer seen as smart diplomacy and will not be accepted by the world as well. Conversing by force will fatefully lead to booming hostility and cross-retaliation, and the result is often counterproductive. China once repeatedly regarded rare earth as one negotiating weapon in the territorial dispute with Japan and double inverse survey with U.S. , threatening to terminate or suspend rare earths exports. In 2011 when the quarrel about REO grew most intense between United States and China, China has vowed to intensify REO export quotas in response to US's double inverse survey towards China. China also exercised in the same way to sanction Japan when territorial disputes peaked in 2012. However in early 2012 India REO Limited Company announced that they would set up new plants in India's eastern state Orissa, and rare earth exploration activities would be on agenda off the southern coast of India , which were some correspondences to China's hard-line policy.[30] In the same year, Japan and India signed a memorandum of rare earths import and export, in which Japan would import 4,100 tons annually from India to substitute China, till then Japan's dependenc on China's rare earth falling below 50%.[31] Under the pressure that India restarted to go into production and tough policies of US and Japan , China had put a soft stance, reiterating that China did not want to regard REO as a bargaining tool, and hoping to achieve cooperations with other countries on the use of rare earth resources under a win-win situation. The approach which China hoped to practice related power to improve international environment through economic diplomacy has not received

30 Chinese Industry Research Network: 《2012年印度□大稀土能源生□情况□□分析》,(Investigation and Analysis of 2012 India's expanding energy production of rare earth), 2012, Aug. 23, http://www.chinairn.com/news/20120823/96513.html, logging on 2015, Mar. 15

31 Yao, Z.(2012): 姚姿淇：《印度同意向日出口稀土：日本欲□脱□中国稀土依□》,(India agreed to export rare earth to Japan: Japan tried to get rid of dependence on China's rare earth,; in China Rare Earth Information, (2012:12), p.19)

the expected results.

Therefore, in the process of correcting imbalance while providing international public goods and prompting conversion, such a tough method is not desirable. This is not only because there exist expecting cross-retaliations, but also due to the non-absolute monopoly feature of China's rare earth resources. We believe that China should pursue structural power as the approach to fulfilling the conversion process, namely using its existing capable resources, expanding international cooperation to strengthen mutual trust in the REO trading system, modifying the rules in a progressive procedure and avoiding mandatory deterrence, devoted to build more favorable trading rules. The ultimate goal is to converse its China's own capability into a new system recognized by all countries, and then to gain influential power corresponding to international public goods in REO trading system.

3.3 Low Utility Between Capability and Power Conversion

China's rare earth export is low value-added, and exports of raw materials alone can not reflect the real capability, hence there exists some waste of capability in the process of conversion. When referring to the imbalance of proving international public goods, China's inadequate performance of the core competitiveness is largely to blame. China plays a materials provider role in the REO trading system, but stabilizing international supply and demand and exporting rare earth resources are still to provide basic resources in the final analysis, where the added value of technology is almost zero. According to relevant provisions of international and domestic conventions, rare earth industrial can be divided into three categories: technology in mining, smelting separation and functional applications. As of June 2011, for the mining section, there were 10,293 patents in the world in total, while China accounted for only 24, the ratio was less than 0.3%. But Japan accounted for 25.6 percent year on year and United States accounted for 12.8%. For the smelting separation section, there were 2,833 patents in the world in total, while China accounted for 63, the ratio was 2.2%. For functional application of permanent magnet materials, there were 1452 patents in the world, and China accounted for 465, a ratio of 32.0%; for functional application of luminescent materials, there were 2,994 patents, and China owned 24, only 0.8%. Besides China's Rare Earth technology more belonged to lighting, decoration and other small areas of low-end, but in the high-end display applications such as security, networking and identifying areas, China performed poorly.[32] As a consequence, low value-added exports of rare earths will undoubtedly lead to China's lack of competitiveness and discursive power in the international REO trading system, and will make it deficiently to converse capability into power. This inefficient result is that when providing international public goods, China has more capability than power but unable to fight for profits.

China should raise scientific and technological standards, focusing on deep processing in the rare earth industrial, and should set technical limitations and exporting principles at the time of export, in order to advance the competitiveness of China's rare

32 Qiu, L.(2013): 邱林：《提高稀土高附加□是当□之急》,(Improve the rare earth high added value is a pressing matter of the moment,; in China Nonferrous Metals News, (2013):July,11)

earth exports as well as protect China's exporting security. Meanwhile, compared with environmental barriers abroad, China may wish to set out green barriers for domestic enterprises, taking environmental benefits into account while improving the quality and limit the quantity of rare earth exports, thenceforth augmenting the conversion utility.

