Peningkatan Publikasi Ilmiah sebagai Strategi UI menuju Research University

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Universitas Indonesia

Presentasi
Di Research and Academic Writing Colloquium
Rabu, 28 Agustus 2013

VISION & MISSION

Vision
To be acknowledged as a world-class research university and a center of excellence in science, technology, arts and culture

Mission
- To provide research-based higher education in the areas of Science, Technology, Arts and Culture.
- To provide higher education that empowers people and improves their quality of life.
University of Indonesia (UI) provides affordable, high quality higher education to approximately 40,000 students in a country with a large population (225 millions) presently undergoing rapid democratization, economic development, and decentralization.

Indonesia presently being the third largest democracy in the world, rapid democratization and various transformations taking place in the country are highly relevant to the challenges facing humanity in the 21st century.

Higher education will certainly play a significant role in such a transformation.

In order for UI to play a significant role in this transformation, it is required to evolve from a conventional teaching university to an innovative research university.

This short presentation is meant to outline the major changes presently taking place at this university, focusing on its research activity.
Penjabaran di UI

DI UI sendiri dalam pelaksanaannya konsep Universitas Riset dijabarkan a.l. sebagai:

- Terjadinya sinergi antara riset dan pengajaran, serta riset dan pengabdian masyarakat sehingga tercapai bentuk pengamalan Tridharma PT yg berintikan riset tapi tetap merupakan satu kesatuan yg utuh
- Semakin bertambahnya para periset yg mempunyai kompetensi & capaian keilmuan yg diakui secara internasional
- Peningkatan Anggaran Hibah Murni (AHM) secara kontinyu menuju angka 20% anggaran UI

Rasio Dana Riset Beberapa Univ Riset Kelas Dunia 2006 (ribuan US$)

<table>
<thead>
<tr>
<th></th>
<th>Unsponsored Research</th>
<th>Total Operating Expenditures</th>
<th>% Sponsored Research</th>
<th>Total Operating Revenues</th>
<th>%</th>
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<tr>
<td>Harvard</td>
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<td>19.6</td>
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</table>
Pendanaan Riset UI tahun 2008—2013*

*Hanya yang dikelola DRPM; untuk tahun 2013, belum termasuk dana MP3EI dan RAPID
Kewajiban publikasi artikel di jurnal internasional bagi pemenang Hibah UI

* Mulai tahun 2012, setiap pemenang hibah DRPM wajib menerbitkan hasilnya dlm jurnal internasional (kecuali Hibah Awal).
* Hibah Awal (Rp 40 juta); Hibah Madya (Rp 100 juta); Hibah Utama (Rp 200 juta)
* Pemenang hibah wajib mengajukan proof of submission ke jurnal internasional dlm tahun penerimaan hibah.
* Pada thn berikutnya, ia wajib menyerahkan proof of acceptance dari jurnal internasional.
Kewajiban publikasi artikel di jurnal internasional bagi pemenang Hibah UI

- Pemenang hibah yg tidak menyerahkan proof of submission dan proof of acceptance, tidak dapat mengikuti Hibah UI sampai mencapai publikasi di jurnal internasional.

Dana insentif bagi pelaku riset

- Tunjangan dosen inti penelitian (171 dosen) 15 juta per bulan
- Penghargaan bagi peneliti:

1. Peneliti Terbaik
2. Peneliti Muda Terbaik
3. Penulis Artikel di Jurnal Internasional
4. Penulis Buku Teks/ Ajar Nasional dan Internasional
5. Paten dan Hak Cipta
6. Pengabdi Masyarakat Terbaik
7. Profesor/Guru Besar Berprestasi
8. Dewan Editor Jurnal Internasional
9. Publikasi
PUBLIKASI UI 2007-2013
(Jumlah artikel dan review dibandingkan ITB & UGM)

Sumber: SCOPUS per 25 April 2013

PUBLIKASI UI 2007-2012
(Seluruh publikasi termasuk proceedings dibandingkan ITB & UGM)

Sumber: SCOPUS per 25 April 2013
Perbandingan publikasi beberapa universitas di ASEAN dengan UI

Peringkat Universitas ASEAN di QS Top Asian Universities (Juni 2013)

