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Measurable Energy Security in China, Japan and South Korea

Interdependence and Potential Energy Cooperation

Topic and Research Question

The aim of this thesis is to determine the energy security of China, Japan and South Korea, to find out why these countries are so important for the global energy industry and why they often act against one another instead of cooperating, even if they share same challenges in the energy sector. In the course of this research it is demonstrated, that energy security depends on the energy policy measures of the respective other country by a high degree. The main research question that should be answered by the thesis is:

Are the respective measures for energy security in China, Japan and South Korea conducive for a regional cooperation in East Asia?

Before that, three additional research questions should be answered:

- (1) How secure is each country's energy?
- (2) Are the three countries pursuing national interest or shared goals in energy issues?
- (3) Is there interdependence between energy security and International Relations of China, Japan and South Korea?

State of the Art

There are relatively little comprehensive studies for the topic „energy security“, which could be used as a guideline for measurable principle or as a matrix for a countries energy security. Essential fields of energy security policy are ignored quite often, respectively the structures of the studies are too different to make exact comparisons with other countries. There is information on the subject of energy security in China, Japan and South Korea for each country, but nearly no transnational concepts that could be applied internationally.

Next to attempts of national Energy institutes (e.g. KEEI Korea Energy Economics Institute), ministries (e.g. METI Japan Ministry of Economy, Trade and Industry) or energy groups (e.g. KEPCO Korean Electric Power Corporation; BP British Petrol) there are relatively few concepts for determining energy security of a country. The International Energy Agency (IEA) and the Asia Pacific Energy Research Centre (APEREC) follow comprehensive and good approaches for internationally valid energy security concepts. Ideas for a measurable and applicable model are given by the Nautilus Institute.

Researchers like Roland Dannreuther, Eui-soon Shin and Tim Savage, such as Xuanli Liao, Amtiav Acharya and Ian Storey offer information on investigation with security policy and international relations in the energy sector. This research mainly refers to the comprehensive and contemporary theories and concepts of David Von Hippel and Vlado Vivoda.

Methodology and Approach

Based on several models, which deal with measurable energy security, some relevant categories are investigated that are necessary for determining energy security. For that, concepts of conventional and modern energy security will be accessed for.

At the present time the most comprehensive principle for demonstration of energy security is the matrix constructed by Vivoda, named Energy Security Assessment Instrument (ESAI). Due to its applicability to the most different countries, the matrix is used in this research thesis as an example for the measurement of Chinas, Japans and South Koreas energy security.

The eleven **energy security dimensions** referring to this model are: Energy supply, Demand management, Efficiency, Economic, Environmental, Human security, Military-security, Domestic socio-cultural-Political, Technological, International, Policy.

At first the **energy situation in the region East Asia** will be investigated within the empiricism of the thesis, to get an overview of consumption and demand of energy and energy carrier in China, Japan and South Korea. This is based mainly on the elaboration of diverse data and facts about energy generation, on the amount of needed resources and on consumption and production of electricity - mention some examples.

Further **topics of the thesis** are: International relations in the energy sector in East Asia, trade and transport of resources and energy goods, military cooperation and areas of conflict, as well as economic and financial cooperation. This calculated and elaborated information is forming the necessary facts for the determination of energy security of the three countries.

Main Facts

The analysis shows that energy security in the three countries is not only dependent on conventional raw-materials policy, but in the area of logistics, of military, of financial policies and international work as well:

Oil- and Gas security as a part of conventional energy security is still dominating the energy security policy. China, Japan and South Korea depend on the transportation of resources by ship. The guarantee of a smooth traffic on sea has highest priority. In East Asia, the traffic-intense choke points along the transport routes respectively the Sea lines of communication (SLOCs) are the Strait of Malacca as well as the area of the South China Sea.

Security Agreements are available and numerous, but there are relatively few agreements where all three of the countries take part. Additionally the USA influences the security policy of the maritime East Asia. Additionally there are several trouble spots and territorial disputes of which many are unsolved and therefore have the potential to destabilize the security of the whole region.

In the area of financial and economic issues there are initiatives, which are able to improve the energy infrastructure of the region (e.g. CMIM Chiang Mai Initiative Multilateralisation; ASEAN+3). Further there exists a huge network of Free Trade Agreements (FTAs) and in some countries a wish for independency of the International Monetary Fund (IMF).

The bilateral relations between China, Japan and South Korea are rather reserved. Good relations with Southeast Asia are essential for energy security of the three countries, on the one hand as a potential supplier of resources and on the other hand as a choke point for transportation. Numerous existing political and historical inconsistencies have a negative effect on the relations in Northeast Asia.

Cooperation in the energy sector between the three investigated countries is present in some few areas. Currently the two most important measures are Research activities in the coal sector and securing transport routes (e.g. China-Japan-South Korea low carbon symposium, NAPF Northeast Asian Petroleum Forum, planning of a Northeast Asia Super Grid). Nevertheless, the three countries have a competitive attitude towards one another and refer more likely to independent measures.

Due to scenarios of the IEA and BP, fossil fuels will stay essential in the upcoming years for the regional energy security. Furthermore they predict the increase of imports for most countries in East Asia.

Results

(1) At the end of the thesis a structured, compact and comparable summary of energy security of China, Japan and South Korea is given by using the model of the ESAI. Referring to this overview all three countries have a high dependency on imports and rely strongly on fossil fuels, relatively to other countries worldwide. (Detailed facts for each country can be found in the full version of the thesis)

(2) The three countries pursue national interests as well as common goals. If China, Japan and South Korea concentrate more on mediation of regional conflicts as well as development of political trust and less on national energy policies, a more intense cooperation in the energy sector would be possible. The energy security of each country and of the region of East Asia could benefit from such approaches.

(3) There exists interdependence between energy security and International Relations. It is seen in the form of bilateral resource trade, some military cooperation and common research agreements between China, Japan and South Korea. These projects result in positive effects for all the members most of the time.

→ The energy security measures of the three countries, which are strong economic powers and considerable markets in the worldwide energy market, influence the relations among each other as well as the whole regional stability. Cooperation is possible in a lot of energy issues. However, in many cases collaboration fails not due to economic and technological aspects, but more likely because of political views and historically shaped national pride of the three countries.

References

All References can be found in the full version of the MA thesis, available at: <http://othes.univie.ac.at>

About the Author

Dominik Juchum holds a Bachelor degree in Japanese studies from the University of Vienna. He further has knowledge in European and Asian art due to his studies of art history at the University of Vienna and experience in exhibition work and museum practice.

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