MALAYSIA
DEWAN RAKYAT

LAPORAN PROSIDING

SESI PENDENGARAN AWAM
MESYUARAT JAWATANKUASA PILIHAN KHAS MENGENAI
PROJEK LYNAS ADVANCED MATERIALS PLANT

DI BILIK MESYUARAT JAWATANKUASA 1

PADA HARI ISNIN, 21 MEI 2012

SESI PENDENGARAN AWAM JAWATANKUASA PILIHAN KHAS MENGENAI PROJEK LYNAS ADVANCED MATERIALS PLANT (LAMP) DI BILIK MESYUARAT JAWATANKUASA 2, BANGUNAN PARLIMEN, PARLIMEN MALAYSIA

ISNIN, 21 MEI 2012

AHLI-AHLI JAWATANKUASA

Hadir:

YB. Dato' Seri Mohamed Khaled bin Nordin
[Menteri Pengajian Tinggi] - *Pengerusi*
YB. Dato' Abd. Rahman Dahlan [Kota Belud]
YB. Tuan Teng Boon Soon [Tebrau]
YB. Tuan Liang Teck Meng [Simpang Renggam]
YB. Dato' Zulkifli bin Noordin [Kulim Bandar Baharu]
YB. Puan Hajah Nancy Shukri [Batang Sadong]
YBhg. Datuk Roosme binti Hamzah - *Setiausaha*

URUS SETIA

Encik Wan Kamarul Ariffin bin Wan Ibrahim [Penolong Setiausaha I (Perundangan dan Prosiding)]
Encik Zulfazly bin Mohammad [Penolong Setiausaha II (Perundangan dan Prosiding)]

HADIR BERSAMA

Parlimen Malaysia
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Kementerian Pengajian Tinggi
Prof. Dr. Badrulhisham bin Abdul Aziz [Timbalan Naib Canselor (Akademik dan Antarabangsa Universiti Malaysia Pahang)]
Encik Mohamad Onn bin Abd. Aziz [Penasihat Undang-undang]
Encik Raja Adnan bin Raja Ibrahim [Ketua Penolong Setiausaha (Bahagian Perancangan dan Penyelidikan)]
Encik Ahmad Rizal bin Adnan [Pegawai Media, Pejabat Menteri]
Encik Hahasrin Hashim [Pegawai Tugas-Tugas Khas, Pejabat Menteri]
Encik Noor Azleen bin Ambros [Pegawai Khas Yang Berhormat Menteri Pengajian Tinggi]

samb/-

HADIR BERSAMA *(samb/-)*

Kementerian Kewangan
Cik Puan Idahaizura Ibrahim [Ketua Penolong Pengarah Belanjawan]

Jabatan Alam Sekitar
YBhg. Dato' Dr. Ahmad Kamarulnajuib bin Che Ibrahim
[Timbalan Ketua Pengarah (Pembangunan)]
Puan Norlin binti Jaafar [Pengarah Bahagian Penilaian]
Puan Norhayati binti Mohamad Yusof [Ketua Penolong Pengarah Bahagian Penilaian]
Puan Nur Syuhaida Mohd Shamsudin [Penolong Pengarah Bahagian Penilaian]
Encik Mohd Hisyam bin Abdullah [Penolong Pengarah Negeri Pahang]
Puan Katinah binti Hussain [Juruteknik Kanan]

Kementerian Sains, Teknologi dan Inovasi
Encik Abang Othman bin Abang Yusof [Timbalan Setiausaha Bahagian Industri]
Puan Noor Azzah Abdul Aziz [Penasihat Undang-undang]
Puan Norliza Zulkafli [Penolong Setiausaha Bahagian Industri]

Lembaga Perlesenan Tenaga Atom
YM. Raja Dato' Abd Aziz bin Raja Adnan [Ketua Pengarah]
Encik Hasmadi Hassan [Pengarah Bahagian Pelesenan]
Encik Mohd Yasin bin Haji Sudin [Pengarah Bahagian Sokongan Teknikal]
Puan Monalija Kostor [Ketua Penolong Pengarah (Kanan) Bahagian Dasar, Kod dan Standard]
Tuan Haji Ahmad bin Abu Bakar [Ketua Penolong Pengarah (Kanan) Bahagian Pelesenan]
Puan Suhana Jalil [Penolong Pengarah]
Encik Mohd Firdaus Md Shah [Penolong Pengarah]
Cik Nazuha binti Mohd Jai [Penasihat Undang-undang]
Cik Nornajwa Mhd Jaar [Pembantu Penasihat Undang-undang]

Kementerian Perdagangan Antarabangsa dan Industri
Puan Mastura Ahmad Mustafa [Pengarah Bahagian Dasar Sektoral
dan Hal Ehwal Pelaburan Seksyen Dasar Sektoral II]
Cik Nurshahirah binti Mohd Hadzir [Penolong Pengarah Dasar Sektoral
dan Hal Ehwal Pelaburan Seksyen Dasar Sektoral II]

Kementerian Perumahan dan Kerajaan Tempatan
Encik Tan Lai Seng [Timbalan Ketua Pengarah Jabatan Kerajaan Tempatan]

Kementerian Kesihatan
Dr. Ahmad Riadz bin Mazeli [Ketua Penolong Pengarah Kanan Unit Kesihatan Pekerjaan]

samb/-

HADIR BERSAMA *(samb/-)*

Jabatan Keselamatan dan Kesihatan Pekerjaan
Encik Abdul Aziz bin Yahya [Pengarah Bahagian Keselamatan Industri]
Encik Rukairul Aizamm Ab Rahman [Timbalan Pengarah Negeri Pahang]

SAKSI-SAKSI (PENDENGARAN AWAM)

Nasir, Sabaruddin & Associates
Encik Mohd Fawzi bin Ibrahim

Individu
Dr. Abd. Rahman bin Omar

YBhg. Dato' Dr. Looi Hoong Wah
Prof. Dr. Proom Promwichit

Prof. Dr. Jamal bin Othman
Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail

Prof. Dr. Ahmad Termizi Ramli
Prof. Ng. Kwan Hoong
Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah
Puan Sia Leng Suan

Pemerhati
Encik Yuganeshwaran
Puan Menaga a/p Govindasamy

LAPORAN PROSIDING

SESI PENDENGARAN AWAM JAWATANKUASA PILIHAN KHAS MENGENAI PROJEK LYNAS ADVANCED MATERIALS PLANT (LAMP)

Bilik Mesyuarat Jawatankuasa 2, Bangunan Parlimen

Isnin, 21 Mei 2012

Mesyuarat dimulakan pada pukul 9.39 pagi

[Yang Berhormat Dato' Seri Mohamed Khaled bin Nordin
mempengerusikan Mesyuarat]

Tuan Pengerusi: *Assalamualaikum warahmatullaahi wabarakaatuh.* Salam sejahtera dan selamat pagi. Ahli-ahli Yang Berhormat Ahli Jawatankuasa Pilihan Khas mengenai Lynas Advanced Material Plant, Dewan Rakyat, Parlimen Kedua Belas; YBhg. Datuk Roosme binti Hamzah, Setiausaha Dewan Rakyat merangkap Setiausaha Jawatankuasa Pilihan Khas; wakil-wakil daripada kementerian dan agensi kerajaan, pegawai-pegawai Parlimen. Seterusnya, tuan-tuan dan puan-puan. Pertamanya, saya mengalu-alukan kehadiran dan mengucapkan berbanyak terima kasih kerana kita dapat bersama untuk menjayakan sesi pendengaran awam bagi kali yang ketiga pada hari ini yang kita adakan di Parlimen Malaysia.