<table>
<thead>
<tr>
<th>Indikator</th>
<th>UM (35)</th>
<th>Mahidol (38)</th>
<th>Chulalongkorn (43)</th>
<th>UKM (58)</th>
<th>UI (59)</th>
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<tbody>
<tr>
<td>Academic Reputation</td>
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<td>77,5/44</td>
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<tr>
<td>Citations</td>
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<td>65,2/119</td>
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<td>Paper per faculty</td>
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<td>73,8/215</td>
<td>27,8/202</td>
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</tr>
</tbody>
</table>

*NTU dan NUS tidak dimasukkan
*UI satu2nya universitas di Indonesia yg tembus ranking 100
JUMLAH PUBLIKASI INDONESIA DIBANDINGKAN NEGARA LAIN DI ASEAN

Sumber: Scimago per 30 April 2013

ICT
Urban Planning & Transportation
Indigenous Studies
Poverty Alleviation, Child, Family & Community
Energy
Nano & Advance Technology
Genome
Governance, Democratization & Public/Social Policy
Restoring The Earth’s Natural Support System

10 RESEARCH FOCUSES
**Bottom Up UI Research**

1. ICT  
2. Poverty alleviation, child, family & community  
3. Genome  
4. Governance democratization and public/social policy  
5. Energy  
6. Restoring the earth's natural support system  
7. Nano and advance technology  
8. Culture  
9. Indigenous studies  
10. Urban planning and transportation

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**PELATIHAN 2008-2012**

**PELATIHAN PENULISAN**  
- Penulisan Artikel untuk Jurnal Internasional (fasilitator internasional; kerjasama AusAID)  
- Penulisan Buku Ilmiah dalam Bahasa Inggris untuk Publikasi Internasional

**PELATIHAN SUPPORT TOOLS**  
- Penggunaan LaTeX dan EndNote  
- Penggunaan Scopus, RefWorks, dan COS Research Support Suite

**PELATIHAN LAINNYA**  
- Pelaksanaan Program Pengmas yang Bermutu dan Berdampak
Tahapan untuk Mengasah Kemampuan Menulis Periset.

Sertifikasi ISO 9001:2008


Setelah melalui ketiga fase: persiapan, implementasi dan audit, pada bulan Agustus 2012 telah keluar Sertifikasi ISO untuk DRPM-UI.
Artikel2 jurnal ilmiah legendaris-1

※ Agustus 1940, dlm jurnal ilmu kedokteran Inggris ternama *The Lancet*, terbit sebuah artikel yg monumental.
※ Impact Factor jurnal ini sekarang 39.06
※ Artikel apa yg terbit Agustus 1940?
- Yaitu, artikel ttg uji-coba penggunaan penicillin pada tikus oleh Edward Froley et al. (“Penicillin As A Chemotherapeutic Agent”)
- Walaupun secara umum Alexander Fleming dikenal sbg penemu penicillin, aplikasi klinis penillin dimungkinkan oleh penemuan Froley cs.
- Fleming, Froley dan Chain mendapat Hadiah Nobel Ilmu Kedokteran th 1954

Artikel2 jurnal ilmiah legendaris-2
- Pada 1905, 4 artikel muncul di *Annalen der Physik*.
- Artikel2 tsb ditulis oleh seorg pegawai Kantor Paten di Bern, Swiss, yaitu:
• Albert Einstein.
• Dlm tulisan2 tsb dikemukakan teori relativitas khusus, konversi massa-energi, serta efek fotoelektrik.
• Dlm sejarah sains, 1905 dikenal sbg annus mirabilis (tahun keajaiban).

Budaya Penerbitan Berkala

* Di balik capaian2 monumental ini ada budaya penerbitan berkala.
* Dalam univ2 riset kelas dunia spt Harvard, penerbitan di lingkunan kampus telah membudaya & menjadi tradisi.
* Contohnya adalah:
• Harvard Crimson (HC) adalah koran mahasiswa tertua di AS, didirikan th 1873.
• Dua presiden AS terkemuka, Franklin D. Roosevelt (lulus 1904) & John F. Kennedy (lulus 1940), menjabat sbg Pemred HC waktu mahasiswa.
Harvard Law Review

Contoh lain adalah Harvard Law Review (HRL), jurnal hukum yang dikelola oleh mhs law school (S-2).

