Organized by: Institute for Promoting International Partnerships, Kobe University
Co-hosted by: Universitas Indonesia

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Kobe University Academic Research and Education Forum in Indonesia

Language, law and technology: Research Frontiers between Kobe University and Universitas Indonesia

Date: December 23 2016

巻頭言

Kobe University Academic Research and Education Forum（KUAREF）は、神戸大学グローバルリンク・フォーラム（KUGL）をその基礎としています。KUGL は、国際的な知的情報リソースである海外同窓会ネットワーク及び海外協定機関との積極的な連携を通し、本学の教育研究活動を促進し、神戸大学ブランドを世界に発信することを目的とし、2011 年に、第 1 回をタイ・バンコクで開催したのを皮切りに、第 2 回は韓国・ソウル、第 3 回は中国・北京、第 4 回はベトナム・ホーチミン及びハノイ、第 5 回はマレーシア・クアラルンプール、第 6 回は台湾・台北にて開催されました。

KUAREF は、KUGL の良い面を受け継ぎながらも、教育研究を前面に出したよりアカデミックな行事として位置づけるため、名称を変更し、記念すべき第 1 回を、インドネシアにて開催いたしました。今回のフォーラムでは、12 月 21 日にプレカンファレンスとして、ガジャマダ大学、12 月 23 日にはインドネシア大学との共催をいただき、実現に至りました。また、在インドネシア日本国大使館、国際交流基金ジャカルタ日本文化センターからもご協力をいただきました。各機関の皆様に厚く御礼申し上げます。

現在、本学で学ぶ留学生は 1,100 人を超え、そのうちインドネシアからの留学生は 53 人を数えます。

本学はインドネシアとの研究交流も活発に行なっており、平成 27 年度は 75 名の研究者をインドネシアに派遣し、インドネシアからは 21 名の研究者を受入れました。

近年のアジア経済の著しい発展に伴い、日本とインドネシアの間での協力関係がより一層重要度を増す中、12 月 23 日開催のフォーラムにおいては、「Language, law and technology: Research Frontiers between Kobe University and Universitas Indonesia」をテーマに、日本・インドネシア両国の専門家がそれぞれの立場から現状と課題を報告し、議論を行いました。

神戸大学は、教育研究両面において、今後さらに、インドネシアの教育研究機関との連携を強化し、共に卓越した研究成果を創出していくとともに、フォーラムに参加いただいた本学の卒業生のように、世界で活躍する指導的人材を共に養成して参りたいと存じますので、今後もご協力のほどよろしくお願い申し上げます。

以上、簡単ではございますが、私の挨拶とさせていただきます。

神戸大学長　武田　廣

Preface

The Kobe University Academic Research and Education Forum (KUAREF) is the successor of the Kobe University Global-Link Forum (KUGL). This Forum aims to promote our education and research activities and the Kobe University Brand overseas by forming stronger links with overseas academic associations and the International Alumni Association Network, which provides an invaluable repository of knowledge for the University. We held the first Kobe University Global-Link Forum in Bangkok, Thailand in 2011, the second forum in Seoul, South Korea, the third in Beijing, China, the fourth in Ho Chi Minh City and Hanoi, Vietnam, the fifth in Kuala Lumpur in Malaysia, and the sixth in Taipei, Taiwan.

In 2016 the name of this annual event was changed to the “Kobe University Academic Research and Education Forum” to emphasize a renewed focus on research and education. The first KUAREF symposium was held in Indonesia. The preconference event was held on December 21 at Universitas Gadjah Mada while the symposium itself took place on December 23, co-hosted with Universitas

Indonesia. The Forum was also supported by the Embassy of Japan in Indonesia and the Japan Foundation, Jakarta. I would like to express my gratitude to everyone in these organizations for their support.

Currently over 1,100 international students are studying at Kobe University, including 53 students from Indonesia. Our University is also actively engaged in collaborative research with Indonesia: in the 2015 academic year 75 researchers travelled to Indonesia, and 21 researcher from Indonesia visited Kobe University.

With the recent rapid economic development in Asia, deepening cooperative relations between Indonesia and Japan is more important than ever. This year's forum theme was "Language, law and technology: Research Frontiers between Kobe University and Universitas Indonesia" and experts from Japan and Indonesia presented their insights on contemporary issues within these fields.

Kobe University will continue to strengthen its education and research alliances with Indonesian institutions, working together to yield excellent research results and foster human resources who can take on international leadership roles, just like the talented alumni who participated in this forum. I look forward to your continued enthusiastic support in these international partnerships.

TAKEDA Hiroshi, President of Kobe University

KUAREF preconference event (December 21)

KUAREF (December 23)

Kobe University alumni networking event in Indonesia (December 23)

Programme

Friday 23 December 2016

KOBE University Academic Research and Education Forum in Indonesia

【Opening Ceremony】

【Comparative Studies of Social Sciences and Humanities from Indonesia and Japan】

【Innovative Membrane Technology for Resolving Energy and Environmental Issues】

【Preconference Report Session（Medicine and Healthcare)】

【Closing Ceremony】

Opening Remarks: Professor Hiroshi Takeda
President, Kobe University

Distinguished guests, honorable speakers, ladies and gentlemen, welcome to the KOBE University Academic Research and Education Forum in Indonesia. First of all, on behalf of Kobe University, I would like to express my profound gratitude to all the speakers and participants for their attendance today in spite of their busy schedules.

I consider it a great honour to be able to host today's Forum with Universitas Indonesia today.
I would also like to express my deepest condolences to the victims of the recent earthquake in Aceh, as well as to their families and friends. As the city of Kobe itself underwent similar experience, I feel a deep empathy and I sincerely hope that recovery takes place as swiftly as possible in the affected areas.
Today's Forum is a successor event of the Kobe University Global-Link Forum (KUGL), which has been organised since 2011. The Global-Link Forum aimed to promote our education and research activities and the Kobe University Brand overseas by forming stronger links with overseas academic institutions and the International Alumni Association Network, which provides an invaluable repository of knowledge for the University. We held the first Global-Link Forum in Bangkok, Thailand in 2011. After the successful launch of the Global-Link Forum, Kobe University held the second forum in Seoul, South Korea, the third in Beijing, China, the fourth in Ho Chi Minh City and Hanoi, Vietnam, the fifth in Kuala Lumpur in Malaysia, and the sixth in Taipei in Taiwan last year. From this year, turning our focus more on aspects of education and research, we renamed the event to the Kobe University Academic Research and Education Forum (KUAREF).

Today's Forum could not be held without the generous cooperation of our co-host, Universitas Indonesia. I would like to express my appreciation for the presence of Prof. Heri Hermansyah from Universitas Indonesia as well as Mr. Nakamura from the Embassy of Japan, and Mr. Tsukamoto from the Japan Foundation. I would also like to express my gratitude to the eminent professors who are speaking at this Forum from Universitas Indonesia, Institut Teknologi Bandung, and Universitas Gadjah Mada. Our speakers are celebrated academics who stand at the top of their fields, and it is an honor to have them with us today.

Kobe University has close academic ties with Indonesia. Currently over 1,100 international students are studying at Kobe University, including 53 students from Indonesia. Our University is also actively engaged in collaborative research with Indonesia: last year 75 researchers travelled to Indonesia, and 21 researchers from Indonesia visited Kobe University.

With the recent rapid economic development in Asia, deepening cooperative relations between Indonesia and Japan is more important than ever. This year's Forum theme is "Language, law and technology: Research Frontiers between Kobe University and Universitas Indonesia". Experts from Japan and Indonesia will present their insights on contemporary issues, focusing on law, politics, international relations and linguistics in the morning session, and membrane and related technologies in the afternoon session.

Prior to today's Forum, the KUAREF preconference was held at Universitas Gadjah Mada two days ago. The preconference covered topics in child neurology, infectious diseases, disaster and gender – the content of which will be reported before the closing ceremony this afternoon by Prof. Sunartini from Universitas Gadjah Mada. I am happy to hear that, thanks to the warm support of UGM, the preconference ended on a high note. Please allow me to express my cordial appreciation to the organisers from UGM and KU.

Kobe University will continue to strengthen its education and research alliances with Indonesian institutions, working together to yield excellent research results and foster human resources who can take on international leadership roles. I look forward to your continued enthusiastic support in these international partnerships.

Thank you very much for your attention.

Complimentary Speech: Professor Heri Hermansyah
Director, Research and Community Engagement,
Universitas Indonesia

Good morning ladies and gentlemen, my fellow Professors and researchers from Kobe University and from University Indonesia as well as colleagues from other Indonesian universities.

It is a pleasure for me to be able to open this event today. Kobe University has been a partner of Universitas Indonesia formally since 2004 when we first signed our Memorandum of Understanding. Later on this cooperation was followed by a more specific agreement on student exchange between Kobe University with our Faculty of Law and Faculty of Economics. An established research collaboration has also been made with our Medical Faculty.

I am pleased that the first Kobe University Academic Research and Education Forum (KUAREF) in Indonesia with title, “Language, law and technology: Research Frontiers between Kobe University and Universitas Indonesia" will focus more on the research and education aspects. This forum originally started as the Kobe University Global-Link Forum (KUGL) in 2011 in Bangkok, Thailand. But this year, the name of the symposium has changed to the Kobe University Academic Research and Education Forum (KUAREF). It is an honour for Universitas Indonesia to be one of the first significant partners since that change has been made.

This year we will hold a memorable first symposium under the theme of “Language, law and technology: Research Frontiers between Kobe University and Universitas Indonesia”. The morning session will focus on humanities and social sciences and the afternoon session will focus on engineering. Lastly, I hope we will all have a meaningful learning exchange and this symposium can produce more fruitful collaborations in the near future between UI and Kobe University.

Thank you.

Complimentary Speech: Mr. Ryo Nakamura
Minister, Embassy of Japan in Jakarta

Professor Takeda, President of Kobe University, Prof. Dr. Heri Hermansyah from Universitas Indonesitas, Mr. Tsukamoto, Director General of the Japan Foundation Indonesia, Distinguished guests, ladies and gentlemen,

My name is Ryo Nakamura, Minister of the Embassy of Japan in Indonesia.

First of all, I would like to express my sincere gratitude for inviting me to the Kobe University Academic Research and Education Forum today. I am delighted to see the successful opening of this Forum and would like to thank everyone who has been involved in organizing it. At the Embassy, we are very pleased to be able to convene this commemorative first Forum in Indonesia with one of the best, or the best, universities in the country, namely Universitas Indonesia.

We know that Kobe University is located in Hyogo Prefecture; Kobe is one of the most popular cities in Japan. Since it was established in 1902, Kobe University has achieved many educational academic successes in many fields. Here I would like to take this opportunity to highlight one of the research achievements of Kobe University that is being applied in Indonesia.

I am referring to the safety monitoring scheme using the onsite visualization measuring technology that is right now being implemented in the Jakarta Mass Rapid Transit (MRT) construction sites. This technology is used to check safety levels of construction sites. It measures any irregularities for tilting and traffic lights to indicate the level of danger using colors where for example blue means low irregularity while yellow or red may mean danger or collapse. The project was evaluated highly by the head of the construction at Jakarta MRT, who stated that we can now expect higher standard of safety management. As a Japanese living here in Indonesia, it gives me tremendous pleasure to know that the research achievements made by Japanese universities are contributing to Indonesia’s development. It is also an honour and pride for us.

In terms of education, Kobe University has been dedicating its efforts to cultivating talent for the future workforce by producing many excellent graduates. Among the graduates, for example, who have recently become world-renowned is Professor Shinya Yamanaka, who won the 2012 Nobel Prize in Physiology or Medicine. Kobe University’s talented graduates are achieving much not only in Japan but across the globe. Many of Kobe University’s alumni are active in their fields here in Indonesia too.

Distinguished guests, ladies and gentlemen, as Japan and Indonesia actively build linkages in many fields, I would like to emphasize that exchanges which occur in the field of education and academia are particularly important. At present, there are many Indonesians who are studying in Japan and many researchers from our two countries who are strengthening their linkages with each other. Kobe University has also accepted many international students from Indonesia and is devoting their efforts to cultivate talent from across the globe. Your international students will actively

contribute to academia as well as other fields upon their return to Indonesia.

I have heard from Kobe University that the present Forum that we are convening here with the Universitas Indonesia was made possible by the efforts of people-to-people linkages like these, which are extremely important. I believe that the friendship and the cooperation between Japan and Indonesia will grow as we build on these exchanges.

Complimentary Speech: Mr. Norihisa Tsukamoto, Director General of the Japan Foundation, Jakarta

Dear Professor Hiroshi TAKEDA, President of Kobe University,
Dear Prof. Heri Hermansyah from Universitas Indonesitas,
Dear Mr. Ryo NAKAMURA, Minister, Embassy of Japan in Jakarta,
Dear Professor Yasushi OGATA, Director of Center for Asian Academic Collaboration, Kobe University,
Distinguished guests, ladies and gentlemen,

My name is Norihisa TSUKAMOTO, Director General of the Japan Foundation, Jakarta. Today I would like to congratulate the opening of Kobe University Academic Research and Education Forum (KUAREF).

The Japan Foundation is a governmental institution, established in 1972, and having 24 overseas offices in 23 countries. Our Jakarta office is one of the oldest offices in the world, opened in 1974, right after the Malari Incident in January of that year, where there was a big anti-Japan demonstration by Indonesian citizens, at the visit by the Japanese Prime Minister, Kakuei Tanaka.

Since then, our vision and mission has been fostering mutual understanding among people of Indonesia and Japan in order to develop better people to people relationships, through three program areas: art & cultural exchange, Japanese language education, as well as promoting Japanese studies in Indonesia.

Among these three program areas, promotion of Japanese studies in Indonesia is very relevant to today's event. One of our main programs in this area is organizational support to University of Indonesia's Master's Program in Japanese Studies, at School of Strategic & Global Studies, so that each year young and talented masters' students from all around Indonesia studies at this program. Another example is support for Association for Japanese Studies in Indonesia for its academic symposium and lectures. For individual researchers who conduct research in Japan in humanity and social sciences, we provide Fellowship Program for Japanese Studies.

Last year in November, Professor Yasushi Ogata conducted Forum for Japanese Studies at Kobe University. Then, we were delighted to collaborate by nominating some prominent scholars to be invited to the forum. Thank you Ogata sensei for the invitation for today as well. I hope we can develop further collaboration in the future.

To end my short welcoming speech, I hope today's forum will foster fruitful discussion and that will provide insights for all of us who are here today.

Congratulations once again, and thank you for your very kind attention.

Law Reforms in Asia
— Outcomes of two decades of "legal transplant" after the Asian Crisis —

Professor, Graduate School of International Cooperation Studies, Kobe University
Yuka KANEKO

1. Introduction

The author intends to introduce the present status of the field of Asian Comparative Law as well as its future challenges, with a particular focus on the outcomes of economic law reforms rigorously led by international development agencies since the 1990s.