Sebagaimana yang kita sedia maklum, kita telah pun menjayakan dua sesi pendengaran awam pada 10 dan 11 Mei yang lepas di Universiti Malaysia Pahang yang mana pada sesi yang pertama, 10 Mei, sebanyak lima pertubuhan dan individu telah mengemukakan pandangan. Manakala pada 11 Mei, lapan pertubuhan dan individu pula mengemukakan pandangan-pandangan mereka.

Kita juga telah berkesempatan mengadakan lawatan ke tapak kilang Lynas di Gebeng pada hari Khamis 10 Mei yang lepas juga dan telah mendapat taklimat daripada pihak pengurusan kilang dalam lawatan tersebut. Pada hari ini kita akan meneruskan sesi pendengaran awam kita.

Saya difahamkan terdapat seramai 12 permohonan untuk berjumpa dengan jawatankuasa ini yang terdiri daripada pertubuhan dan juga individu. Seperti biasa kita akan cuba mengehadkan setiap daripada mereka dalam 15 minit jika boleh. Ini kerana sebahagian daripada yang akan hadir ini merupakan mereka yang nampaknya adalah pakar kerana datang daripada institusi pengajian tinggi dan juga daripada beberapa kementerian yang lain. Oleh itu untuk tidak melengahkan masa, kita jemput yang pertama. Sebelum itu jawatankuasa hendak beri pandangan apa-apa? *Is there anything*? Kalau tidak ada, kita mula. Dia daripada Nasir Sabaruddin & Associates. Ini *lawyer*kah apa..., tidak tahu? *Never mind,* kita tanya dia.

[Saksi dari Nasir, Sabaruddin & Associate mengambil tempat di hadapan Jawatankuasa]

9.45 pg.

Tuan Pengerusi: Seorang sahajakah? Pertamanya, bagi pihak Jawatankuasa Pilihan Khas saya mengalu-alukan kehadiran. Seperti mana yang sedia maklum, matlamat jawatankuasa ini adalah untuk mendapat pandangan, laporan, input serta cadangan-cadangan daripada pihak-pihak yang datang untuk bersama dalam jawatankuasa ini. Setiap kenyataan yang diberi, kita rekodkan kenyataan-kenyataan tersebut dan seterusnya akan dibentangkan ke Parlimen dalam sesi bulan Jun bulan hadapan. Sebelum diminta untuk mengemukakan pandangan, diharap dapat memperkenalkan diri dan apakah asas kenyataan ataupun pandangan yang hendak disampaikan ke pihak jawatankuasa. Dengan itu saya jemput untuk bentangkan. Silakan, walaupun saya tidak nampak, dilindungi.

Encik Mohd Fawzi bin Ibrahim [Nasir, Sabaruddin & Associates]: *Bismillaahir Rahmaanir Rahiim, Assalamualaikum warahmatullaahi wabarakaatuh* dan selamat pagi.

Tuan Pengerusi: Cuba dalam 15 minit ya.

Encik Mohd Fawzi bin Ibrahim: *Insya-Allah*. Terima kasih kepada Tuan Pengerusi, Dato' Seri. Sebelum saya meneruskan saya punya pandangan pada pagi ini, *insya-Allah.* Saya cuba memperkenalkan diri saya. Nama saya Mohd Fawzi bin Ibrahim daripada Kuantan, bekerja di Pejabat Penilaian Swasta selaku Pengurus Bahagian Penilaian. Saya telah berkecimpung dalam bidang harta tanah ini tidak lama, baru dalam 17 tahun yang mana bidang yang saya ceburi sekarang ini adalah berkaitan dengan harta tanah sama ada dari segi penilaian, dari segi *real estate agent* dan dari segi lelongan awam. Jadi, kita ada *practice*kan tiga sektor - penilaian, agen hartanah dan lelongan awam, yang mana ia *direct* ataupun terus menerus dengan *public*.

Jadi, saya pun tidak akan mengambil masa yang panjang hari ini. Cuma di sini saya ingin mengemukakan cadangan saya berdasarkan kepada pengalaman yang saya ada, *insya-Allah* kita akan berkongsi bersama. Akan tetapi saya cuma ingin maklumkan kepada Dato' Seri, Datuk-datuk, tuan-tuan dan puan-puan, apa yang saya kemukakan hari ini adalah pandangan saya berdasarkan pengalaman saya selama 17 tahun dalam bidang hartanah.

Jadi, dari segi teknikalnya, bidang hartanah ini kita dapat tunjukkan dalam bentuk angka ataupun graf. Ia berbeza dengan mana-mana profesion yang mana boleh ditunjukkan dalam bentuk *ekspedimen*. Jadi, kalau Dato' Seri tengok saya punya ringkasan kertas kerja, semua bentuk angka dan graf. Jadi, saya cuba lihat dalam tempoh lima tahun yang pertama ini iaitu 2011 dan ke bawah sehingga 2007 kita lihat momentum *property* di Kuantan sentiasa meningkat dan kalau kita lihat pada tahun 2011 berlakunya transaksi ataupun pindah milik bagi hartanah kediaman yang saya fokuskan kepada rumah teres setingkat masih lagi berada di dalam satu landasan yang stabil iaitu berada dalam lingkungan 800 lebih berlaku transaksi pada 2011. Hampir sama dengan kalau kita lihat pada tahun-tahun sebelumnya iaitu saya bacakan sedikit.