HRL merupakan jurnal law school terkemuka di AS.

Salah satu pemrednya adalah:

Prof. Benyamin Kusumoputro's research interest in the development of computational intelligence methods for artificial senses includes 3D face recognition, voice recognition using higher order statistics, and odor recognition systems. He developed new methods of Hemispherical Structure of Hidden Layer Neural Networks and Fuzzy Appearance Manifold for recognizing unknown poses of three-dimensional face images, using both daylight and infra-red camera systems. Prof Kusumoputro also developed a novel dimension-based fuzzy learning vector quantization method for recognizing unknown three-mixture odors using sixteen sensors. His recent publication focuses on the development of fuzzy neural networks as an intelligent control for unmanned aerial vehicles.
Industrial and Institutional Development

In the last five years, Prof. Kuncoro has conducted research in various issues related to industrial and institutional development in Indonesia. His research projects, among others, are Governance in ninety five districts of Indonesia; Fishermen and fishing village recovery in the aftermath of the 2004 tsunami in Aceh; Long-term recovery of fishermen’s households in the aftermath of the 2004 tsunami in Aceh. His works on industrial economics in Indonesia since the 1990s, published in the Journal of Political Economy and the World Bank Economic Review, has been recognized widely. Moreover, his works on investment climate have been used to develop various industrial development policies in Indonesia. Over the last ten years, he has also focused on issues of decentralization, corruption, and household behaviour, and are amongst the first quantitative research done in these areas.

Together with a co-researcher, Prof. Kuncoro recently conducted longitudinal household surveys to monitor fishermen’s recovery in Aceh after the Asian tsunami. The preliminary results of the research have been presented in various international and domestic conferences, as well as in the Indonesian National Development Planning Board (Bappenas) to be used as key references by the Indonesian government to develop standardized guidelines for post natural disaster reconstruction programs.

Colonial History of Java in the Early 19th Century

The Island of Java at the beginning of the 19th century was a very important island for Europeans due to its potential for export commodities and strategic location in the centre of the archipelago. From 1800 to 1816, Java had witnessed the colonizing power of the Franco-Dutch coalition (1800—1806), the Dutch Kingdom (1806—1810), the French Empire (1810—1811), and the British (1811—1816). The Franco-Dutch coalition was interested to explore Java because, from the geopolitical point of view, Java could be used as a center of gravity for attacking the British India. During the Dutch and French periods, military infrastructures were constructed on this island to defend this territory from the British onslaught. During the brief British occupation, a land-reform system was introduced to increase agricultural commodities.

Although three European nations governed the island for relatively short periods of time, many significant changes had been made, such as the implementation of the Napoleonic Order on Java and the construction of the Anyer-Panarukan highway. This is a very unique situation because it had never happened in any other period during the European colonization of Java. Java became an important part of the 19th century European political constellation, as all of the consequences of the political treaties made in Europe influenced life and conditions in Java.
**Customary Laws in Indonesia**

Dr. Nurul Elmiyah’s research focus area is customary laws (adat) in Indonesia, particularly those related to the traditional rights of land ownership and cultivation referred to as the ulayat rights in Indonesia. Conflict between ownership, recognition, and protection of the ulayat rights as granted by state law on the one hand, and the reality of its implementation on the other, poses challenging questions. Dr. Elmiyah observes that the limitations on ulayat rights as stipulated by various agrarian laws are often perceived as a form of injustice by many indigenous adat communities, especially when the state’s vested interests are involved. Therefore, she strongly believes that academics and researchers need to adopt an impartial standpoint in their investigations so that they may be able to provide feedback to the state regarding the protection of these rights in the face of the state’s interests.

Adat communities usually perceive land ownership as founded on a continuous relationship between the owner and the land, rather than based on land transactions. Meanwhile, agrarian law stipulates that the right to utilize land cannot be transformed into ownership right no matter how long a person has lived on the land.