While the academic field of Comparative Law has a century-long tradition since the year 1900 when the first international congress of comparative law was held in Paris, its conservative dualist habit of categorizing the world's entire jurisdictions into either "common law" or "civil law" has remained unchanged, recognizing the laws in Asia and Africa merely as "culture" (see David 1985, Zweigert, K. & Köts,1998). This West-centered discipline of Comparative Law has constituted the basis of contemporary "legal transplant," from either "common law" or "civil law" systems, to the newly emerging "transition" economies and the post-financial crisis reform countries (Reimann 1998, Berkowitz, Pistor & Richard 2003). The question remains, however, whether such West-centered reforms have successfully attained their goals, even though we suspend the fundamental concern of a reviving neo-colonialism. A perspective of the Asian Comparative Law, or an empirical analysis from inside Asia could successfully identify the outcomes of the "legal transplants" in the present time.

2. Contemporary Legal Transplants

After the collapse of the Soviet Union in 1991, the contemporary wave of "legal transplants" occurred, involving a great many common law lawyers rushing to the "transition" economies for legal and judicial reform projects funded by leading international donors from the capitalist world, such as the USAID, the World Bank, and the EBRD (European Bank for Reconstruction and Development). These reforms covered a wide range of economic law, including anti-monopoly law as the fundamental basis of market function; company law, security law and bankruptcy law as the basis of organizational law for market participants; laws on ownership and mortgage and secured-transaction law as the substantive basis of properties and their transactions; as well as the reforms of the court and the procedural law meant for efficient contract enforcements (Shihata 1991, Posner 1998). A unique characteristic that differentiates this contemporary "legal transplant" from the historically renowned "legal transplant" or the voluntary reception of Roman law by European states in the 16th century has been the demanding frameworks used to realize the donor-driven law reforms: namely, the promotion of "model laws" by leading international development agencies, based mainly on the American law. Model laws were often linked with loan conditionalities, and with "legal indicators" such as the ROSC (Report on the Observance of Standards and Codes) which evaluated the degree of the conformity of local legislations with each model law (Kaneko 2010a). A series of academic theories by the neo-institutional economists, such as the "convergence theory" (Pistor & Wellons 1999, Hansmann & Kraakman 2000, etc.) and the "legal origin" (La Porta et al. 1996, etc.), emerged to justify the American law as the global standard.

This wave of "legal transplant" in transition economies in the first half of the 1990s then turned to Asia in the latter half of the 1990s, in the context of post-Asian Crisis law reforms. The major Crisis-hit countries, including Indonesia, came under the control of a rigorous law reform agenda set as the conditionalities attached to the Structural Adjustment Loans in part of the emergency financial rescue package. The same set of models for the "legal transplant" was imposed on the Asian countries, under an even more compulsory pressure by way of quarterly tranche-based loan disbursements of the rescue package, which was after all an obvious intervention in the legislative function of the target countries. The validity of such an imposed mode of legal reforms is questionable unless the substantive validity of such models is proven.

3. Validity of Model Laws

Despite the active campaigns by neo-institutionalists on the "convergence" or the superiority of common law family, the model laws applied to the transition and/or the post-crisis reform countries reveal that each has peculiar characteristics far from universality. The model insolvency law that appeared in the first stage of the post-Asian Crisis reforms, for example, was a duplicate from the notorious Chapter 11 of the U.S. Federal Bankruptcy Code (World Bank 1999/2004), which has been criticized for abuse in strategic bankruptcies to evade market disciplines, by enabling cutoffs of existing creditors only to benefit vulture investors with a super priority. The model secured transaction law was also a product from the U.S. Uniform Commercial Code Section 9 (Asian Development Bank 2002), which invites a practice of comprehensive monopolization of collaterals by a single creditor as a basis of strict foreclosure and/or power of sales, to the impediment of competitive, analysis-based financing.

Only countries having a qualified academic resource of legal studies can resist the rigorous imposition of model laws. Indonesian law-makers defended well in the post-Asian Crisis phases, without conceding the systematic consistency of target financial laws: in the area of insolvency law, the 1998 amendment to the 1905 Law No. 217 introduced the Commercial Court in response to the IMF conditionalities, while maintaining the basic legal design of the priority of existing secured creditors meant for the market discipline. In the area of secured transactions, the 1999 Law on Fiduciary Security introduced the registration system for movable properties without conceding the fundamental principles for fair transactions such as the identification of maximum amount, description of credits, and the prohibition of strict foreclosure (Kaneko, 2012b). In the area of company law reform to respond to the 2006 ROSC evaluation by the World Bank, the 2007 Company Law to replace 1995 Law featured the strengthened role of traditional commissioners by newly introducing the independent commissioners for corporate social responsibility.

Other countries with limited history of jurisprudence often face more difficulties in coping with these model laws. Vietnam, for example, in the process of pressing negotiation for the WTO entry, had to assume various law models in response to the loan conditionalities and the ROSC evaluations.

4. Model Conflicts

Sometimes the complexity is aggravated due to the conflicts of law models between the

donors from different legal traditions. Japanese assistance to the Civil Code drafting in Vietnam, Cambodia, etc. for example, has faced numerous model conflicts with the common law donors who push for the priority of special laws over the general law, while the Japanese assistance asserts the priority of basic principles provided under the fundamental codes (Kaneko 2009b, 2010b, 2011b, 2012a).

5. Integration under the AEC?: Challenge of the Asian Comparative Law

In the present drive for an integrated ASEAN market under the ASEAN Economic Community that started in 2015, questions arise as to what kind of common rules should be formed and how they should be applied. Some countries (Singapore, Malaysia, Myanmar, etc.) have common law tradition, but others (Indonesia, Thailand, Philippines, Vietnam, Cambodia, etc.) have established a civil code to follow the civil law tradition. Perhaps, a fundamental challenge for the Asian Comparative Law is the exploration of common rules which can go beyond the constraint of the dualism that has bound the Western Comparative Law.

Comparative Law was, after all, a product of the era of colonialism when the Western superpowers competed with each other in coloring the Asian territories with their respective laws. If there is any risk of hindering the achievement of the ideal of the AEC only because of the colonialist-oriented differences in legal systems from the past between ASEAN members, it seems extremely senseless.

One desirable approach to overcome such fruitless differences might be an initiative for ASEAN common law formation from the basic areas of civil and commercial law, which no one can deny as being directly and equally relevant to all ASEAN citizens who share the same goal of human rights and welfare of people (see ASEAN Charter preamble). While non-interference in domestic matters is a firmly established principle in the areas of public policies (Art.2, Sec.2), the ASEAN Charter admits flexible methods of formation of common rules by the ASEAN Community Councils particularly in the economic areas (Art.21, Sec.2). An ASEAN-wide code of contract law will probably be the first target, including the issues of protection of individual ASEAN citizens in such areas as consumer protection, labor rights, and environmental protection, which have long been focused in the continuous endeavors of common rule studies since the 1970s toward the ultimate goal of ASEAN integration. Japan, with its experience of being deeply involved in the area of drafting Civil Code and Civil Commercial Code in numerous ASEAN member countries such as Vietnam, Cambodia, Laos, and Myanmar in the present time, as well as Thailand, Indonesia and the Philippines back in the pre-war period, might be able to play a certain catalytic role in this challenging enterprise of common rule-formation to attain a truly independent law for the region.

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Bringing Human Security Back into the Responsibility to Protect: A Human-Centered Approach to International Assistance

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Normative concepts of responsibility to protect (R2P) and human security have been deliberately separated in a political forum of the United Nations (UN) since being endorsed at the UN World Summit in 2005, though they have the same origin as the United Nations Development Programme (UNDP) first advocated the idea of human security in 1994. While both concepts can be distinguished in terms of measures to be applied, in particular the use of force, for human protection purposes, this research argues instead that when states and the international community are engaged in fulfilling their responsibility to protect populations, a human-centered and bottom-up approach based on human security would be needed to balance the more state-centric and top-down quality of R2P. This is important and feasible, given that lots of state governments have now come to express their commitment to implementing R2P especially through international assistance, including those who used to be skeptical of it.

Some of the previous literature which mentions the relationship between human security and R2P are generally critical by stressing the distinctions and in particular stating that the use of force is envisaged as a last resort in the application of R2P.[1] Meanwhile, others point out the similarities between them mainly in terms of a variety of means which the international community can adopt, particularly when engaging in activities of international assistance and capacity building, core components of the second pillar of R2P along with the first pillar, national responsibility of civilian protection, and the third pillar, international timely and decisive response.[2] However, they do not explore how UN member states have understood the implementation of R2P and how the concept has been implemented in the UN. Such an analysis is of importance because member states have come to understand the necessity and significance of international assistance in the context of the implementation of R2P.

Indeed, the UN Secretary-General report on R2P and international assistance and the following debate in the UN General Assembly in 2014 were long awaited and broadly welcomed by member states.[3] China at the debate, for instance, described R2P as "a prudential norm" with which "in providing assistance to states in implementing their responsibility to protect, the international community should adopt measures appropriate to the local conditions."[4] Indonesia stressed that "[a]ssistance and capacity building can help foster national resilience to atrocities, while also including a wide range of economic, political, humanitarian, and, in some cases, military tools, to assist States in upholding their protection responsibilities."[5] The European Union (EU) placed emphasis on "effective preventive efforts," "[n]ational ownership and inclusiveness of process addressing RtoP issues" and "building resilience in the face of possible future atrocities."[6] The UN Security Council has also increasingly mentioned R2P in its resolutions since 2011 and decided a wide range of measures including deployment of peacekeeping missions and provision of humanitarian aid for the purpose of the protection of civilians from mass atrocities[7].

It is here necessary and important to take seriously the relationship between R2P and human security, since it has been recognized that procedures and principles of R2P "need to be complemented by a larger and more bottom-up vision of R2P that privileges the responsibilities and agency of individuals and groups as well."[8] On the other hand, human security per se has been gradually criticized because of its "fragility … as a politically convenient/expedient narrative," and unfortunately "[d]eprived of charismatic policy entrepreneurship, the commitment to human security has waned in almost all cases except in Japan."[9] This observation enables skeptics to convincingly claim that the notion of human security has arguably "fade[d]."[10] These positive and negative developments of the concepts therefore urge us to accelerate the implementation of R2P by bringing human security back into R2P, and to reaffirm the significance and implications of human security in the issue area of civilian protection from intolerable tragedies.

First, by paying careful attention to a human-centered and bottom-up quality of human security, it would be possible to visualize the potential gap between those who play a protection role and those who are protected in implementing R2P. Such a human-centered approach to R2P would make a difference in "developing a more informed and differentiated understanding of who are the critical players on the ground, what motivates them, and what tools of suasion or coercion external actors have to influence their choices," and also "developing better means of getting sharper, more specific, and timelier information and analysis to decision makers in external capitals and international bodies about the social, economic, and political dynamics in countries under stress."[11] In addition to these policy implications to national and international decision makers, R2P with a human-centered and bottom-up quality should also highlight the empowerment and capacity building of vulnerable populations for increasing their resilience.[12]

Second, a human security approach would re-emphasize the centrality of preventive measures in the implementation of R2P and make it more effective. Although the centrality of the preventive dimension of R2P has been continuously underscored by advocates since its appearance in 2001, vigorous discussions have remained centered on its more controversial but core constituent, namely coercive measures with the use of force as a last resort. However, UN member states have expressed their commitment to preventive efforts

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[1] Shahrbanou Tadjbakhsh, "In Defense of the Broad View of Human Security," in *Routledge Handbook of Human Security*, edited by Mary Martin and Taylor Owen, Abingdon: Routledge, 2014, p. 54; Shaun Breslin and George Christou, "Has the Human Security Agenda Come of Age? Definitions, Discourses and Debates," *Contemporary Politics*, 21-1 (2015), p. 8.
[2] Yukie Osa, *Nyuumon Ningen no Anzenhoshou: Kyoufu to Ketsubou karano Jiyuu wo Motomete*, Chuukoushinsho, 2012, p. 221; Toshiya Hoshino, "Nihon no ODA to 'Ningen no Anzenhoshou,'" *Kokusaimondai*, 637, 2014, p. 11.
[3] UN Document, *Report of the Secretary-General on Fulfilling Our Collective Responsibility: International Assistance and the Responsibility to Protect*, A/68/947-S/2014/449, 11 July 2014.
[4] UN Web TV, "(Part 1) The Responsibility to Protect – General Assembly, 68th Session, Informal Interactive Dialogue," 8 September 2014, http://webtv.un.org/search/part-1-the-responsibility-to-protect-general-assembly-68th-session-informal-interactive-dialogue/3773978325001?term=responsibility to protect, accessed 19 November 2016.
[5] Permanent Mission of Indonesia to the UN, "Statement by Deputy Permanent Representative of the Republic of Indonesia to the United Nations at the Informal Interactive Dialogue on the Report of the Secretary-General on 'Fulfilling Our Collective Responsibility: International Assistance and the Responsibility to Protect'," 8 September 2014.
[6] Delegation of the European Union to the UN, "Intervention Delivered by Mr. Thomas Mayr-Harting, Head of Delegation, Informal Interactive Dialogue on the 'Report of the Secretary-General on the Responsibility to Protect: Fulfilling Our Collective Responsibility: International Assistance and the Responsibility to Protect,'" 8 September 2014.
[7] For more information about R2P references in Security Council resolutions, see http://www.globalr2p.org/resources/335.
[8] Edward C. Luck, "The Responsibility to Protect at Ten: The Challenges Ahead," *Policy Analysis Brief*, The Stanley Foundation, May 2015, p. 8.
[9] Taylor Owen and Mary Martin, "Conclusion," in *Routledge Handbook of Human Security*, edited by Mary Martin and Taylor Owen, Abingdon: Routledge, p. 332.
[10] Aidan Hehir and James Pattison, "Introduction: The Responsibility to Protect after the Arab Spring," *Cooperation and Conflict*, 51-2 (2016), p. 143.
[11] Edward C. Luck and Dana Zaret Luck, "The Individual Responsibility to Protect," in *Reconstructing Atrocity Prevention*, edited by Sheri P. Rosenberg, Tibi Galis and Alex Zucker, New York: Cambridge University Press, 2016.
[12] David Chandler, "Resilience and Human Security: The Post-Interventionist Paradigm," *Security Dialogue*, 43-3 (2012), pp. 213-229.

through international assistance, whereas, as the UN Secretary-General argues, in reality, "there is still too little will to operationalize prevention" in the context of R2P.[13] In operationalizing prevention, it is commonly understood that we need to engage in both structural or root cause prevention and direct or operational prevention.[14] The perspective of human security would enable us to dealing with such longer-term issues by paying intense attention to the grief and needs of vulnerable people and local communities which may trigger a crisis leading to genocide or crimes against humanity to which R2P is supposed to be applied.