Tahun	Transaksi
2007	616
2008	771
2009	1,352
2010	848
2011	885

Ini antara sampel yang saya kumpulkan untuk tempoh lima tahun yang pertama. Begitu juga kalau kita lihat kepada sektor rumah berkembar yang mana juga berlaku transaksi yang hampir-hampir sama dalam tempoh lima tahun. Jadi, berdasarkan kepada pengalaman saya, saya pun ada buat lelongan awam, saya pelelong berlesen negeri Pahang. Apabila kita mengadakan satu lelongan awam harta tanah di Kuantan, permintaannya amat-amat menggalakkan. Walaupun hartanah itu berada di Gebeng, di Balok atau di Beserah. Jadi, pada pandangan saya dalam tempoh akan datang, sektor hartanah ini pada pandangan saya tidak memberi kesan negatif di atas pembinaan Lynas di Gebeng memandangkan permintaannya terus meningkat sehingga hari ini. Akan tetapi untuk akan datang 2013, yang itu saya tidak dapat memberi jaminan sama ada *demand* itu berterusan ataupun tidak. Akan tetapi untuk tempoh lima tahun yang pertama ini, pada pandangan saya Lynas tidak memberi kesan kepada *supply and demand* hartanah di Kuantan, terutamanya di kawasan Gebeng, Balok dan Beserah yang mana kita faham ia berhampiran ataupun terhampir dengan kawasan industri Gebeng.

■ 0950

Satu lagi yang hendak saya fokuskan pada pagi ini, saya lebih perincikan kepada satu taman yang terhampir dengan kawasan industri Gebeng iaitu Bandar Damansara Kuantan. Di sini saya ambil dua *sample* untuk kita lihat dari segi pergerakan harga, kalau kita lihat di Bandar Damansara Kuantan, saya ambil *sample* di sini rumah teres setingkat dan rumah berkembar satu tingkat. Di mana kalau lihat pada graf, daripada 2006 sehingga 2011 grafnya masih menaik. Maknanya tidak ada berlaku penurunan harga.

Seperti yang kita maklum spekulasi berlaku di Kuantan yang mana orang awam masih ragu-ragu dari segi hartanah, ramai yang menjangkakan hartanah akan merudum ataupun akan jatuh. Mereka – kepada hartanah di Kuantan disebabkan Lynas, jadi pada pandangan saya adalah sebaliknyalah. Berdasarkan kepada rekod-rekod terdahulu yang selama lima tahun ke belakang. Jadi, itu sahaja yang dapat saya kongsi bersama pada pagi ini. Sekian, terima kasih. *Assalamualaikum.*

Tuan Pengerusi: Saya buka untuk soalan-soalan. Tadi diberitahu bahawa ini adalah pandangan peribadi. Dari segi daripada mana data ini diambil? Adakah ini ia diambil secara rasmi ataupun hasil daripada usaha sendiri ataupun daripada mana ambil sebab mungkin ada *valuer* yang lain akan memberi data yang berbeza pula. Jadi, daripada mana ambil?

Adakah diambil daripada rekod-rekod rasmi kerajaan ataupun daripada mana ini semua..., daripada sumber mana?

Encik Mohd Fawzi bin Ibrahim: Sumber yang pertama ataupun asasnya adalah berdasarkan kepada Laporan Pasaran Hartanah 2011, yang dikeluarkan oleh Jabatan Penilaian dan Perkhidmatan Harta. Laporan ini menceritakan secara kasar tentang hartanah di Kuantan. Secara terperincinya berdasarkan kepada keadaan semasa di Kuantan, yang mana saya membuat penilaian bagi pihak bank untuk menguruskan pinjaman-pinjaman. Jadi, setiap transaksi yang berlaku memerlukan satu laporan penilaian daripada penilai.

Saya juga banyak mengendalikan lelong awam yang mana banyak melibatkan hartanah-hartanah yang dilelong di sekitar Kuantan. Di situ dari segi *demand* kita nampak, apabila sesi lelong awam berlaku penawar-penawar yang hadir itu agak menggalakkanlah. Bermakna permintaan itu masih ada.

Dato' Zulkifli bin Noordin [Kulim Bandar Baharu]: Saya hendak tanya soalan, berapa lama pengalaman penilaian hartanah di Kuantan ini? Kedua, dari segi penilaian hartanah yang lain di Kuantan, cara umumnya apa pandangan mereka tentang kesan Lynas ini kepada transaksi hartanah di Kuantan. Ketiga, ada atau tidak pihak bank ataupun pihak awam menghadapi kesukaran dengan pihak bank untuk mendapatkan pinjamankah, berkaitan dengan pembelian hartanah di kawasan?

Encik Mohd Fawzi bin Ibrahim: Okey, terima kasih Dato'. Soalan yang pertama itu, saya bekerja di Kuantan dalam tiga belas tahun. Soalan kedua, dari segi penilaian itu, dari segi secara menyeluruhnya atau *overall*, secara kasarnya. Setakat ini semua penilai menilai hartanah dalam masih lagi keadaan biasalah.

Dato' Zulkifli bin Noordin: Ada berapa penilai swasta?

Encik Mohd Fawzi bin Ibrahim: Di Kuantan ada dalam 10, 10 firma.

Puan Hajah Nancy Shukri [Batang Sadong]: Soalan Tuan Pengerusi, saya hendak tahu...

Dato' Zulkifli bin Noordin: Saya hendak tanya yang mengenai bank tadi itu?

Encik Mohd Fawzi bin Ibrahim: Berdasarkan kepada pengalaman saya di Kuantan, setakat hari ini tidak ada bank yang menolak mana-mana hartanah yang ada di sekitar Gebeng, Balok ataupun Berserah. Bermakna proses pinjaman itu seperti sedia kala. Tidak ada apa-apa perubahan ataupun dari segi syarat tambahan bagi meminjam ataupun membeli tanah di sekitar Gebeng.

Tuan Pengerusi: Maknanya walaupun ada usaha menakut-nakutkan penduduk di Kuantan, ia tidak menjejaskan soal mereka yang hendak tinggal di Kuantan?

Encik Mohd Fawzi bin Ibrahim: Secara umum, apa yang saya ketahui yang banyak membantah dari segi Lynas adalah daripada kaum Cina tetapi kalau kita lihat dari segi populasi di sekitar Gebeng iaitu di sekitar Berserah, Balok, Sungai Karang, 90% penduduknya adalah bangsa Melayu. Setakat ini mereka tidak berapa bimbanglah dari segi Lynas pun ada di Gebeng sebab di Gebeng itu memang terkenal dengan kawasan industri berat melibatkan *oil and gas.*

Puan Hajah Nancy Shukri: Tuan Pengerusi satu lagi soalan, berdasarkan kepada penilaian tadi, apakah sosial status kumpulan *target group* ini yang tinggal dekat situ, yang membeli hartanah yang di kumpul, dari segi penilaian laporan itu yang di kumpul dan yang dirujukkan oleh saudara. Terima kasih.