3.4 Neglect of Economic Diplomacy between Capability and Power Conversion

Another factor that China's REO economic diplomacy invalidated is that when committed to reversing the international public goods providing imbalance, as long as subjected to the pressure of foreign states, the core concern of China was limited to the facets of trade, economic and resource protection, lacking in a national attention on economic diplomacy. In the face of pressure from other states, Chinese government often came forward to solve the problems by the Ministry of Commerce, the Ministry of Land and Resources and the Development and Reform Commission, while the Ministry of Foreign Affairs took act only as a policy reader, with the initiative being not adequate. However, it is not enough to purely rely on single-level efforts of domestic economy. Currently, in addition to the scholars' devotions around the trade pricing competition, rare earth repository construction, industry associations and other preparations suggested at micro level, China needs more strategic level planning and practice level diplomatic wisdom. The conversion from capability into power is a long period of strategic action, and the ultimate goal is to build and maintain national interests, which will be engaged with other states of the world. Thus diplomatic considerations should be placed in the first place in REO trade decisions, and after all trade and resource interests are just, playing a supporting role, subsidiary interests around diplomatic interests, in which the two can not be inverted.

In the conversion process, it surely is a very difficult task to correct imbalances through diplomatic means. First, China needs to take advantages of the plight of other states's collective action to disintegrate their consistent interests. Specifically, in the REO trading system China should separate major consuming states into different categories and then carry out different policies, and under the WTO principle of non-discrimination, differentiate states's interests and incite their internal arguments by distinguishing the closeness with them. Eventually China will be able to avoid the predicament that consuming states unite to confront China. Secondly, China should avoid free-riding of some countries when continuing to provide international public goods. As the industrial restructuring in emerging industrial countries takes place, their demand for REO will be in large-scale, but their joining in REO trading system will firstly be perceived as the consumption of international public goods, so China should consciously make them share part of the obligations to relieve its stress. Third, China should improve the international bargaining power by preparing the memorandum in advance and selecting professional REO economic diplomats to take the initiative in the international arena, rather than responding passively. In summary, the invalidation of REO economic diplomacy is not just issues of international economic or industrial structure, which cannot be carried out without the participation of diplomacy. When the issues in economy rise to the international level, we will have to introduce diplomatic

channels to resolve conflicts. Given the invalidation of REO economic diplomacy in the past decades, it's time that the focus of China's rare earth trade returned to diplomatic level from resource level.

Conclusion

China's REO economic diplomacy suffered setbacks in the WTO negotiations, which reflected the difficult international economic environment China to carry out REO trade and significant deficiencies of China's diplomatic strategy. REO trading system as an international public goods, all the REO consuming and supplying states, while enjoy the trading convenience, keep inputting costs to maintain its operations. Based on resource endowment, technological capability and other differences, states develop a division of labour in the providing of international public goods. China, due to its material provider role, doesn't earn adequate profits in the REO trading system. Owing to the cost – profit imbalance, a large number of profits flow to the normative providers, namely western countries. However, when China seeks to correct the imbalance through diplomatic approaches, the strategic misjudgment and confined execution make it invalid to fully converse national capability into power. And such an invalid economic diplomacy triggers further imbalances. Given the invalidation of the capability and power conversion, China's REO economic diplomacy strategy should make several adjustments: Firstly, we should lubricate the conversion funnel, coordinate interests between government and enterprises and enhance the dynamics of economic diplomacy; secondly, we should alter the conversion approach, get rid of zero-sum thinking model, build structural power, and provide normative international public goods; thirdly, we should bolster the effectiveness of the conversion, extend rare earth industrial chain before export, increase the technology content of rare earth exports, and augment the added value; Finally, we should consider diplomatic channels as the priority to resolve REO trading issues, stress the importance of economic diplomacy, and achieve the overall national interest. Throughout China's rare earth trade in the past three decades, the gap between capability and power is always an obstacle for China to fight for discursive power, and China's weak status in REO trading system is much more like China and third world countries' disadvantaged role in the international work division. However, the plight of the costs and profits imbalance is not permanent. China is in a window period of opportunities to reverse the imbalance , whereby its booming capability, abundant diplomatic resources, improvement of national image and closer linkage with other states. China is likely to gradually eliminate this unfavorable situation by economic diplomacy in REO trade, hence building a new REO trading system that is not only beneficial for China but also compatible with other states. Furthermore, by learning the lessons and experience in REO economic diplomacy, combined with the characteristics of China's overall trade patterns, China may as well transform its international public goods providing model and eventually get rid of its low-end provider role. Along with the expansion of normative international public goods providing, China will be able to match its capability with its power. Ultimately, with realization of national interests,

China is supposed to assume more international responsibility, helping to build a new but harmonious international order compatible with both itself and other states, and becomes a responsible and accountable international public goods provider.

Acknowledgments: This paper is funded by UIBE Networking and Collaboration Center for China's Multinational Business (201504YY004A) and UIBE central University research fund (CXTD4-05)

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