Third, Japan in the UN could take a leadership role in implementing R2P through international assistance. The Japanese government has promoted the idea of human security mainly in the UN by setting up the UN Trust Fund for Human Security, the Commission on Human Security and an informal intergovernmental group of the Friends of Human Security. While Japan has been fully aware of the importance of civilian protection in armed conflict as an issue of human security, it used to be reluctant to be involved with the implementation or even discussions of R2P. However, Japan has come to show its willingness to engage in the process of discussions over the implementation of R2P, by appointing a R2P Focal Point and taking part in the Group of Friends on R2P since 2015.[15] Given that there has been a growing awareness of the need to take into account a human-centered and bottom-up quality in implementing R2P and a heightened sense of concern that human security has almost disappeared, now is the time for Japan to take a strategic initiative in reviving spirits, principles and procedures of human security by bringing human security back into R2P. This would be feasible, for example in partnership with member states of the Association of South East Asian Nations (ASEAN) which have to date attempted to mainstream R2P in the region.[16]

[13] UN Document, A/68/947-S/2014/449, p. 18.
[14] Alex J. Bellamy, "Mass Atrocities and Armed Conflict: Links, Distinctions, and Implications for the Responsibility to Protect," *Policy Analysis Brief*, The Stanley Foundation, February 2011.
[15] Permanent Mission of Japan to the UN, "Remarks by H.E. Mr. Motohide Yoshikawa, Permanent Representative of Japan to the United Nations, on the Occasion of an Informal Interactive Dialogue on the Responsibility to Protect," 8 September 2015.
[16] Report of the High-Level Advisory Panel on the Responsibility to Protect in Southeast Asia, *Mainstreaming the Responsibility to Protect in Southeast Asia: Pathway Towards a Caring ASEAN Community*, 9 September 2014.

Geopolitics Changes in Asia:

--- Indonesia's Global Maritime Fulcrum Doctrine ---

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"Indonesia realizes that a substantial transformation is taking place in the 21st century. The center of gravity of the geo-economic and geo-political world is shifting from West to East. Asian countries are on the rise." **Joko Widodo** [1]

BACKGROUND

As we may know, four of the World's nine strategic choke points are in Southeast Asia which are dominated by sea. Hence, it is not an overstatement to conclude that geopolitical-this region is always related to maritime domain. *Vis-à-vis* geopolitics changes in Asia, particularly Southeast Asia cannot ignore Indonesia, since two-thirds of Southeast Asia is the sovereign territory of Indonesia. Again, two-thirds of Southeast Asian waters is a jurisdictional sea of Indonesia. Indonesia, as geopolitical nexus of the Pacific Oceans and Indian, and with territory distended into the South China Sea, which is one of the reasons why President Widodo stated to transforming Indonesia into a *"Global Maritime Fulcrum"* (*Poros Maritim Dunia*). The Global Maritime Fulcrum serves as Jokowi's flagship policy. Due to its strategic geopolitical maritime domain in this region and to realized a Global Maritime Fulcrum, Indonesia should always follow changing aspects of maritime domain. This study illustrates a geopolitical change in this region related to the Indonesia's Global Maritime Fulcrum Doctrine.

SPACE CONSCIOUSNESS ISSUE

In contemporary geopolitics, there is an interaction between space and people who gave birth to space consciousness. Awareness was either directly or indirectly related to interests of security and prosperity for mankind. In the context of modern state, a concept of spatial

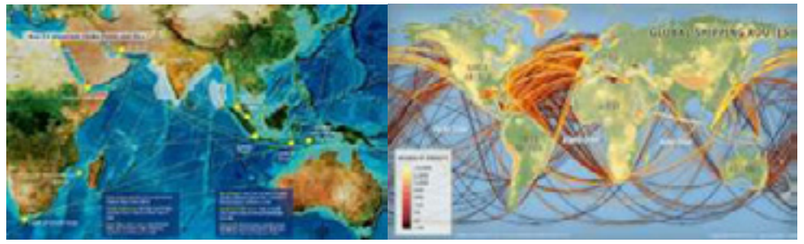
[1] President Joko Widodo (Jokowi) announced his ideas about Indonesia as a global maritime fulcrum at the East Asia summit on 13 Nov 2014. The leaders of the 10 ASEAN nations and US President Barack Obama, Japanese Prime Minister Shinzo Abe, and Indian Prime Minister Narendra Modi are among the luminaries attending the summit.

awareness is manifested by their claims of sovereignty, which is limited by state boundaries with a set of laws and authorities to ensure the security and sovereignty.[2]

Raising to concept of geopolitics, space is a core of geopolitics, so there is always a challenge to expand the area of influence of each nation that goes far beyond its territory.[3] In the era of globalization with a free market economy and information technology as pillars, non-physical boundaries among nation-states have become blurred. However, globalization cannot completely eliminate nationalism of each nation, which can be seen by practicing any market-protections by some countries to their own domestic products. Whatever any reason for protections of market, all of those things based on their own national interests, particularly in the economic field.

Related with globalization, the role of maritime domain is very dynamic because more than 90 percent of world trade across the seas. (see figure below). No overemphasis on one occasion Sam J. Tangredi [4] stated that globalization starts from the sea. Because it is so strategic sea, the maritime security has become one of the global and security issues to attention of all interested parties, both state and non-state actors. Non-state actors such as shipping industry, insurance industry, banking industry and various other industries that are directly or indirectly related to maritime security in the distribution of its products.

FIGURE : INTERNATIONAL TRADE BY SEA



Contemporary geopolitics characterized by competitions and simultaneously co-operation among nations in the fields of politics, economy and military. Maritime domain is one vessel at a time of cooperation besides competition among nations. Issues of maritime security and energy security dye contemporary geopolitics. Maritime security and energy security are two sides of the same coin where one cannot be separated from each other.

[2] Over the next 10 years, the challenge for all stakeholders in Asia-Pacific maritime disputes will be to move from a 'persistent crisis' mode towards a more stable order. See, Justin Nankivell, 'China's Use of Lawfare in the South China Sea Dispute', in Stefan Halper, *China: The Three Warfares*, May 2013, p. 429.

[3] Nowadays, Asia has become the region not only most prone to territorial and maritime disputes but also the one most resistant to conflict settlement. M. Taylor Fravel, 'Territorial and Maritime Boundary Disputes in Asia', in Saadia Pekkanen, John Ravenhill and Rosemary Foot (eds), *Oxford Handbook of the International Relations of Asia* (Chapter 27), New York: Oxford University Press, 2014.

[4] Sam J. Tangredi is a defense strategist whose studies of future warfare prompted Defense Department officials to label him "*the Navy's futurist.*" His thirty-year naval career included command at sea, service in key strategic planning positions in the Pentagon, earning a PhD in international relations, and research fellowships at two think tanks. His over one hundred publications have won numerous awards, including the U.S. Naval Institute's Arleigh Burke Prize and the U.S. Navy League's Alfred Thayer Mahan Award. In his book, *Globalization and Maritime Power* (Paperback), US- Institute for National Strategic Studies, National Defence University, 2012.

This can be seen from the many countries that emphasize the issue of maritime safety as part of the national interest, as well as energy security issues.

DISPUTE ON A MARITIME DOMAIN

The dispute on a maritime domain[5] as in the South China Sea is an interface between maritime security and energy security. Increasingly scarce sources of energy in the mainland forced many countries to explore and exploit energy resources in the ocean. It often led to disputes among countries, especially in the territorial waters of which the limits on territorial sea, contiguous zone and exclusive economic zone (EEZ) has not been definitively settled.

Southeast Asia geopolitical dynamics are always influenced by power relationships among the countries of Southeast Asia as well as some countries as extra power of the region. Although the countries of Southeast Asia are now all been assembled in ASEAN as vision of the founders of ASEAN on August 6, 1967, but the role and influence of the extra power of the region such as the United States, Japan, Australia, China and India cannot be ignored anyway. It is common-sense to ASEAN embrace those forces become dialogue partners in term of the ASEAN Regional Forum (ARF).

Geopolitical landscape of Southeast Asia when portrayed quite complex, because it involves many actors with their own interests that are not always the same. Even unavoidable also the geopolitical rivalry among ASEAN countries themselves and with the extra power of the region in which to strengthen their role and influence in the region. In short, here is a description of the geopolitics of East Asia maritime perspective, particularly by two extra main power in Asia, China and Japan.

Geopolitical Landscape of Southeast Asia

SEA LINES OF COMMUNICATION (SLOC)

China as a new force in the Asia Pacific region is very concerned to protect its interests throughout Southeast Asia. Geopolitical interests of the country is expanding its influence to the Asia Pacific region and simultaneously controlling closer pathways toward their

[5] The Maritime Domain is all areas and things of, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterways, including all maritime-related activities, infrastructures, people, cargos, vessels, and other conveyances.

territory. Therefore, China's geopolitical interests are aligned with the maritime domain, as pathways to China is by sea. In addition, as an industrial country has dependency on oil importers, this condition requires China should be able to control its SLOC stretching from the Persian Gulf to the East China Sea.[6]

Chinese interests associated with the maritime domain that is what makes China insists on its claim to the entire South China Sea, including the Senkaku Islands as Diaoyu (named Chinase)[7], the Paracel Islands and the Spratly Islands, which are known as *U-Shaped*. Particularly dispute between Japan and China; according to Japan, the number of Chinese vessels entering the waters around the islands has jumped from around zero per month before September 2012 to upwards of 28 per month since.[8] The Japanese coastguard has augmented its activities and capabilities accordingly.[9] Conflict between the two countries could bring to a standstill six of the world's largest ports (responsible for half of all container traffic) and stop flights from five of the world's top 20 airports (which handle 8 per cent of all passenger traffic and 46 per cent of air freight).[10] Even China set the South China Sea as one of the four core national interest in addition to Tibet, Taiwan and Xinjiang, where the waters are predicted have oil and natural gas in large quantities. Related to this, China gives strong reactions, both politically and operationally, to the presence of foreign warships in the South China Sea, in particular while US warships routinely sailed in those waters.[11]

[6] This 'securitization' of non-traditional security issues could contribute to the politicization of interstate disputes. For example, the previously well-accepted concept of freedom of navigation and access to resources has given way to national-interest discourses on sea lines of communication (SLOC); these strategies have restrictive implications. Analysts have pointed out that national resistance to flexible airspace and timely release of relevant data hampered international coordination in search,rescue and recovery efforts for Malaysia Airlines flight MH370. See, Carl Thayer, 'Flight MH370 Shows Limits of ASEAN's Maritime Cooperation', *The Diplomat*, 18 March 2014; Adrian Schofield, Jeremy Torr and Bradley Perrett, 'MH370 Search Coordination Lapses Echo Global Issues', *Aviation Week*, 20 March 2014. C. Raja Mohan pointed out that the Chinese military learned from the Indian navy's rapid response in reaching the Maldives, Sri Lanka and Indonesia after the 2004 tsunami disaster. A decade later, the Chinese navy far outperformed the Indian navy in a show of non-combat military deployment in MH370 search and rescue. 'Chinese takeaway: PLA Goes Out', *Indian Express*, 26 March 2014.

[7] In the East China Sea, the *Senkaku/Diaoyu* Islands dispute has been a major obstacle to the development of Sino-Japanese relations since the end of the Cold War. The islands were controlled by Japan from 1895 until 1945, when they became subject to the United States Civil Administration of the Ryukyu (*Senkaku*) Islands until 1972. The islands were then returned to Japan under the Okinawa Revision Treaty, despite the fact that both Japan and China raised sovereignty claims over them before the UN Security Council in that year. From the 1970s until the early 1990s there was a tacit understanding between both countries to keep the dispute under wraps as they pursued diplomatic rapprochement and economic development. However, the Japanese government explicitly denied such an understanding in the 2010 and 2012 crisess. See, Reinhard Drifte, 'The Japan-China Confrontation Over the Senkaku/Diaoyu Islands – Between "shelving" and "dispute escalation"', in *Asia-Pacific Journal,* Vol. 12, Issue 30, No. 3.

[8] M. Taylor Fravel and Alastair Iain Johnston, 'Chinese signaling in the East China Sea?', Washington Post, 13 April 2014; Ministry of Foreign Affairs of Japan, 'Trends in Chinese Government and Other Vessels in the Waters Surrounding the Senkaku Islands, and Japan's Response – Records of Intrusions of Chinese Government and Other Vessels into Japan's Territorial Sea', 18 February 2015, http://www.mofa.go.jp/region/ page23e_000021.html.

[9] Japan Coast Guard beefing up fleet for patrol of Senkaku Islands', *Asahi Shimbun*, 5 October 2014.

[10] Andrew Coburn, 'Planning for war: a guide for businesses', *The Conversation*, 17 February 2015, or see: http://theconversation.com/planning-for-wara- guide-for-businesses-37297.

[11] However, recent debates have blurred the lines between civilian and military roles and forces, with the Japanese Self-Defense Forces intervening regionally, the US navy coordinating exercises and Beijing claiming the right to convert civilian vessels for military use. See, New rules mean ships can be used by military', *China Daily,* 18 June 2015.

***China claims* U-Shaped**

Meanwhile, as an industrial country, Japan has geopolitical aspirations that transcend broader area outside its jurisdiction. The geopolitical aspirations associated with majority of maritime domain, in which Japan should be able to secure its SLOC stretching from the Persian Gulf to the Sea of Japan.[12] Japan has concerned in energy security, because majority of energy supply to Japan to rely on sources that are far away from its territory.

Japanese geopolitical influence is still quite felt in Southeast Asia, although not in term of military power. Due to high tensions in this region and warmth of using military forces, Japan routinely sends patrol boats of the Coast Guard to patrol the waters in Southeast Asia, especially in the Malacca Strait. That's because the Malacca Strait listed as one of the strategic choke points for Japan, even several times Japanese-flagged vessels has been ever hijacked on the waters a long time ago.

In Southeast Asian region, Japanese interests cannot be separated from its SLOC security which will have a direct impact once conflicts broke out in waters of this region. As more than 70 percent of the Japanese tankers carrying oil to Japan through the South China Sea, despite the fact that the vessel could be avoided through Indonesian waters towards the Pacific Ocean. Last track however takes time and huge costs that are not economical and unreasonable costs.

This is illustrates the Japanese SLOC security is closely related to its energy security. Energy security is a strategic issue for many in the world as dependence on energy resources in the Middle East nowdays are characterized by various threats such as terrorism, hijacks, and piracies at the sea. Disruption of energy security is a direct threat to Japan's national security. SLOC security issues particularly influence characteristics of the Japan Maritime

[12] The ideal situation would be to convince states to cooperate in managing maritime disputes with a view to realizing tangible and relatively equitable benefits such as resource development, environmental protection and control of high-seas crimes. A few bilateral and minilateral treaties in the 1990s and early 2000s – such as Sino-Japanese agreements on joint development of resources (2008) and fisheries (1997) – have been put forward as the potential basis for further cooperation. See, Zhang Xinjun, 'Why the 2008 Sino-Japanese Consensus on the East China Sea Has Stalled: Good Faith and Reciprocity Considerations in Interim Measures Pending a Maritime Boundary Delimitation', *Ocean Development & International Law*, Volume 42, Issue 1–2, 2011: 53–65; James Manicom, 'Sino-Japanese Cooperation in the East China Sea: Limitations and Prospects', *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, Volume 30, Number 3, December 2008, pp. 455–478; Suisheng Zhao, 'China's Global Search for Energy Security: cooperation and competition in Asia–Pacific', *Journal of Contemporary China*, Volume 17, Issue 55, 2008, pp. 207–227; Zou Keyuan and Wu Shicun (eds), *Maritime Security in the South China Sea: Regional Implications and International Cooperation*, Ashgate, 2013.