Encik Mohd Fawzi bin Ibrahim: Kalau kita lihat secara faktanya, kebanyakannya yang membeli hartanah kalau di sebelah Berserah itu yang masih bekerja di bandar Kuantan sebab Berserah dengan Kuantan jarak dalam lingkungan 5 hingga 7 kilometer. Akan tetapi kalau di kawasan Balok, Sungai Karang, sebahagiannya adalah pekerja yang bekerja di sekitar Gebeng. Pekerja yang bekerja di kawasan sekitar kawasan industri Gebeng dan sebahagian bekerja di bandar Kuantanlah.

Puan Hajah Nancy Shukri: Maksud saya sosial statusnya itu adalah *middle class* kah ataupun *lower income level*kah?

Encik Mohd Fawzi bin Ibrahim: *Middle and lower income.*

Puan Hajah Nancy Shukri: Di situ ya, terima kasih.

Tuan Teng Boon Soon [Tebrau]: Tuan Pengerusi, saya ada dua soalan. Yang pertama, tadi Encik Mohd Fawzi telah menggunakan sumber data daripada agensi kerajaan tertentu. Saya hendak tahu dalam bidang permintaan hartanah, adakah sumber lain yang boleh kita dapat untuk melihat graf permintaan, perubahan graf permintaan pada masa yang disebutkan tadi, dari 2007 hingga 2011? Ini soalan yang pertama. Adakah sumber lain selain daripada sumber yang Encik Mohd Fawzi gunakan?

Yang kedua ialah dari rumah-rumah yang ditinjau itu, yang dilabelkan itu, adakah termasuk rumah-rumah atau rancangan-rancangan perumahan yang disediakan oleh kerajaan dengan subsidi atau bantuan kewangan misalnya rumah untuk kumpulan berumur 30 ke bawah. Jadi, rumah-rumah ini dia ada bantuan-bantuan tertentu dari kerajaan. Jadi, keadaan itu mungkin akan memberi kesan kepada permintaan. Dulu tidak ada subsidi tetapi sekarang ada. Oleh kerana adanya subsidi itu baru kita melihat meningkat graf itu.

Encik Mohd Fawzi bin Ibrahim: Maksud Yang Berhormat, subsidi yang Rumah Pertamaku? Maksud Yang Berhormat, subsidi yang mana itu?

Tuan Teng Boon Soon: *My First Home* untuk kumpulan penduduk bawah 30-an.

■ 1000

Encik Mohd Fawzi bin Ibrahim: Yang gaji RM4,000 ke bawah itu?

Tuan Teng Boon Soon: *Yes, that's right*.

Encik Mohd Fawzi bin Ibrahim: Terima kasih Yang Berhormat. Okey, kalau kita sebut dari segi permintaan, dari segi data untuk menentukan permintaan, yang terbaik kita rujuk adalah daripada laporan pasaran hartanah sebab segala transaksi yang berlaku akan direkodkan dan akan dihantar kepada Jabatan Penilaian untuk dikumpulkan data.

Jadi kalau kaedah lain, saya rasa yang lebih tepat ini sahajalah. Manakala yang lain kemungkinan data itu kurang tepat sebab setiap pindah milik ataupun *agreement* yang dibuat oleh pihak peguam kadang-kadang perjanjian itu tidak dijelmakan menjadi satu transaksi. Maksud saya, kadang-kadang perjanjian telah ditandatangani tetapi pindah milik tidak berlaku. Maksud saya kemungkinan pembeli atau pun penjual membatalkan niatnya untuk menjual ataupun membeli.

Tuan Teng Boon Soon: Maaf. Maksud saya, tidakkah ada sumber maklumat yang lain yang menunjukkan permintaan perumahan di kawasan Kuantan yang boleh digunakan untuk mencabar kesahihan data-data yang dibentangkan oleh Encik Mohd Fawzi?

Encik Mohd Fawzi bin Ibrahim: Macam saya katakan tadi, data yang terbaik adalah daripada laporan pasaran hartanah yang dikeluarkan oleh kerajaan. Segala data yang terkumpul akan dihantar kepada Jabatan Penilaian untuk direkodkan. Jadi pada saya, kaedah lain itu ada tetapi kurang tepat.

Dato' Zulkifli bin Noordin: Soalan umumnya, ada atau tidak Encik Fawzi dapat maklumat atau mendengar ada transaksi jual beli hartanah di Kuantan ini terutamanya di kawasan Gebeng yang dibatalkan ataupun tidak jadi dibeli yang *direct* berkaitan dengan Lynas ini?

Encik Mohd Fawzi bin Ibrahim: Berlaku itu, secara kebiasaannya di mana-mana tempat pun akan berlaku. Pembatalan *agreement* kemungkinan disebabkan harga, disebabkan tidak jadi beli tetapi apa yang saya faham setakat ini tidak ada perjanjian dibatalkan disebabkan wujudnya kilang Lynas. Kebiasaannya *agreement* ini dibatalkan akibat tidak setuju dari segi harga atau masalah dari segi pinjaman.

Tuan Pengerusi: Kenyataan-kenyataan yang mengatakan bahawa kesan daripada Lynas ini kedudukan pasaran hartanah di Kuantan merudum jatuh, orang tinggalkan Kuantan dan sebagainya. *So* apa respons atau pandangan Encik Fawzi mengenai kenyataan yang sebegitu?

Encik Mohd Fawzi bin Ibrahim: Dari segi *verbally* ada juga *customer* saya yang berhajat untuk pindah daripada Kuantan disebabkan Lynas, tetapi bilangan itu terlalu kecil. Ada sesetengah *customer* saya sudah mula membeli hartanah di luar Kuantan, tetapi bilangan itu terlalu kecil. Mungkin faktor yang dia bertindak demikian disebabkan oleh spekulasi bahawa hartanah akan jatuh. Akan tetapi kita perlu ingat sebab hartanah ini bergantung kepada *supply and demand*.

Kalau spekulasi ini berterusan, kemungkinan *demand* itu akan menurun jugalah. Apabila *demand* itu menurun, secara tidak langsung harga hartanah pun akan turut menurun.

Cuma dapat saya maklumkan pada hari ini, sepanjang lima tahun yang pertama ini tidak ada berlaku penurunan harga ataupun permintaan.

Tuan Teng Boon Soon: Tuan Pengerusi, sehubungan dengan persoalan Tuan Pengerusi tadi. Dalam pada masa pendengaran di Kuantan, kami dengar satu kes di mana seorang pemaju mengatakan projek perumahannya yang sebanyak lebih kurang *25 to 30 units of houses* di sesuatu tempat yang berdekatan dengan Lynas telah mendapat kesan negatif kerana penjualan itu tidak laris. Jadi, apakah pandangan Encik Fawzi? Apakah itu alasan yang tunggal iaitu dengan adanya Lynas, telah menggugat permintaan projek perumahan yang mengandungi 25 hingga 30 unit itu ataupun ada alasan-alasan atau sebab-sebab yang lain?