In her research, Dr. Elmiyah takes the position that ‘law’ is always understood by adat communities as ‘living law’ characterized by its dynamism and fluidity. Therefore, adat law needs to be continuously explored and put in the particular perspectives of its various localities, according to how justice is understood by each local adat community.

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**Hadronic Physics and Hypernuclear Physics**

Dr. Terry Mart is one of the experts in theoretical hadronic and hypernuclear physics in the world. His current research focuses on the production of strange particles and hypernuclei via electromagnetic processes. Strange particles are elementary particles that contain a strange quark. Information on the strange quark’s degrees-of-freedom is essential in understanding the strong force, one of the known forces that bind atomic nucleus. Having a unified explanation of these forces is the dream of all physicists since the Einstein era. In the realm of nuclear physics, the existence of the strange quark’s degrees-of-freedom leads to hypernucleus, a nucleus that contains one or more hyperons. Since hyperon is distinguishable from nucleon, the Pauli exclusion principle can be neglected. Hyperon can move freely inside a nucleus, making the energy spectrum of a hypernucleus quite different from the conventional one. In spite of this, most of hypernuclear properties remain unexplored even today.

His research inevitably requires electron accelerators that also find many applications in material sciences, medicine, pharmacy and chemistry. He developed an interactive theoretical model for the production of hyperon on the nucleon. This model has provided a standard mechanism for the calculation of the hyperon production through electromagnetic processes. Dr. Mart believes that his research will benefit not only the elementary particle and nuclear physics communities, but also in other fields such as material sciences, medicine, pharmacy and chemistry.
Peace Psychology and Political Psychology

In the last ten years, Prof. Hamdi Muluk has been conducting research in various areas in peace psychology and political psychology in Indonesia, such as the role of memory in inter-group forgiveness and reconciliation; ethnic, political, and religious-based radicalism and violence; psychology of terrorism; and conflict between majority and minority groups.

The legacy of past political violence in Indonesia has resulted in a series of traumatic ethnic and communal conflict recorded in collective memory. Prof. Muluk argues that a reconciliation process is essentially a reconciliation of memories, and these memories are related to certain components that are necessary for successful reconciliation efforts such as healing, forgiveness, truth, justice, and compensation. His current model proposes a bidirectional relationship between the constructs of collective memory and reconciliation, in which the ways people interpret, remember, and recall past events affect the ways they resolve social conflict and vice versa.

Prof Muluk also conducted research in social and political psychology in order to understand why violence motivated by religious ideologies could easily penetrate Indonesian society, what the psychological underpinning of such radicalism is, and what social and psychological mechanisms facilitate various radical movements, including terrorism acts. Prejudice and violence directed towards ethnic or religious groups by the majority are also issues that are investigated in Prof. Muluk’s research.

Application of Nanofluids to Heat Pipes and Thermoelectric Cooling of Electronic Equipment

Prof. Nandy Putra observes that, due to the rapid growth of information technology over the past few years, there has been a high demand for a microprocessor with a very high computing ability. The previous generation of the central processing units (CPU) has 1.17 billion transistors, which indicates that a significant amount of heat can be generated. The total heat dissipation resulting from a high-end CPU is approximately 110 to 140 W, which increases as the CPU voltage and frequency increase. Conventional air-cooled cooling systems are no longer adequate to remove these heat fluxes. For a number of applications, direct aircooling systems will have to be replaced or enhanced by other high performance compact cooling techniques.

Heat pipes have been widely used as one of the alternative methods to absorb more heat in the cooling systems of electronic devices. To improve the thermal performance of heat pipes, the use of various combinations of heat pipes, such as thermoelectrics and nanofluids, has been widely observed in Prof. Putra’s research group. The group has been investigating the application of nanofluids as the working fluid in a heat pipe combined with thermoelectric cooling. His experiments take into account the type ofwick heat pipe, type and effect of volume concentrations of nanofluids, coolant temperature, and thermoelectric system as heat pumps of a PC on the CPU’s temperature.