Self-Defense Force (JMSDF) since its establishment in 1952 until these days. Since its inception JMSDF designed so as to protect the Japanese sea, so then born the doctrine of operations 1,000 nautical miles. It's interesting to note in the current JMSDF development is the presence of Hyuga class helicopter carrier (型護衛艦)[13]and the future is still going to develop similar ships. Hyugas built for the JMSF. Two varians - *Hyūga* and *Ise* - were built; upon completion, the class were the largest ships built for the Japanese navy since1945. The presence of helicopter carriers will support the deployment of forces (JMSDF) that had been carried out in the Asia Pacific region.

IMPLICATIONS FOR INDONESIA

Associated with geopolitical dynamics of the region, there are two implications that need to be faced and anticipated by Indonesia. *First*, Politically implications. Geopolitical dynamics of the region's maritime perspectives will have negative implications on Indonesia as well as regional stability if not properly handled. Currently, the issues are to the forefront in the area of maritime security, energy security and territorial disputes. Indonesia is well aligned with these three issues. The challenge is how to keep naval forces development in order to reduce the gap *balance of powers*[14], because the gap that will be trigger those who feel themselves stronger to take actions for some reasons, which potentially makes this region lean to unstable. If Indonesia does not have bargaining power of high aspect military forces, especially the navy, emerging opportunities will be a recurrence of acts of harassment and does not respect the sovereignty and authority of Indonesia on maritime domain, especially in waters that are still in dispute Indonesia and neighboring countries as well as in the waters such strategic choke points and sea lane Indonesia (ALKI).

Second. Economic implications. By Indonesian maritime perspectives, economic implications can be both positive and negative at the same time. As positive implications, due to these dynamics circumstances is increasingly open opportunities for cooperation among the countries in the region to retort to threats and challenges relating to maritime security and energy security, as asymmetric threats such as piracy and maritime terrorism. Answering such threats, one of key word is cooperation among countries in addition to their political attitudes are congruent. Meanwhile, negative implications are an increasingly possibility of using the Navy to secure marine resources in disputed waters, both fisheries and oil and gas. It thus can be seen in the disputed South China Sea and the Celebes Sea, where the strength of the Navy used by other countries to seize the natural resources claimed by Indonesia as its *Indonesian exclusive economic zone* (EEZ). Such negative implications should have been anticipated early so it is not expected to harm national interest of Indonesia.

Indonesia, as the geopolitical nexus of the Pacific Oceans and Indian, and with territory distended into the South China Sea, is one of the reasons why President Widodo stated to transforming Indonesia into a "Global Maritime Fulcrum" (*Poros Maritim Dunia*). As a doctrine, Jokowi invited all Indonesian stakeholders to recognize " the Axis of the Maritime World, Strength Between Two Oceans". This doctrine emphasizes geographic reality, geostrategic, and geo-economics tnat the future of Indonesia depends, and at the same time, comes to influencing dynamics of the Indian Ocean and Pacific Ocean. For illustration, the development of maritime highway concept *(Tol Laut)*[15] to ensure connectivity between or among islands, development of shipping industries and fisheries, ports, transportmenships, improvement of sea transport, as well as a focus on maritime security, reflecting the seriousness in realizing Indonesia as the world's maritime fulcrum. In other words, the idea of a maritime fulcrum is also an important part of the national development agenda.

Finally, since it was declared by President Jokowi on Nov 2014, challenges in achieving the Global Maritime Fulcrum is certainly not easy. Indonesia does not have any other choices to withdraw the doctrine, and immediately makes endorsement to restore its national identity as an island nation—which is located between two pivotal oceans in the world—to realize an idea of a Global Maritime Fulcrum. And, *it must begin to act, beginning today.*

[13] *The Hyūgas* were followed by the larger Izumo class, the first being commissioned in March 2015. The Izumos replaced the Shirane-class helicopter destroyers. The Hyūgas were originally meant to replace the Shiranes·

[14] Hans Morgenthau's theories of International Relations on the development of the discipline it will be necessary to initially consider the specific concepts of the 'balance of power' in the context of his notions of 'national interest' and 'power politics' in order to create a frame of reference for his broader ideas elucidated in *Politics among Nations* (1948) and later writings, especially on the Cold War. The aspiration for power on the part of several nations. each trying either to maintain or overthrow the status quo, leads of necessity to a configuration that is called the balance of power. Recently, The term "balance of power" is used in the text with four different meanings: (1) as a policy aimed at a certain state of affairs, (2) as an actual slate of affairs, (3) as an approximately equal distribution of power, (4) as any distribution of power. Whenever the term is used without qualification, it refers to the actual state of affairs in which power is distributed among several nations with approximate equality.

[15] Term *"Tol Laut"* as one of Jokowi's ideas to tackle transportation complications, as the maritime highways concept, known technically as short-sea shipping, is in essence an alternative to land-freight transportation, by moving cargo along the coastline between ports of close proximity. See, "Tol Laut": From Idea to Reality" in *The Jakarta Post,* 20 Nov. 2014.

Distribution and origins of the indigenous languages of Indonesia

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Demographics, Language and Society

Indonesia is an archipelagic nation consisting of over 17,000 islands spread over three time zones from Sumatra in the west to Papua on the island of New Guinea in the east. Its population is 252.200,000 (Badan Pusat Statistik, 2015). It is a country of great linguistic diversity. Apart from the national language, Indonesian, there are about 700 indigenous, regional languages.

With so many languages in Indonesia, the situation is complicated and we need a broad perspective to get an overview of some of its features. The way to do this is to define some broad language types with regard to their identity or function in society, and get an idea of the demographic distributions. All the languages in Indonesia can be categorized into three main categories: (1) the Indonesian language, (2) regional, indigenous languages, and (3) foreign languages (Alwi and Sugono, 2000, Renandya, 2000: 115). These language categories have different functions in society. A national language like Indonesian is the national language, the language of unity, and the language of education, business, media and politics. Regional languages' function is as markers of identity and culture. The foreign languages' function is to provide access to knowledge for development. A linguistically diverse nation needs a national language as a unifying force and for economic efficiency.

Census data tells us that Indonesian is not yet spoken by all Indonesian citizens. About 140 million Indonesians or around 55.51% of the population still speak one of the regional languages and have Indonesian as a second language. However, over the last three decades, and supported by government policy, a significant sized community of people who speak Indonesian as their first language has been growing. At the last census, there were 22,800,000 native speakers of Bahasa Indonesia, 9.04% of the whole population. If you add this population of native speakers of Indonesian to the 140 million for whom it is a second language, after one of the regional languages, you get a total of 162.8 million Indonesian speakers (Lewis et al., 2015).

The size of speaker populations for the regional languages is not even and this means that this category contains languages which although all classified as regional languages are in fact very different in character and status from each other. The demographics for the regional languages consist of a small number of large languages, after which the remainder, a large number of languages, have varied speaker populations steadily dwindling from hundreds of thousands to near zero. A total of 706 living languages have been recorded in Indonesia. Of these, the fourteen largest languages each have more than a million speakers. The speaker population sizes for these large languages is as follows: Javanese (84, 300,000), Sundanese (34,000,000), Malay (13,040,000), Batak (7,045,000), Madurese (6,770,000), Minangkabau (5,530,000), Betawi (5,000,000), Buginese (5,000,000), Acehnese (3,500,000), Balinese (3,330,000), Makassarese (2,130,000), Sasak (2,100,000), Lampungese (1,834,000), and Gorontalo (1,000,000) (Lewis et al., 2015). The total number of the speaker populations of these fourteen large languages is 174,579,000 people. This makes up approximately 70% of Indonesia's overall population of 255 million people in 2015. Geographically, the larger and smaller regional languages follow a geographical pattern of distribution with the larger languages in the west of the country, and the smaller languages in the east of Indonesia.

Language Families

The observation that words in different languages often bear a striking resemblance to one another led to the discovery that such similarities were evidence of languages being related to one another genealogically. Nearly all human languages can be classified as belonging to one or other of a number of language families. The identification of language families is made using the methods of comparative historical linguistics. This branch of linguistics compares the lexicons of different languages in order to determine the degree of relatedness so that a genealogical family tree can be produced. A family tree allows us to trace back present day languages to some hypothesised ancestral language. The branches of a tree reflect time depth, the further towards the proto-language, the further back in time.

The principle in the historical linguistic method is that when words in pairs of languages are being compared, and structural similarities are detected, two logical possibilities exist: that they are related through sharing a common ancestor or that any similarity is purely coincidental and one of the words has been borrowed at some point before the present. That is, any similarity may be a sign of relatedness but is not enough in itself to define it as such. Linguists use evidence to eliminate words from their data which are borrowed. Then, on the basis of the remaining words, they work out the degree of similarity between words. The more similar that word pairs in two languages are, and the larger the number of words like this in the two lexicons, the closer the relationship between the languages, and also the nearer the present time for any hypothesized branching point. To investigate the internal structures of a language, the methods of language typology can be used and these involve consideration of both the lexicon and syntactic features.

The regional indigenous languages in Indonesia all belong to either the Austronesian or the Papuan (Non-Austronesian) language family (Lewis et al., 2015). Out of 706 living languages recorded for Indonesia, about two thirds of the languages are from the Austronesian language family, but 255 languages, or about one third, can be classified as Papuan or Non-Austronesian (Lewis et al., 2015). All 255 of these languages are found in the eastern part of Indonesia, in the Maluku Islands, the western part of Nusa Tenggara, and in Papua.

Austronesian and Papuan Language Features

It is not easy to identify the typological characteristics of languages in the Austronesian family due to the number of languages in it, the wide geographical spread of member languages, and the time for languages to have changed since the point of common origin. However, three definitive typological features have been pointed out by Himmelmann (2005) which are found within Austronesian languages: (1) the use of reduplication of nouns; (2) inclusive and exclusive marking of first person non-singular pronouns; (3) a causative morphology structure. Another feature that marks Austronesian languages is sentence order (Wurm, 2007). Sentence formation order tends to be S-V-O (subject-verb-object) with the subject first followed by the verb and the object at the end of the sentence (Pawley, 2009, Wurm, 2007).

Non-Austronesian/Papuan languages exhibit such great variation that linguists tend to consider that they are most probably not members of a single language family, but of several. This variation and the extremely deep time frame that they have existed, along with limits to the quantity of data that can be found make it difficult to generalize them. However, there is one structural feature that can be used to distinguish them from Austronesian languages, S-O-V (subject-object-verb) sentence order with the verb at the end of the sentence (Pawley, 2009, Wurm, 2007). Other features characteristic of languages in the Non-Austronesian language family are dual structures and gender, and also a restrictive numeral system, such as counting sequences which do not have specific numerals for words above two, for example: one, two, then one-two for 'three', two-two for 'four', hand for 'five' and so on. The word "people" (fingers in both hands, and toes in both feet) is sometimes used for 'twenty' (Pawley, 2009).

Language Origins and Migrations

One feature of languages is that they are in a state of constant change. This means that the language at one point in time will be different from that language at other times. Language can change significantly over long

periods such as centuries or millennia and become very different from its parent version. However, investigation will usually be able to reveal the relatedness of an older version of a language with its present day form (Sihler, 2000: 135). One question that arises from the observation of present day language distribution is what the picture was like in the past. In particular, we can ask whether the ancestors of present day populations also lived in the same place or whether they migrated from some other place. In order to answer that question, no one scientific discipline is adequate. Researchers have therefore worked with parallel studies from other fields.

Apart from linguistic data, it is also possible to use data from fields such as archaeology and genetics. Each of these has its own data, methods, inferential processes, scope and limitations. By comparing data across disciplines, we can build a clearer picture of the present distribution of languages and how these came to be as a result of migration patterns and paths. The most widely accepted view at present of the origins of the Austronesian people is that they originated in an ancestral homeland in Taiwan around 5,000 years ago. They migrated, most likely not in one wave, but over time and in stages, southward. Passing through the Philippines, Borneo, towards Java. They then moved eastward eventually spreading throughout the entire Pacific. There was also a later westward movement to Madagascar. The ancestors of the Papuans, most likely not one single group, but many, arrived in the region much earlier, some estimates put it at around 50,000 years ago. They spread throughout the archipelago as far as Papua New Guinea and some of the Pacific islands. The arrival of the Austronesians saw contact between the two groups. We do not know with great detail about what happened. However, there is evidence of intermarriage and also of linguistic and cultural borrowing.

Conclusion

The language situation in Indonesia is complex. From a socio-political perspective, language management is needed to properly shape legislation that can guide the development and use of language in society. Proper legislation can also help prevent problems from emerging.

Certainly, as in some western and developed societies, a single, unifying language for development is required. In Indonesia, this role is fulfilled by Indonesian. However, as specified in the constitution and subsequent legislation, diversity is also part of the Indonesian national identity. The problem is how to value that diversity and to preserve its balance. This is especially important because languages are in constant change and many of the regional languages are being lost. This is a widespread phenomenon recognized by the United Nations.

The fact that linguistics has research methods that allow us to see relationships among languages, to identity language areas, and to build language family trees all go to support our understanding of the unique picture of languages in Indonesia. Language policy and planning can play a significant part in guiding these irreplaceable resources to optimum benefit. Fortunately, in present day Indonesia, the process of language legislation production is proceeding and there is reason to believe that Indonesia can indeed manage its regional languages well as well as seeing the Indonesian language evolve to carry the communicative function of a national language in an emerging state as well as preserving and maintaining its rich regional language heritage.

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Phonological structure and loanword adaptation: a case study from Japanese

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1. Introduction

1.1. Loanword adaptation in languages

Loanword adaptation is a phonological (linguistic) process that is observed when a language borrows words from other languages. It can be considered as a type of a language experiment, with valuable implications for phonological (linguistic) theory. In this presentation, using Japanese as an example, I analyze how languages adopt the prosodic features of other languages.

1.2. Typology of accent

With respect to accent, the following three types of languages are known (the languages discussed in this study are underlined):

(1) a. Tone languages: Chinese, Taiwanese Southern Min, Thai, Vietnamese, Mende, etc.
b. Pitch-accent languages: Japanese, Ancient Greek, Lithuanian, Latvian, etc.
c. Stress languages: English, Italian, German, Dutch, Spanish, etc.

In the languages specified in (1a), the shape of the pitch in a word is relevant to word recognition. On the other hand, in the languages in (1c), the prominent position in a word plays a critical role in word recognition. Languages in (1b) have both the aforementioned properties (pitch shape and salient position in a word). Here, we will briefly show the relationship between the properties by taking Japanese (1b) as an example.