Encik Mohd Fawzi bin Ibrahim: Boleh saya tahu Yang Berhormat, kawasan mana itu?

Tuan Teng Boon Soon: Saya tidak dapat ingat, tetapi dalam rekod ada.

Encik Mohd Fawzi bin Ibrahim: Akan tetapi kalau Yang Berhormat tengok satu projek kedai sebanyak 19 unit di Bandar Balok, Pusat Komersial MPK Balok yang mana harganya pada peringkat awalnya RM475,000, sekarang dalam 90% siap telah dijual habis. Malah permintaan melebihi daripada penawaran.

Dato' Zulkifli bin Noordin: Berapa jauh?

Encik Mohd Fawzi bin Ibrahim: Betul-betul di Bandar Balok.

Dato' Zulkifli bin Noordin: Berapa jauh daripada kilang Lynas itu?

Encik Mohd Fawzi bin Ibrahim: Kilang itu seingat saya dalam lima hingga enam kilometer.

Dato' Abd. Rahman Dahlan [Kota Belud]: Habis dijual?

Encik Mohd Fawzi bin Ibrahim: Habis dijual. Kedai itu berhampiran dengan stesen Petronas di Bandar Balok. Pusat Komersial MPK Balok yang mana projek itu adalah usaha sama antara MPK dengan sebuah pemaju swasta.

Tuan Pengerusi: Kawasan perumahan yang paling dekat dengan kilang Lynas berapa kilometer jauh?

Encik Mohd Fawzi bin Ibrahim: Yang terhampir dengan kawasan industri Gebeng ada dua atau tiga perumahan. Seingat saya mungkin dalam dua atau tiga kilometer seperti di Taman Balok Makmur, Taman Seberang Balok dan Taman Balok Perdana. Itu yang terhampir.

Tuan Liang Teck Meng [Simpang Renggam]: Setahu Encik Mohd. Fawzi, ada berapa rancangan perumahan yang akan dilaksanakan berhampiran kilang Lynas, di kawasan berhampiranlah yang akan datang?

Encik Mohd Fawzi bin Ibrahim: Yang akan datang itu tidak dapat saya pastikanlah.

Dato' Abd. Rahman Dahlan: Tuan Pengerusi, saya minta maaf lambat sedikit tetapi boleh saya dapatkan penerangan sedikit daripada Encik Fawzi berkenaan dengan dua graf yang pertama tadi ini, di mana bilangan pindah milik teres satu tingkat dan juga bilangan pindah milik rumah berkembar satu tingkat Daerah Kuantan ini. Pada tahun 2009 dia *peak* bukan? Betul? Apa sebab dia *peak*?

Encik Mohd Fawzi bin Ibrahim: Okey. Kalau kita lihat kepada graf itu, tahun 2009 transaksinya agak meningkat disebabkan – saya semak laporannya ini. Pada tahun 2007 dan tahun 2008, peningkatan *supply* iaitu peningkatan dari segi sektor perumahan yang siap. Jadi perumahan yang siap pada tahun 2007 dan tahun 2008, transaksinya banyak berlaku pada tahun 2009. Maksud saya proses untuk tukar milik berlaku pada tahun berikutnya.

Dato' Abd. Rahman Dahlan: Maknanya pembinaan berlaku begitu banyak pada tahun 2007 dan tahun 2008, transaksi bermula pada tahun 2009? Akan tetapi kenapa selepas itu pada tahun 2010 ia jatuh semula? Tahun 2010 ia jatuh. Tahun 2011 lebih kurang sama dengan tahun 2010. Maknanya tidak ada projek perumahan yang baru.

Encik Mohd Fawzi bin Ibrahim: Ada. Kemungkinan bilangan transaksi itu tidak berlaku pada tahun itulah.

Dato' Abd. Rahman Dahlan: Dia ada dua perkara. Satu kalau mengikut apa yang dijelaskan oleh Encik Fawzi, pada tahun 2007 dan tahun 2008 sektor pembinaan perumahan mendadak tinggi. Jadi *transaction* pindah milik berlaku pada tahun 2009. *That one I understand,* tetapi maknanya pada tahun 2009, projek-projek perumahan berkuranganlah. Maka itu pada tahun 2010 bilangan pindah milik teres satu tingkat dan sebagainya jatuh semula. *So*, soalan saya kenapa pada tahun berikutnya iaitu pada tahun 2009, pembinaan projek rumah baru itu tidak serancak tahun 2007 dan tahun 2008?

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Encik Mohd Fawzi bin Ibrahim: Okey. Kalau Yang Berhormat tengok dari segi graf itu, secara puratanya transaksi itu berlaku dalam lingkungan 700 hingga 800. Cuma tahun 2009 itu berlaku lebihan transaksi dan *next year* itu dia kembali kepada keadaan normallah. Kembali kepada normal. Jadi, dari segi faktor kenapa dari segi transaksi itu menurun itu tidak dapat saya hendak jawab pada hari inilah.

Dato' Abd. Rahman Dahlan: Okey. Soalan tambahan Encik Fawzi. Ini dari segi jumlah bilangan pindah milik ya? Pindah milik.

Encik Mohd Fawzi bin Ibrahim: Seluruh Kuantan.

Dato' Abd. Rahman Dahlan: Seluruh Kuantan ini bilangan rumahkan?

Encik Mohd Fawzi bin Ibrahim: Untuk rumah teres setingkat sahaja tidak melibatkan rumah kos rendah.

Dato' Abd. Rahman Dahlan: Okey. Ada dua ini. Satu rumah berkembar satu tingkat, satu lagi teres satu tingkat, okey tidak apa. Soalan saya ialah ini dari segi jumlah kuantiti, bagaimana pula dari segi harga tadi itu. Mungkin Encik Fawzi sudah cakap tadi awal tetapi saya belum sampai... *[Disampuk]* Ya *but its too long I just want to ask... [Disampuk]* Ya? Kos nilai hartanah di Kuantan ini. Oh *page* 2.

Encik Mohd Fawzi bin Ibrahim: Okey. Dari segi harga itu saya cuba fokuskan kepada satu taman perumahan iaitu Bandar Damansara yang mana jaraknya hanya 11 kilometer daripada kawasan industri Gebenglah. Jadi kalau Yang Berhormat tengok tadi, graf itu harganya meningkatlah yang mana pada tahun 2006 rumah berkembar bermula dengan harga RM150,000 dan berakhir pada 2011 harganya melonjak hingga RM250,000 dan setiap tahun masih berlaku peningkatan. Begitu juga dengan rumah teres walaupun kenaikan itu tidak banyak tetapi graf masih lagi menaik.