Putra, Nandy S. Djiya
Professor - Universitas Indonesia
Dr. Ing. - Universitas Borobudur
Dr. - Universitas Indonesia

Department of Mechanical Engineering
Faculty of Engineering
Universitas Indonesia
Email address: nandy@eng.ui.ac.id
Information Retrieval and Speech Processing

Dr. Mirna Adriani is interested in conducting research on various areas of Information Retrieval in the Indonesian language, especially stemming algorithm, cross-language information retrieval, summarization, question answering, etc. Information Retrieval focuses on organizing, storing, and searching information in large data collections. The availability of documents in many different languages has created a language barrier in information highways. Therefore, Dr. Adriani’s research on Cross-Language Information Retrieval (CLIR) focuses on finding a solution to obtaining documents in languages that are different from the user’s language. The user is usually presented with many documents after submitting his/her information needs a search engine. Summarization helps extracting parts of the document that are important to the user. Sometimes the user only needs a short answer of a question; therefore, finding the exact answer to a question becomes a challenge in Question-Answering.

In addition, Dr. Adriani has done some other work on multimedia retrieval on image (textile), music (traditional music), and speech (speech processing). As there are different textiles from areas in Indonesia, image retrieval searches certain textile patterns so that information about certain textiles can be easily found. Furthermore, she constructs a collection of Indonesian traditional music and has studied each of its specific features to identify and search parts of a song. Speech retrieval is concerned with retrieving speech data in a search indication. Parts of a

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DNA/RNA Aptamer

In the early 1990s, a new class of molecules called aptamer has been developed. Aptamers are artificial nucleic acid ligands (either DNA or RNA) that can bind to target molecules with affinity and specificity comparable to antibodies. Aptamers are isolated from extremely complex libraries of nucleic acids, generated by combinatorial chemistry, by an iterative process of adsorption, recovery and reamplification. This process is called SELEX (Systematic Evolution of Ligands by Exponential enrichment) and an in vitro paradigm of Darwinian evolution. After sufficient enrichment, aptamers can be cloned and studied as either homogeneous or heterogeneous sequence populations. In addition to the comparable affinity and specificity of aptamers and antibodies to target molecules, there are several desirable properties of aptamers over those of antibodies. For example, the production of aptamers is faster and cheaper because the selection processes are done in vitro and no animals involved. Aptamers can also be raised against some antigenic epitopes on the target protein that are important for activity or functions but have poor immunogenicity because the selection of aptamers is not based on the immunological response. As nucleic acid, aptamers are not good immunogens and have a shorter half-life in the body. Thus, they have potential applications in analytical devices, including biosensors. They also could be used more safely as a therapeutic agent compared with antibodies, particular those produced from other species.

Prof. Boy M. Bachtiar and his team are currently developing RNA aptamers as

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M.S. | Universitas Indonesia
B.S. | Universitas Indonesia

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Email: address: boybachtiar@yahoo.com
The Effectivity of Tinnitus Handicap Inventory to Improve the Quality of Life of Patients with Tinnitus

Prof. Jenny Bashiruddin's special interest is neurotology (or neuro-otology), which focuses in inner ear function and impairment. Problems in the inner ear affect patient's quality of life and require comprehensive management.

Ringing in the ears or tinnitus is a common complaint encountered in daily practice as an Otolaryngology Head and Neck Surgeon (ORL-HNS) doctor. Tinnitus can cause serious problems for patients because it can disturb concentration, contribute to anxiety and depression, and thus lower patients' quality of life. The cause of tinnitus is still unknown. The current treatment is still empirical and still a matter of debate. The main goal of treatment for patients is not only to recover from tinnitus but also to return to their daily activity as before. Therefore, the effectiveness of therapy and quality of life of patients with tinnitus should be evaluated along with the management of therapy that has been done. Assessment of quality of life is a subjective evaluation according to patients' own feelings and perceptions by means of questionnaire. The questionnaire is widely used to assess tinnitus is the Tinnitus Handicap Inventory (THI) from the United States.

In Indonesia, there is no measuring tool to evaluate patients with tinnitus based on things above, thus THI questionnaire translated into Bahasa Indonesia that has undergone validity and reliability test is needed as a tool to measure the patients'.

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Cultural Diversity and Multiculturalism

Trained in literary and cultural studies, Prof. Melani Budianta has conducted research related to issues of multiculturalism and cultural diversity in literature, culture and everyday life. She studies multicultural policies and discourses on women and minorities in culturally diverse societies in Indonesia, Southeast Asia, and the U.S.A. She is keen on observing the ways artists, women and minorities creatively and critically engage dominant discourses and social-political structures in order to create space for themselves and initiate cross-cultural, trans-border movements.

