

A Paradigm for the 21st Century and Policy for Sustainable Development: Alternative Energy and Energy Efficiency

Hiroshi Komiyama

Abstract

In the 21st century, we human beings face a new paradigm: the Earth's limited resources, the aging of society and the explosion of intelligence. Brunei Darussalam, one of the advanced countries in Asia, will also certainly come to face issues emerging under this paradigm. Japan has experienced these problems ahead of the rest of the world, and is currently looking for proactive solutions. 'Vision 2050' was proposed by the author in 1999 and consists of three pillars: (1) Improve energy efficiency threefold; (2) Double the use of renewable energy; and (3) Establish recycling systems for materials. The 'Platinum Society' is a key to address many problems under the paradigm. It is a society where environmental problems are solved and elderly persons can live energetic lives. To realise the 'Platinum society', we need to launch new activities at a community level.

Keywords: *alternative energy, energy efficiency, Vision 2050*

This paper was presented by Hiroshi Komiyama who was a keynote speaker at the CSPS' International Conference on 'Alternative Energy and Energy Efficiency: Fuelling Economic Growth and Diversification for Brunei Darussalam' in July 2010. Hiroshi Komiyama is a distinguished and internationally respected leader in the field of chemical engineering, global environmental engineering and the structuring of knowledge. He was invited to become chairman of the Mitsubishi Research Institute in April 2009. He served as the 28th president of the University of Tokyo between 2005 and 2009, following a year each as vice-president and executive vice-president. Komiyama received his Bachelor's, Master's and Doctoral degrees in Chemical Engineering, all from the University of Tokyo, in 1967, 1969, and 1972 respectively. He became a full professor in the University of Tokyo's Department of Chemical Systems Engineering in 1988 and served as the dean of the School of Engineering from 2000 to 2002.

Alternative Energy for Economic Growth: Paths towards the Sustainable Development of Brunei

Youngho Chang

Abstract

Energy is an essential input for economic activity and at the same time it is a final good for consumption. The oil balance, defined as the difference between indigenous oil supply and domestic consumption needs, is still positive but the situation is unsustainable. Facing looming exhaustion of fossil fuel reserves, energy security is directly related to the economics and national security for Brunei. There are three broadly defined strategies that could help Brunei ensure energy supply: develop indigenous sources of fossil fuels, cooperate with other countries in the region, and develop and expand viable sources of renewable energy resources, including solar energy. A country like Brunei could become weakly sustainable if it secures the paths of natural resource use that lead to constant consumption per capita over time. If Brunei sustains a positive population growth and a sufficient level in technological progress, it should draw down oil and natural gas stocks at such a rate that the Hotelling r-percent efficiency rule is always being satisfied.

Keywords: *alternative energy, energy security, economic growth, weak sustainability, sustainable development*

This paper was presented by Youngho Chang who was a speaker at the CSPS' International Conference on 'Alternative Energy and Energy Efficiency: Fuelling Economic Growth and Diversification for Brunei Darussalam' in July 2010. Youngho Chang is an Assistant Professor of Economics at the Division of Economics and an Adjunct Senior Fellow at the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University, Singapore. He is also a Senior Fellow at the Energy Studies Institute (ESI), National University of Singapore. Apart from academic affiliations, he is a member of Technical Committee for Clean Development Mechanism (CDM) Designated National Authority (DNA), National Environment Agency, Singapore. He published his research papers in academic journals. Apart from academic publications, he carried out consultation projects for the public and private sector. He specialises in the economics of climate change, energy and security, oil and economy, and electricity market deregulation. His current research interests are oil price fluctuations and macroeconomic performance, the economics of energy security, and energy use and climate change. He received his Ph.D. (in Economics) from the University of Hawaii at Manoa, U.S.A.

Developing the Knowledge Economy and Integrated Employment Areas in Brunei Darussalam: The Innovation Challenge

Sasha Lennon

Abstract

A desire to transition the economy of Brunei Darussalam away from its dependence on the country's oil and gas resources to one which is more akin to that of a 'knowledge economy' underpins the government's policy of economic diversification. This paper explores the fundamental characteristics of a knowledge economy and knowledge-based industries as they apply to 21st century economic development. It then considers the concept of 'integrated employment areas' as a means of encouraging 'knowledge economy' business investment through land optimisation. Particular attention is paid to the critical success factors (such as location of land, size, configuration, amenity and infrastructure services) for establishing integrated employment areas in the Brunei context. As an example to consider through further research and analysis, the paper relates the integrated employment area concept to one segment of the developing knowledge economy, that being the creative industries. The creative industries have helped reaffirm 'place' as a driver of economic development. This is acknowledged by policy makers throughout the world who recognise the contribution that creative enterprises can make to urban renewal and revitalisation. Integrated employment areas (as evidenced by recent developments such as the Creative Industries Precinct in Brisbane, Australia for example) can provide many of the preconditions necessary for these new industries to develop and flourish. But, as the paper argues, this requires a strong commitment from the government. To this end, the paper concludes that in Brunei strategies for economic diversification will need to be supported by a strategic land use planning framework which promotes and facilitates co-ordination and integration of economic opportunity with physical planning. To achieve this will not only require innovation to grow new industry such as the creative industries (as just one example), it will also require, and in fact fail, without an innovative and collaborative government.