Tuan Liang Teck Meng: Saya celah sedikit boleh? Ini harga adalah berdasarkan nilai transaksi yang ada pada syarikat Encik Fawzikah ataupun Jabatan Penilaian?

Encik Mohd Fawzi bin Ibrahim: Ya. Okey, ini berdasarkan nilaian yang dibuat oleh pejabat saya berpandukan permintaan dan penawaran semasa.

Dato' Abd. Rahman Dahlan: Ini di Bandar Damansara. Apakah Encik Fawzi mengatakan bahawa di taman-taman yang lain, taman-taman perumahan yang lain yang mungkin dekat lagi dengan Gebeng ini, yang ini 11 kilometer. *Are you saying that the trend is the same?* Adakah trend yang sama berlaku di taman-taman perumahan yang lain?

Encik Mohd Fawzi bin Ibrahim: Okey. Kalau kita lihat taman yang saya sebut tadi Taman Balok Makmur yang mana terhampir dengan kawasan industri Gebeng. Di sana harganya agak mendatar bukan disebabkan tidak ada permintaan. Harga mendatar disebabkan status rumah adalah rumah kos rendah. Jadi, kenaikan dia tidak secara mendadak jika dibandingkan dengan rumah kos sederhana ataupun *medium cost.*

Dato' Abd. Rahman Dahlan: Okey *thats fine* tetapi yang rumah berkembar dan rumah teres di kawasan tersebut di kawasan yang dekat lagi daripada Bandar Damansara ini. Apakah trendnya lebih kurang sama dengan Bandar Damansara ini?

Encik Mohd Fawzi bin Ibrahim: Lebih kurang sama. Secara keseluruhannya harga rumah teres di sekitar Sungai Karang, Gebeng harganya antara RM120,000 hingga RM140,000 per unit.

Dato' Abd. Rahman Dahlan: Seterusnya naik ataupun sekurang-kurangnya tidak merudum.

Encik Mohd Fawzi bin Ibrahim: Nilaian semasa.

Dato' Abd. Rahman Dahlan: Yalah tetapi naik daripada tahun 2006.

Encik Mohd Fawzi bin Ibrahim: Ya, ya, ya.

Dato' Abd. Rahman Dahlan: Dia tidak turun.

Encik Mohd Fawzi bin Ibrahim: Saya ada lampirkan dalam saya punya laporan ringkas, *pamphlet* yang dikeluarkan oleh beberapa pemaju perumahan untuk di sekitar Balok. Ada tiga sampel perumahan yang saya masukkan dalam laporan itu. Yang Berhormat boleh tengoklah... *[Disampuk]* Ya, ya. Minta maaflah cuma hitam putih sahaja. Itu adalah harga yang ditawarkan oleh pemaju yang mana kesemuanya yang siap dalam tahun 2011.

Dato' Abd. Rahman Dahlan: Harga yang disebut di sini ini adalah harga yang lebih tinggi daripada tahun 2008, tahun 2007, tahun 2009. Walaupun dikatakan sini RM148,000, saya tidak ada *benchmark reference point.*

Encik Mohd Fawzi bin Ibrahim: Ya.

Dato' Abd. Rahman Dahlan: Apakah RM148,000 ini lebih tinggi atau lebih rendah daripada tahun 2008, tahun 2009?

Encik Mohd Fawzi bin Ibrahim: Okey. Untuk makluman Yang Berhormat, satu trend baru di Kuantan dari segi harga yang ditawarkan oleh pemaju melebihi daripada nilai pasaran semasa. Sebab itu kalau kita lihat dalam *pamphlet* yang ditawarkan oleh pemaju lebih tinggi daripada nilaian semasa... *[Disampuk]* Ya? Pada pandangan saya ada dua keadaan, okey. Pertama, harga itu tidak melambangkan harga sebenar, harga hanya untuk pinjaman. Sebab kita sudah sedia maklum bank hanya memberi pinjaman sebanyak 50% daripada harga jualan atau penilaian yang mana terendah. Jadi untuk membolehkan pembeli mendapat *loan* 100%, harga dinaikkan menjadikan harga lebih tinggi daripada harga sebenar dan melayakkan peminjam mendapat pinjaman 100%. Kalau kita lihat sesetengah *pamphlet* ataupun iklan yang dikeluarkan oleh pemaju, deposit hanya RM100, RM1 pun ada di Kuantan deposit untuk membeli rumah.

Dato' Abd. Rahman Dahlan: Sebab kedua?

Encik Mohd Fawzi bin Ibrahim: Sebab yang kedua *actual price*lah harga yang sebenar yang mana pemaju *test market*. Di bawah Persatuan Perumahan Swasta di Kuantan di bawah REHDA mereka memang sepakat dari segi penentuan hargalah.

Tuan Teng Boon Soon: Tuan Pengerusi, Encik Fawzi saya rujuk balik kepada carta atau graf yang diberikan oleh Encik Fawzi tadi tentang permintaan dua jenis rumah iaitu teres satu tingkat dan rumah berkembar satu tingkat. Kalau kita melihat dari segi harga rumah itu, bolehkah kita melambangkan teres satu tingkat sebagai satu indikator permintaan, indikator reaksi. Andai kata kita letak Lynas sebagai satu faktor yang memberi kesan kepada permintaan rumah di Kuantan. Jadi dalam graf kita melihat dua-dua graf itu serentak, graf yang menunjukkan permintaan perumahan teres satu tingkat itu dari tahun 2009 hingga tahun 2011, dia menurun kemudian meningkat. *The curve is like that.*

And then bagi rumah berkembar, dia terus menurun. Jadi, kalau kita mengandaikan dua jenis rumah itu dia boleh memberi gambaran tentang reaksi-reaksi kumpulan berpendapatan yang berbeza. Bagi kumpulan yang mampu membeli rumah teres satu tingkat, dia tidak ada kesan, dia terus meningkat. Akan tetapi bagi kumpulan berpendapatan yang lebih tinggi biasanya kerana mereka mampu membeli rumah berkembar satu tingkat, dia menurun. Adakah itu dua reaksi yang berbeza bagi kumpulan pembeli yang berpendapatan berlainan? Boleh Encik Fawzi dari pengalaman sebagai seorang pakar hartanah memberi sedikit pandangan supaya kita lebih memahami. Adakah sebenarnya dengan adanya kilang Lynas itu memberi kesan tertentu kepada pemilihan pembeli rumah di kawasan itu?