With a particular interest in gender and women's studies, Prof. Budianta has done research and published extensively on Indonesian women's movements after 1998, examining the complex negotiations and internal contradictions that women activists have to deal with during the transition to democracy. Her most recent research investigates the ways in which returning Indonesian female domestic workers make sense of their global work migration and cultural identity. She examines the textual representation of third-world female migrant workers as a postcolonial figure in world literature in English.

On ethnic and minority issues, Prof. Budianta has studied the representation of the marginalized Betawi culture in literature and the mass media, showing the existing contestation between a more open, cross cultural negotiation and a tendency towards cultural essentialism. Her current research is on the ways Chinese Indonesians in Malang, East Java, construct a cosmopolitan identity in the volatile
Photo Catalysis and Electrochemistry Processes

Dr. Jarnuzi Gunlazuardi’s research primarily deals with specific surface phenomena that can be applied to various chemical processes and analytical chemistry tools in order to respond to health and environmental problems. In doing so, he focuses his study on photo catalysis and electrochemistry processes on surfaces such as titanium dioxide, modified carbon electrode, etc. His work on TiO₂ photo catalysis helped develop photo catalytic reactors for water treatment and Pd/zor air purifier systems. His research group has also successfully developed a copper-doped titania matrix, which can be applied to methanol synthesis from carbon dioxide.

Using P.A. Christensen’s photo electrochemical system, Dr. Gunlazuardi developed a photo-electro catalytic-based Chemical Oxygen Demand (COD) sensor through a careful observation and evaluation of the very first photocurrent evolution and decay, which resulted in a charge that is quantitatively proportional to the mole value of an oxide-able chemical adjacent to TiO₂ surface, regardless of its chemical species. While developing a method to immobilize TiO₂ on various substrates, he discovered a clear TiO₂ suspension, which allowed till to coat a substrate with TiO₂ at the room temperature. This opens up the possibility of coating the walls of indoor rooms that has a self-cleaning effect. Extensive test and development of both COD sensor and room-temperature coating of indoor walls are currently in progress.

In addition, he is also interested in developing a modified electrode for a specific sensor, namely the macromolecule modified carbon paste electrode for metal ions sensing. His research in this area led to the discovery of a new aspect of this type of

Nursing Care of Violent Behavior in Clients with Schizophrenia

Dr. Budi Anna Keliat is interested in investigating violent behaviour amongst clients with schizophrenia. Violent behaviour is one of the common reasons for admitting clients to a mental hospital, because their family is afraid and will restrain them. The most common medical diagnosis is schizophrenia, and clients are usually treated with antipsychotic drugs, seclusion and/or restraints. These kinds of treatment affect the length of stay of the clients, usually between 40 to 100 days in a mental hospital. The main problem is the inability of nurses and family to cope with the client’s violent behavior.

The factors causing violent behaviour are, amongst others, damage of the brain, failure in clients’ lives, and exposure to violent behaviour. Based on these factors, a nursing care plan standard was developed to channel violent energy to participating in physical activities, learning effective social relation skills, participating in religious activities, and taking antipsychotic drugs regularly. This nursing care is not only given to the client but also taught to the family so that they may be able to take care of the client.

The effectiveness of nursing care proves that clients who are able to participate in physical activities, establish good social relationships, take part in religious activities regularly, and comply in taking drugs have a shorter length of stay in hospital (23 days) and maintain to stay longer in their community after being discharged from hospital (82 days). This encourages nurses to implement the four nursing care methods as part of the nursing care standard for clients with violent behaviour.
Patterns of Malaria Transmission

Malaria remains a serious health problem in Indonesia. The patterns of its transmission depend on many factors, such as area characteristics or ecological factors. A mixed-ecological study has been done to collect epidemiological data, establish entomological factors, investigate the knowledge-attitude-practice in community, and produce an area mapping. Mathematical calculation, spatial and statistical tests are used in data analyses.