1.3. Prosodic structure of Japanese

Japanese is known as a pitch-accent language. It has two different pitches, that is, H(igh) and L(ow), at the moraic level. Japanese is similar to both tone languages (1a), in that each mora in a word is associated with a specific tone or pitch, and stress languages (1c), in that the accented position in a word plays an important role in word recognition.

Tokyo Japanese has two restrictions on the pitch pattern in a word: (i) the initial two moras must have a different pitch (#HL, as in (2a), or #LH, as in (2b, c)), and (ii) once the pitch lowered, it never rises again within the word (McCawley 1968, Akinaga 1985, Tanaka and Kubozono 1999). It is noted that '-' represents a mora boundary, '[' a pitch rise from L to H, and ']' a pitch fall from H to L. In addition, the symbols above vowels represent accents.

(2) a. [jú]-u-do-o 'judo', [kó]-o-be 'Kobe', [né]-ko 'cat', [gá]-mu-ra-n 'gamelan'
b. mo-[no-gá]-ta-ri 'story', na-[gá]-sa-ki 'Nagasaki', i-[n-do-né]-si-a 'Indonesia',
c. ka-[ra-o-ke 'karaoke', ma-[n-ga 'manga', ja-[ka-ru-ta 'Jakarta', su-[ma-to-ra 'Sumatera'

Based on these restrictions on the pitch pattern, given the location of the accent, the pitch or tonal pattern of an entire word is predictable, unlike the case with the tone languages in (1a) (Tsujimura, 2007). Importantly, the pitch fall ']' in (2a, b) corresponds to the place of pitch accent. In this sense, in Tokyo Japanese, the features of the pitch and accent are related.

Another important point of accent in Japanese is that, as in (2c), accentless words do occur, occupying about half of the vocabulary (Tanaka 2008, Tanaka and Kubozono 1999). We discuss the adaptation patterns of accent in the case where Japanese is a host language in section 2 and that where it behaves as the source language in section 3.

2. Japanese as a host language

2.1. Case 1: English loanwords borrowed by Japanese (Tanaka 1996, 2008, Kubozono 1996)

English has borrowed words from many languages. At the same time, in recent years, it has been providing words to various languages. Japanese is no exception, and it has borrowed many words from English.

Rule (3) is the Loanword Accent Rule (LAR) of Tokyo Japanese. The symbol '.' denotes a syllable boundary.

(3) LAR in Japanese (Kunozono 1996, Tanaka 2008)
a. Place an accent on the (heavy) penult syllable of the word.
b. If the penult syllable is light, place an accent on the antepenult syllable.

(4)

a.	chócolate	→tʃo.[ko.ré]e.to,	calendar	→ka.[ré]n.daa,	alligator	→a.[ri.gé]e.taa
	crócodile	→ku.[ro.ko.dá]i.ru,	Éurope	→yo[o.ró]p.pa,	Olýmpic	→o.[rin.pí]k.ku
b.	Chrístmas	→ku.[ri.sú].ma.su,	banana	→[bá].na.na,	tomato	→[tó].ma.to
	musícian	→ [myú]u.zi.syan,	McDónald's	→ma.[ku.do.ná].ru.do		
c.	América	→a.[me.ri.ka,	stereo	→su.te.re.o,	occúrt	→o.[ka.ru.to

The stress positions in the source language (English) are not inherited. They are accentuated regularly based on the syllable structure of Japanese. However, this does not mean that the accent structure of the source language was ignored. Interestingly, the occurrence of the accentless pattern that accounts for approximately 50% of the vocabulary in Japanese is extremely small (10% of loanwords) (Tanaka 1996). This can be understood as the reflection in Japanese pitch accent of the requirement that a word necessarily has stress in English. In this sense, it is understood that the phonetic structure of the donor language (English), as well as the phonological structure of the host language (Japanese), is involved in the accentuation in Japanese. In summary, stress in English is reinterpreted as pitch accent in Japanese. However, interestingly, in the case of the most common phonological structure for Japanese words (i.e., four- moras long with the sequence of light syllables), accents are lost as shown in (4c).

2.2. Case 2: Italian loanwords borrowed by Japanese (Tanaka 2016, forthcoming)

The accentuation is basically the same as the adaptation in English loanwords. It is interesting that the long vowel in the penult syllable in Italian is adopted as it is into Japanese as shown in (5), whereas the long vowel in the antepenult syllable (the third syllable from the end of the word) is adopted not as a long vowel but as a short vowel into Japanese as shown in (6) (Tanaka 2016).

(5)

Italian		Japanese		
Verona /ve.ró:.na/	→	ve.[ró]o.na	(*ve.[ró].na,	*[vé].ro.na)
Rossini /ros.sí:.ni/	→	ro[ʃ.ʃí]i.ni	(*ro[ʃ.ʃí].ni,	*[ró]ʃ.ʃi.ni)

Lamborghini /lam.bor.gí:.ni/ → ra[m.bo.ru.gí]i.ni (*ra[m.bo.ru.gí].ni, * ra[m.bo.rú].gi.ni)

(6) Padova /pá:.do.va/ → [pá].do.va (*[pá]a.do.va, *pa.[dó]o.va)
basilico /ba.dzí:.li.ko/ → ba.[zí].ri.ko (*ba.[zí]i.ri.ko, *ba.[zi.rí]i.ko)
balsamico /bal.sá:.mi.ko/ → ba.[ru.sá].mi.ko (*ba.[ru.sá]a.mi.ko, *ba.[ru.sa.mí]i.ko)

This can be interpreted as a consequence of reflecting the LAR in (3). In the loanwords in (5), a heavy syllable is formed by accepting the long vowel in the penult syllable and preserves/satisfies the position of the source language and LAR (3/4a) at the same time. On the other hand, in (6), even if the long vowel in Italian is adopted as a short vowel and it forms a light syllable, the Italian stress position and LAR (3/4b) are preserved or satisfied at the same time. In summary, in order to satisfy both the Italian stress position and the LAR in Japanese, the adaptation of vowel length is adjusted.

3. Japanese as a donor language

3.1. Case 3: Japanese loanwords borrowed by Taiwanese Southern Min (Tu and Davis 2009)

Taiwanese Southern Min, as well as Mandarin Chinese, is a tone language. It has three degrees of pitch, H(igh), M(id), and L(ow), and seven tone patterns. Similar to Mandarin Chinese, tones are assigned to each syllable (morpheme) in Taiwanese Southern Min. Here, we examine how the Japanese pitch accent is adopted into this language. The symbols '[' and ']' in Taiwanese represent the points at which the pitch rises and falls in one step (i.e., between H and M, or M and L), respectively, while '[[' and ']]' represent the points where the pitch rises and falls in two stages (i.e., between H and L), respectively.

(7)	Japanese		Taiwanese	gloss
a.	su.[shí]	→	[[su].ʃi	'sushi'
	sa.[si.mí]	→	[sa.[ʃi].mi	'slices of raw fish'
	[ká].me.ra	→	[kha.[me].la	'camera'
b.	[bá].taa	→	[[ba].ta	'butter'
	ba[t.te.rii	→	[ba.[te].li	'battery'
	tá].ku.sii	→	[tha.[khu].si	'taxi'
c.	ka.[ban	→	[kha.[ba]]n	'bag'
	o.[dé]n	→	[o.[le]]n	'kind of Japanese dish'

(8)				
	me[e.si	→	[[me]]e.[ʃi	'business card'
	[bí]i.ru	→	[[bi]]i.[lu	'beer'
	pa.[tʃin.ko	→	[pha.[thi]]n.[ko	'pachinko'
	ba[n.soo.koo	→	[ba[n.so]]o.[ko	'Band-Aid'

The adaptation patterns of pitch accent in loanwords adopted from Japanese into Taiwanese have many interesting features. First, it can be said that the pitch pattern (accent position) in Japanese is not inherited and the original pitch in Taiwanese is assigned. Specifically, if the final or penult syllable is heavy in Taiwanese, HL tone (]]) is assigned within the syllable; however, if both final and penult syllables are light, HM tone (]) is assigned to these syllables. The pitch accent in the source language (Japanese) corresponds to the falling tone (']]' or ']') in the host language (Taiwanese), and the degree of descent is determined by the weight of the syllable (i.e., the heavier the syllable, the greater the degree).

In addition, though the host language is a tone language, pitch is assigned to the entire word as a unit. This can be interpreted as Taiwanese inheriting the input pitch pattern of Japanese, despite the fact that the positions of accent are not inherited. In particular, the sequence of the MH rising tone at the beginning of the word can be understood as the realization of the initial lowering in Japanese (2b, c).

3.2. Case 4: Japanese loanwords borrowed by Italian (Tanaka 2016, forthcoming)

When Italian borrows a word from Japanese, the default stress pattern of Italian (stress on the penult syllable (Borrelli 2002, Krämer 2009)) occurs. The Japanese pitch accent is identified as stress in Italian. In adopting the Japanese pitch accent, Italian focuses on the final syllable of the source word alone.

(9)	Japanese	→	Italian ((default) penult stress)	
a.	[wá].ka	→	wá:.ka	'waka'
	su.[mó]o.to.ri	→	su.mo.tó:.ri	'sumo wrestler'
	ka.[ra.o.ke	→	ka.ra.ó:.ke	'karaoke'
b.	pa.[tʃín.ko	→	pa.tʃín.ko	'pachinko'
	ba[n.tʃa	→	bán.tʃa	'bancha'

(10) Japanese (word-final heavy syllable with high pitch) → Italian ((default) penult stress)

	[í]p.pon	→	íp.pon	*ip.pón	'ippon'
	[ké]n.doo	→	kén.do	*ken.dó	'kendo'

(11) Japanese (word-final heavy syllable with high pitch) → Italian (word-final stress)

a.	ze[n.shuu	→	dzen.shú	*dzén.shu	'zenshu'
	te[n.ri.kyoo	→	ten.ri.kjó	*ten.rí:.kjo	'tenrikyo'
b.	mi.[rin	→	mi.rín	*mí:.rin	'mirin'
	ʃa.[mi.sen	→	ʃa.mi.sén	*ʃa.mí:.sen	'shamisen'
c.	kyo[o.gé]n	→	kjo.gé	*kjó:.gen	'kyogen'
	ba[n.zá]I	→	ban.dzái	*bán.dzai	'banzai'

Basically, the phonological structure of the host language (Italian) is taken into consideration in terms of placing stress on the default position. However, it is only in the case of the ultimate heavy syllable with high pitch in the source language (Japanese) that stress is placed on the final syllable in the host language (Italian). This suggests that Italian speakers recognize the property of the pitch of Japanese at the word-final position. The fact that a heavy syllable attracts a high pitch, pitch accent, or stress is well-known in phonological theory (Prince and Smolensly 1993/2004, Kager 1999). It is clear that Italian adopts pitch accents as stress.

4. Concluding remarks

Using Japanese as an example, we analyzed how a language accepts prosodic structures from different languages, as well as how the prosodic structures are accepted into other languages. The results of our analyses are summarized as follows:

First, the phonetic properties of HL tone, pitch accent, and stress are related to each other, as shown in (12).

(12) HL tone ← → pitch accent ← → stress

Second, even in loanword adaptation, heavy syllables attract HL tone, pitch accent, and stress.

(13)Heavy syllable → a. HL tone (Japanese → Taiwanese Southern Min (§ 3.1))
b. Pitch accent (English → Japanese (§ 2.1), Italian → Japanese(§ 2.2))
c. Stress (Japanese → Italian(§ 3.2))

Finally, it is clear that the prosodic output is determined by a mixture of both the phonetic property of the donor language and phonological structure of the host language.

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Membrane Technology for Water Treatment in Kobe University

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Water shortage is widely recognized as one of the major social issues in 21st century. According to a number of research, it is estimated that 2/3 of the people in the world would suffer from shortages of water by 2015. Hence, it is believed that 21st century is the age of water, shifting from the age of petroleum in 20th century.

In Kobe University, with the aim at tackling the global issues such as water shortage, the Center for Membrane and Film Technology (MaFTech center) was established in 2007, along with Kobe University's strategic focus on environmental studies. Within this presentation, firstly an introduction on the center and its recently activities including international linkages will be presented. Secondly, research on the water treatment will be focused. Throughout the content, we hope you can easily obtain an overall understanding on the MaFTech center's activities and seek collaboration opportunity with Kobe University.

The MaFTech center is now the largest academia-driven membrane research center in Japan. In April of 2015, it opened its newly constructed research facility, with totally 6 floors and 6000 m2 space (Figure 1). At MaFTech center, currently there are 15 faculties as well as over 100 students engaging in membrane engineering research. They are mainly divided into 6 research groups: 1.Bio-process group, 2.Organic membrane group, 3.Gas separation group, 4.Water treatment group, 5.Film and membrane coating group, 6. Membrane material synthesis group. By integrating the work of these groups, MaFTech's research covers a great variety of membrane technology from basic to applied perspectives. Now the research is conducted intensively and synergistically at the new building.

Figure 1 – MaFTech building with unique membrane structure designed decoration

MaFTech's academic focuses are not only domestic but also international. It has been paying effort on building up connections with world renowned membrane research centers. Currently, it has established official linkages with 15 famous membrane research centers in Asian and Oceanian areas (Taiwan, Korea, China, Hong Kong, Australia, Indonesia, EU, Singapore and Malaysia). In order to enhance research and educational collaboration among MaFTech and its overseas partners, MaFTech center initiated an annual international membrane workshop called iWMK in Kobe in 2014. It is a

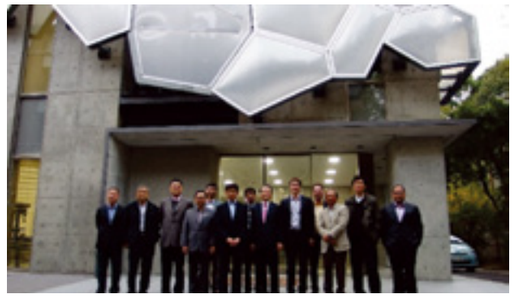


Figure 2 - Representatives from overseas partners (iWMK2016)

Kobe University based academic event supposed to be held every year at Kobe University (Figure 2). Within iWMK, we invite all of our partners with MOU (Memorandum of Understanding) signed to give presentations on their latest research. Then all of the members have closed discussion and exchanges on such presentations. We welcome all people from academic and industrial domains to join the iWMK. Apart from academia, MaFTech center also play a key role in collaboration with industry. By cooperating with the off-campus organization called Organization for Membrane and Film Technology, it is now collaborating with more than 74 membrane related companies in Japan (Figure 3). Over tens of co-research projects are now in progress by utilizing MaFTech's latest research facilities.

Regarding the research which focuses on membrane utilized water treatment, now we are implementing the research mainly via the following aspects, 1) membrane for water reuse and desalination with considerably low energy consumption, 2) strong anti-fouling membrane based on new materials, 3) energy production by membrane process, 4) innovative separation system by using our newly developed membrane. The major activities will be introduced as the following.