Encik Mohd Fawzi bin Ibrahim: Okey. Untuk makluman Yang Berhormat, rumah berkembar setingkat ini dia terbahagi kepada beberapa kategori. Sama ada kategori kos rendah, kos sederhana ataupun yang *high cost*lah yang mana harganya hampir-hampir setengah juta. Jadi yang kita fokuskan hari ini adalah yang peringkat medium, yang peringkat pertengahan. Jika kita fokuskan kepada rumah berkembar setingkat peringkat pertengahan, bilangan unit tidak berapa banyaklah di sekitar Kuantan. Jadi kalau lihat faktor penurunan itu, pada pandangan saya ada kaitan dari segi penawaran. Di Kuantan secara menyeluruhnya, jenis perumahan yang banyak dibina adalah rumah teres setingkat berbanding dengan berkembar bilangan unitnya agak terhad.

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Dato' Abd. Rahman Dahlan: Okey. Saya hendak bertanya sedikit - balik. Sudah habis dah jawapan itu?

Encik Mohd Fawzi bin Ibrahim: Ya sudah.

Dato' Abd. Rahman Dahlan: Saya hendak balik pada graf yang tadi ini. Pindah milik teres satu tingkat dengan pindah milik rumah berkembar ini, ini *first time transaction* kah ataupun *secondary market*? Daripada *developer* kepada *first time buyer* ataupun daripada *first time buyer* kepada..?

Encik Mohd Fawzi bin Ibrahim: Kedua-duanya sekali.

Dato' Abd. Rahman Dahlan: *So*...

Encik Mohd Fawzi bin Ibrahim: Sama ada pindah milik daripada pemaju ataupun pindah milik yang kali kedua...

Dato' Abd. Rahman Dahlan: *So,* kalau...

Encik Mohd Fawzi bin Ibrahim: *Sub sale.*

Dato' Abd. Rahman Dahlan: Untuk yang rumah berkembar satu tingkat, bersetuju kah Encik Fawzi kalau saya katakan bahawa pindah milik rumah berkembar satu tingkat di daerah Kuantan, yang *representing in middle class,* sebenarnya orang tidak hendak menjual rumah *because* setelah dia membeli rumah pada tahun 2009 *peak*, transaksi untuk pindah milik rumah berkembar satu tingkat pada tahun-tahun berikutnya menurun.

Kalau saya buat kesimpulan bahawa sebenarnya orang tidak hendak keluar, tidak hendak jual rumahnya. Encik Fawzi setuju atau tidak dengan *statement* itu? Maknanya *that is the market is still strong. I do not want to sell my house despite all this fears,* dengan izin.

Encik Mohd Fawzi bin Ibrahim: Saya bersetuju disebabkan macam yang saya kata tadi, penawaran untuk rumah berkembar yang peringkat ini agak kuranglah. Jadi, jika dia menjual rumah yang dia tinggal sekarang, peluang untuk membeli rumah yang seakan dengan harga yang dijual itu mungkin agak sukarlah dengan bilangan unit berkembar yang berkurangan bagi jenis berkembar yang kos sederhana. Rasa saya kalau dia jual rumah yang dia tinggal ini, peluang untuk membeli rumah berkembar yang harga hampir sama dengan rumah yang sedia ada, agak sukar.

Dato' Abd. Rahman Dahlan: Okey. Soalan saya yang ada lanjutan dengan soalan ini. Katakanlah saya hendak menjual rumah, rumah berkembar saya sekarang di Kuantan. *I put it in the market now today,* berapa lama saya boleh mencari *buyer?*

Encik Mohd Fawzi bin Ibrahim: Kalau harga yang ditawarkan itu bersamaan dengan harga pasaran semasa, dalam masa sebulan boleh jual.

Dato' Abd. Rahman Dahlan: *[Bercakap tanpa menggunakan pembesar suara]*

Tuan Pengerusi: Maknanya walau apa pun yang bising-bising, tidak ada usaha mana-mana pihak untuk keluar dari Kuantanlah. Tinggalkan Kuantan. Itu yang pertama. Isu Lynas ini memuncak bukan semasa mula-mula kilang itu dibina tetapi saya ingat Dr. Raja, bilakah agaknya?

Raja Dato' Abd Aziz bin Raja Adnan [Ketua Pengarah, Lembaga Perlesenan Tenaga Atom]: Tahun 2011.

Tuan Pengerusi: 2011. *Can you tell… [Disampuk] 2011? So, can you tell me about the earlier months of 2012,* keadaan pasaran? Ini semua semasa berlaku urus niaga sebelum isu Lynas itu timbul sebagaimana yang ada sekarang. Mungkin tidak akan menggambarkan secara tepat. Jadi, walau apa pun, boleh atau tidak memberikan pandangan, input, empat bulan pertama tahun 2012. Bagaimanakah keadaan pasaran hartanah di Kuantan?

Encik Mohd Fawzi bin Ibrahim: Berdasarkan pada transaksi ataupun pindah milik yang dilakukan oleh pejabat saya, sebab kami ada buat audit hartanah dan lelongan awam, setakat empat bulan yang pertama ini, setakat hari ini kita telah banyak berjaya menjual hartanah di sekitar Kuantan sama ada teres ataupun berkembar. Begitu juga dengan lelongan awam, setiap kali dilelong, kebiasaannya ada pembeli, menandakan permintaan itu masih lagi ada.

Dato' Abd. Rahman Dahlan: *[Bercakap tanpa menggunakan pembesar suara]*

Encik Mohd Fawzi bin Ibrahim: Ini disebabkan harga lelong ini...

Dato' Abd. Rahman Dahlan: Tuan Pengerusi, bukan lelong. Yang pasaran tadi.

Tuan Teng Boon Soon: *Normal market.*

Dato' Abd. Rahman Dahlan: *Normal market* tadi itu yang kata empat bulan yang pertama ini, masih laris lagi bukan?

Encik Mohd Fawzi bin Ibrahim: Ya.

Dato' Abd. Rahman Dahlan: Okey. Itu pada harga yang lebih tinggi, tinggi dari tahun 2011 ataupun lebih rendah?

Encik Mohd Fawzi bin Ibrahim: Okey. Sebelum saya pergi pada soalan Yang Berhormat, untuk makluman Dato' Sri, Dato', tuan-tuan dan puan-puan, kita sebagai sebuah firma agen hartanah yang berdaftar, kebiasaannya sebelum seseorang pelanggan melantik kita untuk menjual hartanah. Kita akan memberi nasihat daripada segi harga. Kita akan pastikan hartanah yang dijual itu, adalah mengikut pasaran semasa. Jika penjual bersetuju dengan kami punya cadangan, barulah kami akan menjual hartanah itu kepada orang awam. Jadi, harga itu bergantung pada harga pasaran semasalah. Kebiasaannya harga kalau tahun 2012 lebih baik dari tahun 2011.