Malaria transmission in rice fields, hills and coastal areas might be indigenous, and the suspect vectors are different for each breeding place. Socio-demographic factor does not seem to be a determining factor since cases have been found amongst various age groups, as well as amongst the well-educated upper-class and the lower class.

Malaria cases in rice fields exist in an area with a radius of 40.37-71.73 meters from the central point of the cases, and spread between 0 and 400 meters from the breeding places. Potential breeding places are found in rice fields, especially as the harvest time is approaching, on river banks, small creeks and water springs. The mosquito that serves as the suspect vector is Anopheles aconitus, which is active during the night. Meanwhile, Anopheles aconitus, An. maculatus, An. balabacensis, and An. barbaraestria are the suspected vectors in hilly areas. The distribution of cases mostly takes place within the radius of 29.30-84.81 meters.

Malaria cases in coastal area are found within the radius of 18.99 meters in coastal areas, most of which are in areas less than 400 meters away from the breeding places. Potential breeding places in these areas are swamps, ponds, and lagoons. The distribution of the breeding places in Nongsa Pantai, for example, is around 16.67%.

Polymorphisms/Isoforms of Gonadotrophin and Steroid Sex Hormone Receptor Genes

Prof. Purnomo Soeharso is interested in investigating the human reproduction system, which is controlled by a hormonal regulation involving the hypothalamus – hypophysis – gonad axis, in which gonadotrophin-releasing hormones (GnRH) from the hypothalamus trigger the production of gonadotrophins FSH and LH by the hypophysis. The gonadotrophin eventually stimulates the gonadal function that organizes gametogenesis and produces sex steroid hormones required to support gametogenesis and the development of secondary sex characteristics. The output of this hormonal regulation ultimately determines individual fertility.

The effectiveness of a hormone’s action depends on the precise interaction or affinity of a hormone molecule with its specific receptor in the target cells/tissues. Furthermore, any alteration in hormone’s affinity due to a gene mutation or polymorphism of the gonadotrophin or sex steroid hormone receptor may affect the gonadal response in gamet production and individual virilization (secondary sex characteristics). In other words, the mutation or polymorphisms of the gonadotrophin and sex steroid hormone receptor genes may influence individual fertility and reproductive health.

The mutations and polymorphisms of a FSH receptor may lead to spermatogenesis impairment with normal secondary sex characteristics in males. The same problem may potentially inhibit ovulation and the production of estrogen in females associated with an abnormal menstruation and sexual cycle. While in men this may
Climate Change and Culture

An anthropologist trained in human ecology, Prof. Yunita Winarto has been observing the “unpreparedness” of farmers to cope with extreme climate changes. Farmers’ existing knowledge and tradition of crop farming based on changes during the monsoon season are in question as they have to respond to unpredictable weather conditions. To enable the farmers to cope better, Prof. Winarto has collaborated with an agro-meteorologist in assisting a number of farmer-groups in Yogyakarta and West Java to advance their agro-meteorological knowledge and analyses. For that purpose, she switches her approach from a monodisciplinary standpoint into an interdisciplinary approach, and from being a mere ethnographer to building up collaborative work with farmers in a joint-production of knowledge in rainfall measurement and agro-ecosystem observation.

“Science Field Shop” is what she and her counterpart have been developing, in which the farmers and the scientists communicate and work together to better understand and cope with the changing environment. The re-emergence of unprecedented pest/disease outbreaks in the past couple of years has complicated the situation further. Farmers’ environment, in particular rice ecosystems, is no longer sustainable in the ongoing climate changes due to the persisting ill-wise and injudicious practices of controlling pests/diseases.

Understanding and explaining diverse responses of farmers toward the unintended consequences of their own practices in the ongoing climate changes also constitute an important part of her research. By tracing the causal histories of those responses, she discovered the intricate relations between various factors (natural, social, cultural, economic, and political) affecting the vulnerability of farmers’ livelihood and the “unpreparedness” of farmers. The research of her study is beneficial in finding the diverse knowledge and practices among varied groups of farmers, which will have been facilitated to enrich their knowledge, agro-meteorological and anticipative capability versus those who have not yet received such a support.

Yunita Winarto 

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TERIMA KASIH