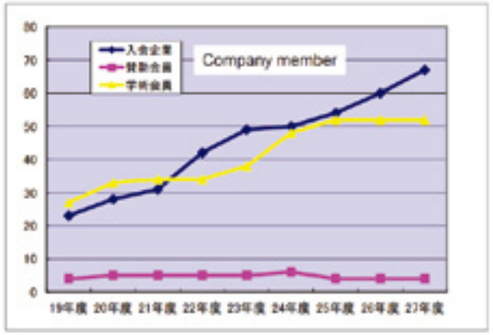
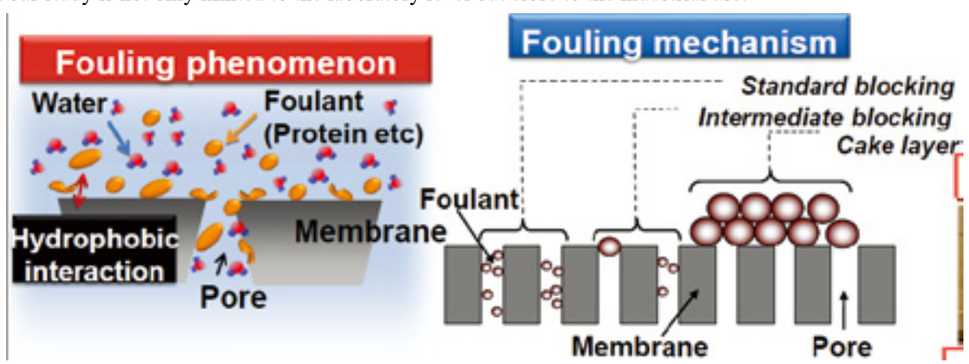


Figure 3 – Members of the Organization for Membrane and Film Technology keep increasing

The membrane process for water treatment such as desalination, wastewater treatment and enrichment of products mainly includes three processes, i.e. reverse osmosis (RO), forward osmosis (FO) and membrane distillation (MD). In principle the transport mechanism of RO and FO is basically the same. The MaFTech center focuses on the development of novel materials and membranes such as mixed matrix membrane, biomimetic membrane to applications environmental and economic processes.

One of the MaFTech's focused membrane research is on membrane fouling. Membrane fouling is caused by the adsorption of organic macromolecules to the membrane surface (Figure 4). It results in a severe permeability decline during the water filtration. To improve the antifouling property of the membrane, MaFTech center aim to develop novel blend or copolymer membranes. Since nowadays there are still too many factors in the membrane fouling not yet understood, we pay a large amount of effort on the study of fouling mechanism. In order to have a comprehensive understanding of membrane fouling, our research covers experimental and theoretical perspectives. Additionally, via co-research with companies, the outcome of our study is not only limited to the laboratory level but close to the industrial use.



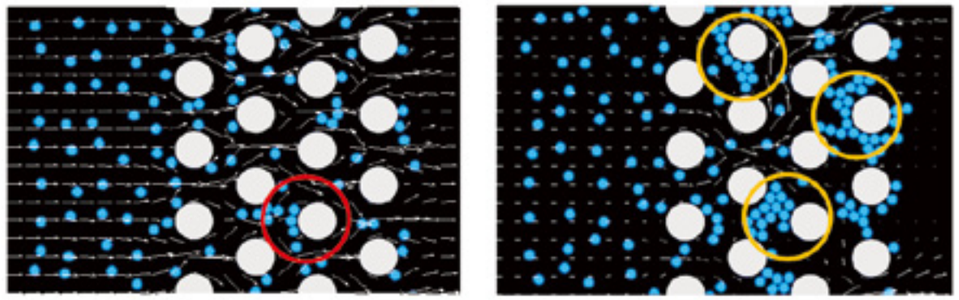


Figure 4 – Mechanism of membrane fouling

The fabrication of membrane is another major field in our research. Regarding the FO membrane research, we have successfully developed high performing FO membrane with the highest fluxes in world, not only the FO flux can be controlled as desired but also it suits the configuration of flat sheet and hollow fiber flexibly (Figure 5). Moreover, when considering the industrial use, since the module analysis is important to design and optimize full-scale FO desalination plant, our research also covers the FO module performance analysis. This approach will accelerate the laboratory research outcome to real industrial application.

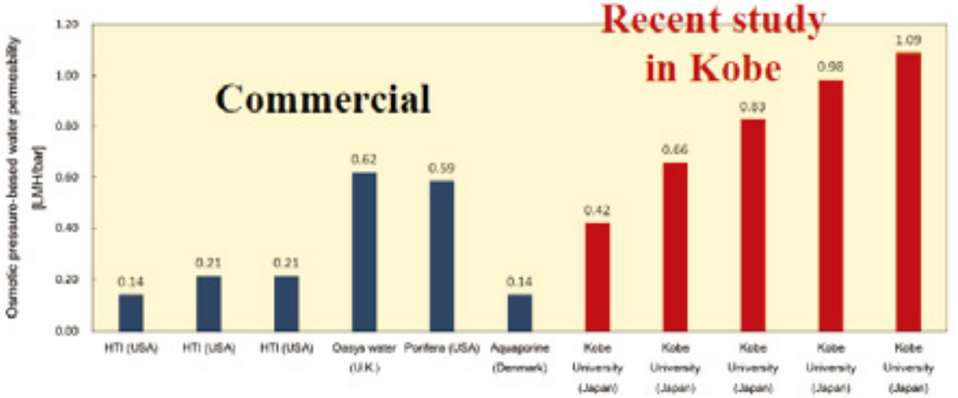


Figure 5 – High performing FO membrane with the highest fluxes in the world

Other research such as the study on biomimetic membrane and its fabrication method is also conducted at MaFTech center. We believe the research outcome will help develop the next generation membrane with great performance increase. Also, we propose hybrid system with low energy, cost as well as high recovery ratio for waste water treatment and desalination process, as FO/RO, NF/FO/RO hybrid system, moreover, investigate fouling behavior and mechanism on the membrane surface through molecular dynamics (MD) and three dimensional phase-field simulations.

As an integrated large scale research unit of membrane technology, MaFTech center's research is highly diverse and multi-perspective. Apart from water-centric research, we also conduct advanced research on gas separation, organic thin films, coating process etc. Our goal is to contribute to the achievement of a sustainable society in future, by utilizing membranes and the innovations in membrane processes.

Production of Biodegradable Polymers (Polyhydroxyalkanoate - PHA) through Biological Processes: Challenges and Opportunities

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Abstract:

Polyhydroxyalkanoate (PHA) belongs to the polyester group with physicochemical properties similar to various plastics made from petroleum. However, it is biodegradable and can be produced biologically using various substrates including organic wastewater (Du et al., 2001). This makes PHA an alternative to petroleum-based plastics used today. Currently, the commercial PHA branded with different trade names, such as Biopol, Metabolix, Nodax, etc. is produced from glucose using different species (Magdouli et al., 2015). It was developed as early as 1976 by ICI, however the production was terminated in 1998 for a number of reasons (Koller et al., 2016). Recently, on July 6, 2016, Newlight Technology (USA) and Paques Holding bv (the Netherlands) have come to an agreement that will allow Paques to manufacture, process and sell bioplastics (PHA) based on Newlight's biocatalyst process to convert greenhouse gases (methane) to PHA (named AirCarbon) at a rate of up to 1.3 million metric tons/year.

However, the drawback is that the PHA production cost is still much higher than that of petroleum plastics, due to the cost of the substrate (Bengtsson et al., 2008). On the other hand to use the pure culture also involves the high operational costs due to media sterilization and reactor maintenance (Reddy and Mohan, 2012a). The potential reduction in cost is using organic material from agriculture and food industry wastewater as much as possible and mixed cultures system as the microbial agent (Din et al., 2012; Reddy and Mohan, 2012b).

In this paper, an example of PHA production from tapioca industrial wastewater using mixed culture from an activated sludge done in our laboratory is presented. The aims of our study were treating tapioca- processing wastewater to produce PHA and remove COD. We carried out experiments using a SBR under four conditions of aerobic-anaerobic period combination. The content of PHAs produced and removal efficiency of COD were observed (Setyawati et al., 2012). And other example of PHA production from VFA (volatile fatty acids) using a pure culture of is also discussed. This study is focused on the production of PHA by Ralstonia eutropha JMP 134 in bioreactors with different operation modes by utilizing volatile fatty acids (VFAs) from palm oil mill effluent (POME) as precursors (Setiadi et al., 2015).

Although there has been an increase in research on this topic in the last twenty years, the industrialization of this product is still a challenge. The sustainability of PHA production in the near future will be dependent on several factors, such as strain selection, feedstock selection, bioreactor cultivation mode, downstream processing and product processing development. This challenges and opportunities will be discussed in this presentation.

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"CdS Sensitized Highly Ordered Titania Nanotubes Assemblied in a Modified Dyes Sensitized Solar Cell for Hydrogen Generation“

Position: Senior Lecturer
Name: Jarnuzi Gunlazuardi

Water splitting induced by visible light is one of the interesting methods to produce fuel (hydrogen), since water and solar rays are abundant in our earth, while hydrogen is considered as a clean fuel. However to split the water into hydrogen and molecular oxygen by visible light induction is a difficult task. The process is an Up Hill reaction, thus needs a proper catalyst and catalysis system reaction to do so. Titania (TiO_2 crystal) was reported as being able to split the water[1)], but needs light with a wave length less than 410 nm (not often present in solar rays that have reached the earth surface). Fortunately, Titania can be composited with other small band gap semiconductors which have slightly higher conduction band levels (e.g. CdS). Thus the visible light can excite the electrons of CdS to its conduction band level, then flow down to the Titania's conduction band. Hence the CdS/Titania system is considered as a visible light active semiconductor composite[2)]. Having this system along with the ability to morphologically control of Titania film having highly ordered nanotubes array[3,4)], we develop a system that has the potential to produce hydrogen from water under induction of visible light.

Highly Ordered Titania Nanotubes (HOTN) arrays have been successfully prepared by electrochemical oxidation (anodization) of titanium metal sheets in a viscous electrolyte. The electrolyte is comprised of ethylene glycol and water containing fluoride ion. By varying anodization voltage (20 – 60 volts) and time (30 – 120 minutes), at certain electrolyte composition (ethylene glycol/ water/F^-), a typical tube length (2 - 7 μm), inner tube diameter (40 – 80 nm), and thickness of the tube's wall (10 – 27 nm) can be controlled. The prepared HOTN then was sensitized by CdS nano particle by a SILAR (successive ionic layer adsorption and reaction) method[5)]. The resulting CdS/HOTN showed an excellent response toward visible light

The obtained CdS/HOTN was then employed to construct a modified dyes sensitized solar cell (DSSC) with catalysis zone extension[6)]. To assemble the modified DSSC, the HOTN sheet was prepared carefully, in which half of the HOTN was sensitized by CdS (hence CdS/HOTN), dedicated as DSSC zone and the other half part was left uncovered, managed as a catalysis zone. The DSSC zone is a sandwich of CdS/HOTN, electrolytes (Na_2S/S; KCL in methanol water), and Pt/SnO_2-F Glass. Upon absorbing light, the CdS in the DSSC produce excited electrons that flow to Titania and subsequently migrate to the catalysis zone. Free electrons in the catalysis zone eventually reduce protons (water) in its adjacent to generate hydrogen. The deficit electrons in CdS semiconductor (valence band) will be compensated by electrolytes in the DSSC zone, which will have uptake electrons from the counter electrode in the catalysis zone. So in the catalysis zone there will be reduction reaction of water (proton) to produce hydrogen (acceptor electron from the DSSC zone) and oxidation reaction of water to produce molecular oxygen or hydroxyl radical (donor electron to the DSSC zone). As long as light strikes the DSSC zone the catalysis zone will eventually produce hydrogen.

The above modified DSSC which is employing CdS/HOTN absorbs visible light and converts it to energy which induces a chemical reaction in the catalysis zone to produce hydrogen from water. In our typical modified DSSC, when the active counter electrode (semiconductor) was being employed, the system can split water to hydrogen and molecular oxygen, by solely visible light, thus a kind of artificial photosynthesis.

The proof of concept and features for further development will be discussed.

Key words: Water Splitting; Hydrogen; Titania nanotubes; Artificial photosynthesis

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Membrane Technology for CO2 Separation in Kobe University
— Ionic Liquid Impregnated Gel and Ceramic Membranes —

Graduate School of Science, Technology and Innovation, Kobe University
Tomohisa Yoshioka

1. Introduction

A membrane separation process is known to be energy saving in comparison with other separation processes such as sorption or adsorption, and also a small footprint process due to its compact module volume. Gas separation is one of the potential applications of membranes and is under active research and development. Carbon dioxide separation by membranes, however, has not led to practical use on an industrial scale. Since the increase in CO2 concentration in the atmosphere is recognized as one of the reasons for recent global warming and climate change, a high reduction target of CO2 emissions was put forward after the Kyoto Protocol in 1997, and several research projects on CO2 capture, storage, and its effective utilization are in progress in Japan. Organic polymeric membranes such as polyimide, cellulose acetate, polysulphone, and polycarbonate membranes have been developed and were well studied for their applications to gas separation processes1). In addition to these membranes, new polymeric membranes of thermally-rearranged (TR) polymer membrane and PIM (Polymer of Intrinsic Microporosity) membrane are also recently developed and are expected to be used for CO2 separation processes2,3). A facilitated transport membrane is another candidate that can be applied to CO2 separation processes. This type of membrane contains alkali metal salt, amine compound, or polyamidoamine dendrimer as a CO2 carrier that have special high affinity to CO24,5,6). These organic based polymeric membranes seem to be promising, while even more improvements for their membrane performance such as mechanical strength, stability, gas permeability and selectivity are required.

In Kobe University, we have the first Center for Membrane and Film Technology in Japan, and are working on development of membrane and membrane separation processes for water treatments and gas separations. Concerning CO2 separation membranes, other than the above organic polymeric type membranes, we are focusing on ionic liquid impregnated gel membranes, and ceramic based organic-inorganic composite membranes.

2. Ionic liquid impregnated gel membranes

In recent years, CO2 separation membranes which utilize thermally and chemically stable ionic liquid as a CO2 separation medium are being developed all over the world. There are several scientific and technological reports on developments and research works carried out in Japan about facilitated transport membranes with CO2 reactive ionic liquid as a CO2 carrier7-10), ionic liquid impregnated gel (so-called ion gel) membranes11,12), polyimide-ionic liquid composite membranes13,14), and porous ceramics-ionic liquid composite membranes15,16).

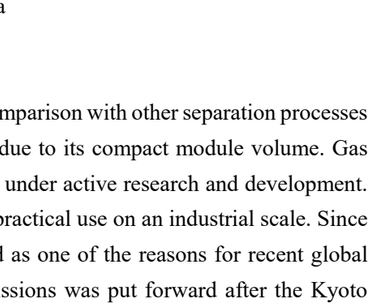

Fig. 1 Snapshot of an example of ion gel membrane. The membrane thickness is around 300 μm.