Keywords: *knowledge economy, innovation, land use, economic development, creative industries, diversification, integrated employment areas, collaboration, government*

Sasha Lennon (B.Ec., Grad. Dip. Advanced Economics) is a Director of SGS Economics and Planning Pty Ltd based in Brisbane, Australia. He specialises in regional economic development policy, activity centre planning, industrial and commercial needs assessments and policy advice concerning the creative industries and knowledge-based industries. He is a qualified economist and an Australian Certified Economic Developer (ACEcD) with Economic Development Australia (EDA). He is currently undertaking a Master of Journalism within the Creative Industries Faculty at Queensland University of Technology.

A Macro-Econometric Model of Brunei Darussalam

Koh Wee Chian

Abstract

Brunei Darussalam is heavily dependent on oil and gas, which accounted for more than half of GDP and more than 80 per cent of exports and government revenue in the past decade. Economic activity is mainly influenced through government expenditure, guided by 5-year National Development Plans. Economic diversification remains a major challenge as the economy is vulnerable to fluctuations in oil and gas production and exogenous price shocks. While inflation is not an immediate threat, unemployment is a concern as the labour force is growing faster than the demand for jobs. Economic recovery, expected global demand for energy and the rise in oil and gas prices will see the economy achieve real growth of 2.2 per cent in 2011. Despite the increase in exports, the real trade balance will decline as Brunei continues to be dependent on imports for domestic consumption. The inflation rate is projected to remain relatively low at 1.9 per cent while the unemployment rate is projected to increase to 4.8 per cent.

Keywords: *econometric modelling, economic forecasts, diversification*

Koh Wee Chian is an Associate Researcher at CSPS. He has previously worked in London and Singapore, mainly on roles covering research, analysis and quantitative modelling. His current research interests are in growth theory, development economics and international economics. He holds a Master of Science in Finance and Economics from the London School of Economics and Political Science, a Master of Social Sciences in Applied Economics and a Bachelor of Science (Honours) in Statistics from the National University of Singapore.

Overcoming Barriers to Move Forward to the Transactional Stage of E-Government for Brunei Darussalam: From the Perspective of Online Security

Yeoul Hwangbo and Hazri Kifle

Abstract

Brunei has initiated e-government and rolled out e-services, not just to achieve an efficient and effective public administration, but for national development. Despite the considerable efforts made, most developing countries have only conducted basic e-services such as providing information and face the challenge of rolling out fully fledged e-services for the public. More meaningful and significant e-government services are available through exploiting transactional e-services, including applying for government certificates, passports, business licences and paying taxes. Likewise, most countries which have implemented e-government were able to arrive at the emerging, enhanced, interactive stage without particular difficulties but might not be able to achieve transactional and connected e-services without an appropriate strategy. From consideration of the e-government surveys released by the United Nations Department of Social Affairs (UNDESA) between 2003 and 2010, there are crucial barriers that must be overcome before e-government can progress to the advanced stages. Types of e-government barriers have been identified through discussion with practitioners working for the E-Government National Centre (EGNC) and the Authority for Info-communications Technology Industry (AITI) in Brunei Darussalam. The research also deals with online security to ensure and promote secure transactional e-services and therefore draws on the national public key infrastructure (PKI), with particular emphasis on nationwide institutionalising, legal issues, and strategies needed to boost transactional e-government services. As a result, the National Brunei Public Key Infrastructure (NBPKI) can form the foundation to overcome the four barriers to transactional e-services and the practical recommendations would be useful in setting up secure transactional services.

Keywords: *e-government, e-government stage, online security, Public Key Infrastructure, PKI, transactional e-services, transactional stage*

Professor Yeoul Hwangbo is working for E-Government Research Centre (eG.InC) of Universiti Brunei Darussalam. He worked for E-Government Research Centre of KAIST as an e-government adviser for Korean government and conducted e-government projects as an international consultant of Asian Development Bank. His research interests include e-government policy, online security, e-commerce, and Science & Technology Innovation (STI). Hazri Kifle is currently holding the post of dean of the Faculty of Business, Economics and Policy Studies, Universiti Brunei Darussalam. His research interests include electronic government, science and technology policy and transport policy. He has conducted consultancy projects for several government agencies in Brunei in the areas of poverty, road safety, civil service innovation awards and corruption.