The Center for Membrane and Film Technology in Kobe University has successfully developed ion gel membranes with CO2 reactive ionic liquid as a CO2 carrier. Figure 1 is an example of the appearance of the ion gel membrane. The concentration of CO2 reactive ionic liquid impregnated in a gel network was 80 wt%, and it showed high mechanical strength. The ion gel membrane whose thickness was 58 μm showed CO2 permeance of 110 GPU and CO2/N2 selectivity of 100 for CO2/N2 gas mixture (CO2 partial pressure = 10 kPa) at 373 K (Fig. 2). The ion gel membrane can hold a large amount of ionic liquid in a gel network, which guarantees its stability, and also provided a high CO2 permeance and CO2/N2 selectivity as a normal liquid membrane. A thinning technology of the membrane is currently a key factor for the practical application of the ion gel membrane.

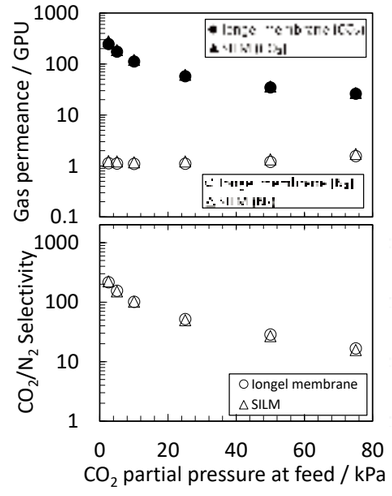

Fig. 2 CO_2 partial pressure dependency of the ion gel membrane and supported ionic liquid membrane containing tetrabutylphosphonium prolinate as the CO_2 carrier (T = 373 K, P_{feed} = $P_{permeate}$ = atmospheric pressure, and relative humidity = 0%).[12)]

3. Ceramic-based organic-inorganic composite membranes

Microporous amorphous silica membranes and metal doped silica membranes were reported to have high CO2 permeance and CO2/N2 selectivity17-19). However, due to instability of silica membranes in water vapor and difficulty in membrane fabrication, silica membranes have not been in practical use for CO2 separation processes yet. In order to improve instability of silica membranes, silica-zirconia composite membranes for CO2 separation have been studied, while their membrane performance is not still insufficient because of difficulty in pore size control of the membranes 20). The advantage of the sol-gel derived ceramic membrane is its high permeance, however, since the affinity to CO2 of amorphous silica membranes is not so large compared to organic polymeric membranes, a precise pore size control technology is required to utilize molecular sieving effect of microporous ceramic membranes for gas separation17). Therefore, from the viewpoint of pore size control in sub-nano scale and CO2 affinity control, ceramic-based new CO2 separation membranes are under research and development.

TiO2 and ZrO2 materials have excellent thermal and chemical stability. However, since both of the above materials have a crystalline structure, it is not easy to control the pore size of sol-gel derived TiO2-ZrO2 membranes with micropores for gas separation. It is reported that a useful amorphous structure for gas

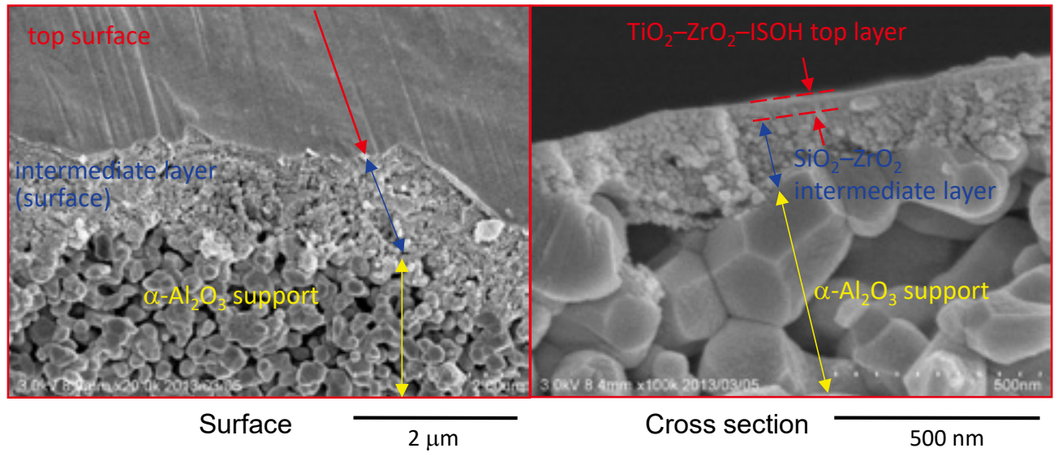

Fig. 3 FE-SEM snapshots of TiO_2–ZrO_2–ISOH membrane.[23)]

separation could be prepared by combination of TiO2 and ZrO221). In addition, gas separation membranes could be prepared by addition of chelating ligands22,23). The aim of the investigations is the development of new TiO2-ZrO2 membranes for CO2 separation and we considered the effect of dopamine (DOA) with amino group as chelating ligands on CO2 adsorption and permeation characteristics. Figure 3 shows FE-SEM snapshots of an example of TiO2–ZrO2–organic chelate composite membrane for two different magnifications focused on the surface and cross section. A very thin smoothed TiO2-ZrO2-ISOH top layer on SiO2-ZrO2 intermediate layer was formed whose thickness was less than 100 nm. Figure 4 shows N2 and CO2 adsorption isotherms for ordinal silica and TiO2-ZrO2-chelate gel powders. TiO2-ZrO2-DOA gel powder showed higher CO2 adsorption loading than silica in spite of its lower BET surface area. This result suggests that amino group remained in the TiO2-ZrO2 amorphous structures and it effectively worked to enhance the affinity to CO2 molecule. Figure 5 shows molecular size dependence of gas permeance at 200 °C for TiO2-ZrO2-DOA membranes calcined at 350 °C in N2. The TiO2-ZrO2 membranes with metalalkoxide:DOA ratio of 2:1 and 2:1.5 showed He/N2 permselectivity of 42 and 160 respectively, and CO2/N2 permselectivity was around 6. These values are larger than the Knudsen selectivity. The remaining organic matters originated from DOA might reduce the pore size of pinholes and also effectively have loosened the TiO2-ZrO2 amorphous structures to increase permeance of small He and CO2 molecules.

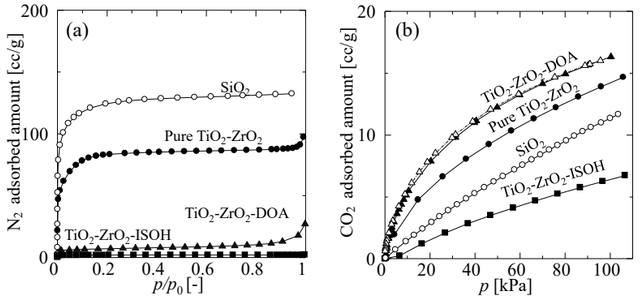

Fig. 4 Adsorption isotherms of N_2 at 77K (a) and CO_2 at 308 K (b).

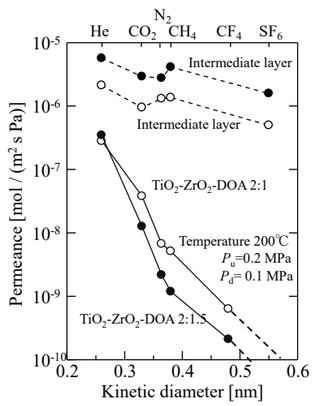

Fig. 5 Kinetic diameter dependencey of gas permeance.

4. Conclusions

A membrane separation technology is promising for CO2 separation from flue gas, syngas, natural gas and biogas due to its energy saving and low cost features. The Center for Membrane and Film Technology in Kobe University is working on development of CO2 separation membranes, especially focusing on facilitated transport, ionic liquid gel, and ceramic membranes. Potentiality of the above mentioned membranes would give a significant impact on the current CO2 capture technologies. Since CO2 separation performance of the membranes developed in the membrane center is world top level, and some of them would meet to a required performance and be waiting for practical applications. These membranes and membrane processes would be implemented in the not-distant future.

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— Using Propolis from Indonesian Honey Bees to Develop Products that Promote Human Health —

Lecturer and Researcher in Universitas Indonesia
Dr. Muhamad Sahlan

Indonesia has several kinds of honey bees such as Apis dorsata, A. cerana, A. melifera and stingless bee Trigona. There are 30 species of Trigona in Indonesia that have been identified. As well as honey, stingless bee Trigona produces much propolis. Propolis is a complex material containing resins, and it is mixed with wax to create a sealing material in their hive, smooth out the internal walls, and protect the entrance against intruders. Propolis color varies depending on its sources; mostly it seems yellowish green to dark brown and has an aromatic odor. Our research focus is exploring the novel concept of the separation process and developing products of Indonesian Propolis for advanced applications, especially for promoting human health. Our technology can separate resinous extract and wax. We applied the extract and the wax to several health care products such as liquid propolis extract for food supplements, hard candy, the propolis fluoride, the CPP-ACP propolis gel, mouthwash containing propolis extract, and chewing gum containing wax propolis for oral health care. The wax propolis is also applied in medicated soap, especially to treat Leucorrhea disease.

Keywords: Indonesian propolis, separation, products, health care.

PRECONFERENCE SEMINAR
IN MEDICINE AND HEALTH CARE
Kobe University Academic research and Education Forum (KUAREF)
Universitas Gadjah Mada


SUNARTINI
Kobe University Alumni
Dept. of Pediatrics, Fac. of Medicine UGM

1

PRECONFERENCE SEMINAR
IN MEDICINE AND HEALTH CARE
Kobe University Academic Research and Education Forum (KUAREF)
Universitas Gadjah Mada

Universitas Gadjah Mada is one of 3 Core University in Collaboration with ICMR Kobe University

The Programs are under the JSPS Exchange Scientists Program and Ronpaku Doctorate Program start from 1979
During that periods Universitas Gadjah Mada more consentrate in Perinatology
We conduct more than 5 times International Seminars in Perinatology

2

PRECONFERENCE SEMINAR
IN MEDICINE AND HEALTH CARE

Since 2003 the collaboration improve and extend especially with Department of Public Health and Epidemiology Genetics under Prof. Nishio and Faculty of Health Science under Prof Takada Beyond this period there was a big earthquake the role of Our Colleague from Kobe were very big and help full. We had no experience how to manage this condition. Start after that in very intens collaboration with Kobe University we conduct Annual Seminar on many aspects of Disaster. Ten times of seminar and workshop have aleady done. That's why the 3rd session is about Disaster

3

PRECONFERENCE SEMINAR
IN MEDICINE AND HEALTH CARE
Kobe University Academic Research and Education Forum (KUAREF)
Universitas Gadjah Mada

Seminar Overview Prof. Satoshi Takada
Session I : Genetic Analysis In The Field of Child Neurology
- Diagnosis of Spinal Muscular Atrophy (SMA) Prof. Hisahide Nishio
* Spinal muscular atrophy (SMA): Advances in therapeutic development : Nur Imma Fatimah Harahap, MD, PhD. (Kobe University, JAPAN)
- The role of *SCN1A* gene in genetic /generalized epilepsy with febrile seizure plus (GEFS+) in Indonesian population : Prof. ES Herini (UGM)

4

PRECONFERENCE SEMINAR
IN MEDICINE AND HEALTH CARE
Kobe University Academic Research and Education Forum (KUAREF)
Universitas Gadjah Mada

Session II : Infectious Diseases and Treatments
- Anti-Flavivirus Compounds From Natural Resources : Prof. em Hak Hotta (Kobe Univ)
- Molecular Mechanisms of Anti Tuberculosis Drugs Resistance : Triwibawa MD PhD (UGM)
- Self Expanding Resilience through Well-Chained and Partnership-Based Disaster Preparedness Program : Prof. Djoko Legono (UGM)

5

PRECONFERENCE SEMINAR
IN MEDICINE AND HEALTH CARE
(KUAREF) - Universitas Gadjah Mada 20176

Session III : Establishment of UNESCO Chair
- **Drawing Disaster and Recovery: Five Years of the Popoki Friendship Story Project : Ronni Alexander (Kobe Univ)**
- **Disaster and Gender Inquiry in a Stricken Area : : Tomoko Nakahara (Kobe Univ)**
- **"Kobe Style" How to share the gender aspects of disaster Yunko Okada (Kobe Univ)**
- **Interprofessional Teamwork in Community Rehabilitation Affected by Earthquake onMay 27th 2006 In Bantul Yogyakarta Indonesia. Prof. Sunartini (UGM)**
- **Maternal Health in Disaster Situation ' Elsi Dwi Hapsari**

6

Educational Collaborate Projects of Kobe University and Some Indonesian Universities

Takada Satoshi
Professor, Graduate School of Health Sciences and
Vice President of Kobe University

7

Educational Collaborate Projects

1. Continuous education collaboration between the Kobe university and several universities in Indonesia
2. "Education of medical and health science leaders in the coming generation, in cooperation and collaboration with ASEAN countries", as a currently project of Kobe University

8

Educational Collaborate Projects

3. Another important project is the Educational Disaster Management undertaken in collaboration with Universitas Gadjah Mada
4 JGID stand for the Japan Initiative for Global Research Network on Infectious Disease (J-GRID)

9

Diagnosis of spinal muscular atrophy

Hisahide Nishio, MD, PhD.
(Kobe University, JAPAN)

Prof. Nishio explained about clinical and laboratory confirmation using genetic analysis of SMA disease
It is very useful not only for diagnosis but it is more important for treatment and prevention

10

Diagnosis of spinal muscular atrophy

1. Spinal muscular atrophy (SMA) is a common neuromuscular disorder with an autosomal recessive inheritance trait.
2. In 1995, the survival motor neuron gene (*SMN*) was identified as a candidate gene for SMA. , *SMN1* and *SMN2*. *SMN1* is absent from more than 95% of SMA patients and deleteriously mutated in the remaining patients. *SMN1* has been recognized as an SMA-causing gene.

11

Diagnosis of spinal muscular atrophy

3. *SMN2* was previously considered to be dispensable because approximately 5% of normal individuals do not carry the gene High copy number of *SMN2* can partially compensate for the lack of *SMN1*.
   Thus, *SMN2* is now considered to be an SMA-modifying gene.
4. Identify the mutation in *SMN1* and determine the copy number of *SMN2*. the outline of methods for *SMN* gene analysis in my presentation, as well as molecular findings observed in our SMA patients.

12

Summary
SMA diagnostic methods

PCR-RFLP* method
*Restriction Fragment Length Polymorphism

MLPA* assay
*Multiplex Ligation Probe Amplification

HRMA* method
*high-resolution melting curve analysis

13

Conclusion

1. *SMN1* deletion causes SMA.
2. *SMN2* copies modify SMA symptoms.
3. Filter paper card can be used for gene analysis.

14

Spinal muscular atrophy (SMA): Advances in therapeutic development

Nur Imma Fatimah Harahap, MD, PhD.
(Kobe University, JAPAN)

Dr. Ima as an assistant of Prof Nishio work hard in basic and clinical research in Kobe University to find out the new model for management of SMA. The results of this research will be suitable for managing SMA in children. Hope for the future live

15

Spinal muscular atrophy (SMA): Advances in therapeutic development

1. Spinal muscular atrophy (SMA) is a neuromuscular disorder with autosomal recessive inheritance trait
2. *SMN2,* the homologue copy of *SMN1* which always retains in SMA patients. *SMN2* is considered to be an SMA-modifying gene.
3. Current strategies can be classified into three groups.
   - **The first , "*SMN1*-introduction strategies"**
   - **The 2nd "*SMN2*–targeting strategies"**
   - **The 3rd "Non-SMN-targeting strategies"**
4. confidence that SMA will be able to be treated in the near future.

16

Treatment Strategy

1. Promoter activation
2. Splicing correction
3. Protein stabilization

17

Valproic Acid

2009
VPA improved the motor function in SMA patient. (Swoboda et al.)

2012
VPA increased *SMN* transcript and protein. (Harahap et al.)

18

Salbutamol

2007

Salbutamol increases SMN transcript and protein level in SMA fibroblasts cells. (Angelozzi et al.)

2011

Salbutamol might increase SMN transcription level in SMA patients. (Tizziano et al.)

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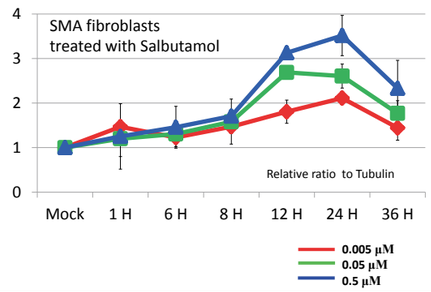
SMN Protein Levels



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Summary

Salbutamol inhibits ubiquitin-mediated SMN degradation

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The role of *SCN1A* gene in genetic/ generalized epilepsy with febrile seizure plus (GEFS+) in Indonesian population

Prof. Elisabeth S. Herini
Dept. of Pediatrics, Faculty of Medicine UGM

Prof. Herini done her research in Kobe. This research was a part of her dissertation
She found that SCN1A gene has a significant role in clinical manifestation of generalized epilepsy with febrile seizure plus (GEFS +)

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The role of *SCN1A* gene

1. Genetic/Generalized epilepsy with febrile seizure plus (GEFS+) is the most important familial epileptic syndrome
2. Clinical manifestation of GEFS+ spectrum varies from classic febrile seizure to the most severe type which is Dravet Syndrome/ severe myoclonic epilepsy in infancy (SMEI).

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The role of *SCN1A* gene

3. Clinical manifestation is Dravet syndrome and 3 of 20 (15%) patients that diagnosed as GEFS+, had SCN1A mutation.
4. more than 60 heterozygous pattern *SCN1A* mutations, which many are mutations, have been detected in Dravet syndrome and GEFS+.

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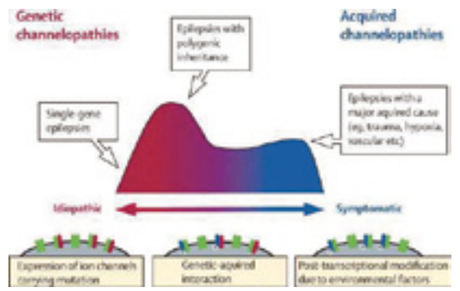
Channelopathy



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GEFS+

GEFS+

- The most important familial epileptic syndrome
- It links febrile seizure with various other epileptic seizures/syndrome
- Genetic relations between (1) benign and severe and (2) focal and generalized epileptic disorders

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Genotype-Phenotype Relationship

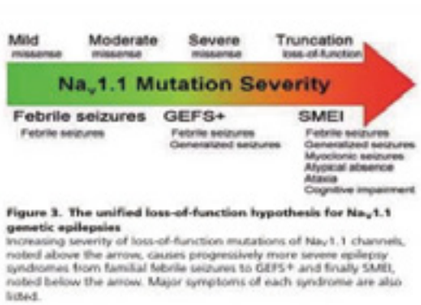

Figure 3. The unified loss-of-function hypothesis for Na$_v$1.1 genetic epilepsies
Increasing severity of loss-of-function mutations of Na$_v$1.1 channels, noted above the arrow, causes progressively more severe epilepsy syndromes from familial febrile seizures to GEFS+ and finally SMEI, noted below the arrow. Major symptoms of each syndrome are also listed.

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Conclusion

- *SCN1A* gene has a role in the pathogenesis of GEFS+ in Indonesia
- Further study to investigate the other genes involved in GEFS+ is mandatory for better understanding of its pathogenesis and therapy in the future.

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References

1. Herini ES, Gunadi, et al. (2010)Generalized epilepsy with febrile seizures plus (GEFS+) spectrum: clinical manifestations and SCN1A mutations in Indonesian patients. *Epilepsy Research* 90(1-2):132-9.
2. Herini ES, Gunadi, et al. (2010) Novel SCN1A mutations in Indonesian patients with severe myoclonic epilepsy in infancy. *Pediatrics International* 52(2):234-9.

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Anti-Flavivirus Compounds From Natural Resources

Hak Hotta, M.D., Ph.D.
Professor Emeritus, Kobe University
Endowed Chair and Professor, Department of Vaccine and Drug Development
Kobe University Graduate School of Health Sciences

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Anti-Flavivirus Compounds From Natural Resources

1. Dengue virus (DENV) and hepatitis C virus (HCV) belong to the same virus family *Flaviviridae*
2. DENV infection and HCV infection cause a global health problem
3. The potential use of those substances as seed compounds to develop antiviral drugs against ENV and/or HCV

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Anti-Flavivirus Compounds From Natural Resources

4. Natural resources are a good candidate for drug screening. It has been aiming at identifying an antiviral compound(s) against DENV and/or HCV isolated from natural resources, such as medicinal plants, microbes, insects and other animal products
5. It had identified a number of antiviral compounds against DENV and HCV from medicinal plants, microbes and anils.

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Molecular Mechanisms of Anti Tuberculosis Drugs Resistance

Tri Wibawa
Department of Microbiology Faculty of Medicine
Universitas Gadjah Mada

Dr. Tri Wibawa explain that Tuberculosis control is further hampered by the emergence of multidrug resistance (MDR), which is strain that resistance to at least rifampicin and isoniazid More recently, severe forms of drug resistance which is called as extensively drug-resistant (XDR)

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Molecular Mechanisms of Anti Tuberculosis Drugs Resistance

1. Tuberculosis is a serious health problem in Indonesia. In a recent decade, there was no significant invention of new anti tuberculosis drugs reported
2. Tuberculosis control is further hampered by the emergence of multidrug resistance (MDR), which is strain that resistance to at least rifampicin and isoniazid,

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Molecular Mechanisms of Anti Tuberculosis Drugs Resistance

3. The tuberculoses therapy relay on the conventional drugs, such as; Isoniazid, Rifampicin, Pyrazinamides.Ethambutol, and Streptomycin.
4. Tuberculosis control is further hampered by the emergence of multidrug resistance (MDR), which is strain that resistance to at least rifampicin and isoniazid
5. More recently, severe forms of drug resistancewhich is called as extensively drug-resistant (XDR)

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Self Expanding Resilience through Well-Chained and Partnership-Based Disaster Preparedness Program

Djoko Legono
Department of Civil and Environmental Engineering
Faculty of Engineering, Universitas Gadjah Mada

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Self Expanding Resilience …….

1. The attempts those have been made to establish the community resilience against possible disasters those might take place at a certain area.
2. The well-chained process is applied to provide the concept of the 'working with' rather the 'working for' as stated by previous worker (Salter, et al., 1987).
3. The partnership-based is underlined as a part of self funding and initiative activities and preparedness those become essential factors towards the self expanding activities and therefore also maintain further sustainability of the program

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Drawing Disaster and Recovery: Five Years of the Popoki Friendship Story Project

Ronni Alexander
Professor Graduate School of
International Cooperation Studies Kobe University

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Drawing Disaster and Recovery:…..

1. This project, run by the Popoki Peace Project, began in Sendai, and has included many locations within and outside of Japan, with a particular emphasis on Otsuchi-cho, Iwate Prefecture
2. How the Popoki Friendship Story Project has evolved over the past five years. In particular at:
   - (1) the importance of art-making in the expression of the experience of disaster and recovery;
   - (2) the importance of emotion and feeling safe in narratives of disaster and recovery; and
   - (3) what this project can tell us about gender and disaster.

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Disaster and Gender : Inquiry in A Stricken Area

Tomoko Nakahara
Assistant Professor Gender Equality Office,
Kobe University

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Disaster and Gender Inquiry in A Stricken Area

1. To clarify present situation in a area whichisone of the stricken area by The Great East Japan Earthquake, especially to disaster effects on gender.
2. The disaster situation, living condition, work condition, individual income, household income, health condition, family relation, hope for the future and so on.

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"Kobe Style" How to share the gender aspects of disaster

Yunko Okada (Kobe Univ)

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"Kobe Style" How to share the gender aspects of disaster

1. The Great Hanshin Awaji Earthquake was first one that women advocated the need for consideration of the gender aspects of disaster in Japan
2. The Gender Equality Office of Kobe University decided to establish the UNESCO Chair focus on this issue in cooperation with researchers of Kobe University and of foreign institutions

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"Kobe Style" How to share the gender aspects of disaster

3. To consider the gender aspects of disaster for Kobe citizens and the government officers of some countries in Africa in preparation for the UNESCO Chair

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Integrated Mobile Rehabilitation A Model of Interprofessionals Teamwork Cummunity Rehabilitation After Earthquake

MAY 27 2006 IN BANTUL DISTRICT
YOGYAKARTA SPECIAL AREAS INDONESIA

Sunartini
Faculty of Medicine
Universitas Gadjah Mada

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INTEGRATED MOBILE REHABILITATION

Content of Presentation

1. Description of Earthquake on May 27, 2006
2. The problems of victims health care in the emergency phase
3. The role of Universitas Gadjah Mada after Yogyakarta earthquake
   a. Mini Hospital became the Real Hospital
   b. The Role of Nursing School - Faculty of Medicine UGM

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INTEGRATED MOBILE REHABILITATION

4. Integrated Mobile Rehabilitation, CBR-CEP SNUGM-JICA
   a. First Bath b. Second Bath
   c. Children House " Griya Lare Utami" (Kobe Funds)
5. Future Plan of School of Nursing UGM and Children House "Griya Lare Utami)

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INTEGRATED MOBILE REHABILITATION

1. Earthquake magnitude 6.2 RC struck Yogyakarta and Central Java on May 27th 2006.
2. Conducting Mobile Rehabilitation and Trauma Healing provided by Integrated Rehabilitation Team (nurses, physiotherapist, medical rehabilitation doctors, psychologist, and pediatricians)
3. Mobile Rehabilitation with Interprofessional teamwork empowering local community to support the victims to improve their own capacity and quality of live

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INTEGRATED MOBILE REHABILITATION

4. About 3750 victims were received medication, wound care and rehabilitation, physiotherapy, occupational therapy, psychological therapy.
5. Traning for producing handicraft or food and snacks for people with disabilities after earthquake so they can work daily return
6. Build Children House for Trauma healing, physiotherapy, occupational therapy and continued with establishment of inclusive underfive early education program,

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Jogja Earthquake 2006

- The great earthquake, magnitude 6.2 happened in Yogyakarta and Central Java in Indonesia on May 27,2006.

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Jogja Earthquake 2006

VICTIMS : MORE THAN 30.000 WERE INJURES
DEATH : 6.700

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EMERGENCY COMMUNICATION NETWORK

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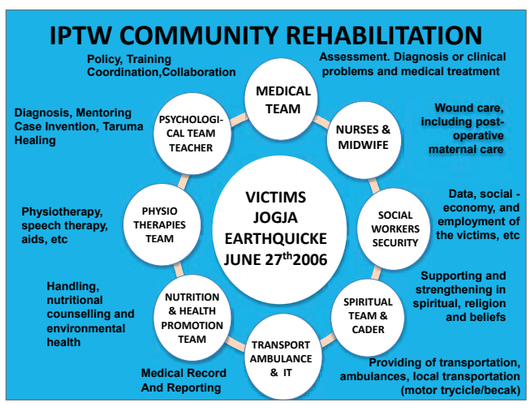

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The problems of victims health care in the emergency phase

Difficult transportation
Health facilities were destroyed
A big number of victims with various type of injury
It needs many operations → FIELD HOSPITALS

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First Bath Mobile Rehabilitation

1. *Providing rehabilitation services* by integrated health team (consist of nurses, physiotherapists, medical rehabilitation doctors, psychologists, and pediatricians) in the targeted areas in sub-districts/village level
2. Period : July – January 2007


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CHILDREN HOUSE "GRIYA LARE UTAMI"

The objective of Children House :
To become the centre for child potential development in rural area after earthquake
- To improve the welfare of children in rural area after earthquake
- To rehabilitate the victims (children) from physical and psychological trauma
- To give a special training for improving
- capacity and potency of children in art and handicraft
- To improve funds rising and social economy of the mother / family
- To improve community Empowerment

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Maternal Health in Disaster Situation

Elsi Dwi Hapsari

Department of Pediatric and Maternity Nursing,
Faculty of Medicine, Universitas Gadjah Mada

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Maternal Health in Disaster Situation

1. Health of women during pregnancy, childbirth and postpartum period in Indonesia is still become priority to be improved
2. In disaster situation, pregnant woman is one of vulnerable population because they are at risk of poor physical, psychological, or social health after disaster
3. Contraceptive method is a unique aspect in reproductive health of a woman that needs involvement of her partner/husband
4. several efforts are proposed to improve the maternal health in Indonesia especially in disaster situation

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KUAREF AND UNESCO CHAIR ARE GIVING US AN OPPORTUNITY TO IMPROVE OUR MUTUAL COLLABORATION WITH KOBE UNIVERSITY

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Terima kasih

ARIGATO GOSHAIMASHE

Sampun MATUR NUWUN

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Closing Remarks: Professor Noriyuki INOUE Executive Vice President in charge of International Exchange and Internal Control, Kobe University

Distinguished guests, honorable speakers, ladies and gentlemen.

It is truly an honor to make the closing remarks here since I am sure that today's forum was a meaningful event. Each and every presentation was illustrative of advanced research ongoing at Kobe University and Universitas Indonesia, and also of our shared interest in wide-ranging academic disciplines, from political science to membrane technology.

Moreover, the preconference held two days ago in Universitas Gadjah Mada was also fruitful as we heard from the report.

I am delighted to have witnessed the success of these events, which I am sure will be a further step toward closer cooperation between Kobe University and prestigious Indonesian universities, from which we had the honour of welcoming today's eminent speakers.

In recent years Kobe University has been rapidly and actively deepening its connection with overseas universities. One major strategy in this area is holding an international academic symposium like today's, and I sincerely hope that today's forum has provided a valuable opportunity to bring Indonesian and Japanese researchers closer and to move advanced research still forward.

On a final note, I would like to express my heartfelt appreciation for the generous support of Universitas Indonesia and Universitas Gadjah Mada in organising the preconference and today's forum. We sincerely look forward to cooperating with you again in the near future.

Thank you very much for your attention.

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