Setakat ini pengalaman saya tidak ada berlaku penurunan harga kecuali pada tahun 2002, berlaku satu banjir besar di Kuantan mengakibatkan beberapa taman perumahan yang berlaku penurunan harga secara mendadak. Itu tahun 2002 lah, selepas banjir besar berlaku di Kuantan pada tahun 2001. Satu lagi saya hendak maklumkan di sini kalau harga rumah bawah daripada RM200,000 di daerah Kuantan, tidak menjadi masalah untuk dijual.

Tuan Pengerusi: Okey. *Anymore question.* Ada apa-apa lagi, terakhir hendak cakap?

Dato' Zulkifli bin Noordin: Saya hendak tanya. Secara umum, kita punya *concern,* jawatankuasa punya *concern* ialah persepsi yang menyatakan berlaku penurunan harga yang mendadak dan penjualan hartanah di Kuantan akibat daripada Lynas. Daripada segi pengalaman Encik Fawzi sendiri, 13 tahun di Kuantan. Berlakukah terutamanya selepas tsunami yang melanda Fukushima bulan Mac tahun lepas, 2011? Berlaku atau tidak? Persepsi itu betulkah, tidak betul?

Encik Mohd Fawzi bin Ibrahim: Berdasarkan saya punya pengamatan sepanjang sehingga tahun 2012 inilah, tidak ada berlaku penurunan hargalah. Persepsi itu cuma daripada segi secara lisan tidak ada dapat ditunjukkan dalam bentuk apa-apa *evidences*.

Tuan Pengerusi: Okey. kalau tidak ada apa-apa saya mengucapkan terima kasih.

Encik Mohd Fawzi bin Ibrahim: Okey. Terima kasih. *Assalamualaikum.*

[Saksi keluar meninggalkan bilik mesyuarat]

Tuan Pengerusi: Untuk makluman mesyuarat, Datuk Roosme terpaksa meninggalkan mesyuarat kita kerana sesuatu sebab yang tidak dapat dielakkan. Beliau digantikan oleh Encik Kamarul. Seterusnya kita menjemput Dr. Abd. Rahman?... *[Bertanya kepada pegawai Urus Setia]* Dr. Abd. Rahman bin Omar. Dia seorang?

Encik Wan Kamarul Ariffin bin Wan Ibrahim [Penolong Setiausaha I (Perundangan dan Prosiding)]: Berdua. Dengan Encik Nazarudin.

Dato' Abd. Rahman Dahlan: Ini sekali datang atau apa?... *[Disampuk]*

Tuan Pengerusi: Nombor tiga. Individu.

Dato' Abd. Rahman Dahlan: Masuk sekali?

Tuan Pengerusi: Dia seorang.

Encik Wan Kamarul Ariffin bin Wan Ibrahim: Dr. Abd. Rahman sahaja yang datang. Yang lain tidak ada. *So,* tinggal Encik Nazarudin.

Dato' Abd. Rahman Dahlan: Encik Nazarudin ini yang mana satu?

Encik Wan Kamarul Ariffin bin Wan Ibrahim: Tidak ada dalam *list* asal.

Dato' Abd. Rahman Dahlan: *List* baru.

Encik Wan Kamarul Ariffin bin Wan Ibrahim: Dia daripada UiTM.

Tuan Pengerusi: Daripada?

Encik Wan Kamarul Ariffin bin Wan Ibrahim: UiTM.

Dato' Abd. Rahman Dahlan: Daripada mana?

Encik Wan Kamarul Ariffin bin Wan Ibrahim: UiTM tetapi individulah.

[Saksi-saksi individu mengambil tempat di hadapan Jawatankuasa]

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Tuan Pengerusi: Berapa orang ini, dua atau seorang? Dr. Abd. Rahman, Encik Nazarudin, tidak ada?

Dr. Abd. Rahman bin Omar: Tidak mengapa. Dia di luar.

Tuan Pengerusi: Ya?

Dr. Abd. Rahman bin Omar: Tidak mengapalah. Dia tunggu sahaja di luar.

Tuan Pengerusi: Tunggu luar. Okey. Pertamanya, jawatankuasa mengucapkan berbanyak-banyak terima kasih kerana kesudian untuk bersama memberikan pandangan mengenai projek Lynas pada hari ini. Seperti mana yang diketahui, jawatankuasa ini adalah jawatankuasa pilihan khas Parlimen yang dipertanggungjawabkan untuk mendengar pandangan-pandangan daripada pihak awam mengenai projek ini untuk kita kumpulkan dan seterusnya bagi kita bentangkan ke Parlimen dalam sesi bulan Jun yang akan datang. Jadi, sebelum saya menjemput, saya harap, anda dapat memperkenalkan diri, berikan latar belakang dan apakah perkara pokok yang hendak disampaikan kepada jawatankuasa untuk makluman kami semua. Silakan.

Dr. Abd. Rahman bin Omar: *Assalamualaikum warahmatullaahi wabarakaatuh* dan salam sejahtera. Saya Dr. Abd. Rahman Omar mempunyai ijazah PhD. dalam fizik nuklear pada tahun 1983 dahulu. Saya dahulunya pensyarah di UKM dan kemudian berpindah ke UPSI dan bersara pada tahun 2010.

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Saya hendak bincang satu perkara sahaja *crux of the matter which is thorium,* kalau tidak ada *thorium* tidak ada masalah kan? Jadi itu sahaja, teruskan okey. *Thorium* 232 adalah satu-satunya isotop *thorium* yang wujud secara tabii, itu sahaja 100% 232. *Thorium* 232 ini adalah radioaktif, mempunyai separuh hayat selama 14 bilion tahun, mereput secara alfa sahaja tidak ada beta dan tidak ada gamma dan tenaga yang dibawa oleh zarah alfa itu adalah empat *million electron* volt. Apa yang dimaksudkan dengan separuh hayat 14 bilion tahun adalah, kalau kita ada lapan unit sekarang ini, 14 bilion tahun daripada sekarang tinggal empat, 28 bilion tahun daripada sekarang tinggal dua dan seterusnya. Itu yang dimaksudkan dengan separuh hayat.

Ini bermakna terlalu sedikit sangat yang mereput kerana suatu benda itu separuh akan mereput dalam masa 14 bilion tahun. Matahari/*universe* – umur *universe* lebih kurang 13 bilion tahun, matahari akan wujud dijangkakan selama 10 bilion tahun lagi. Jadi jika matahari meletup dan meledak lebih daripada separuh torium yang ada di bumi ini masih utuh, itu maknanya terlalu sedikit. Apa yang dimaksudkan dengan 4 *million electron* volt tenaga pada zarah alfa itu, zarah ini akan merentas di dalam udara sejauh 2.5 sentimeter. Jadi, udara *can become a shield,* boleh menjadi perisai. Jika kita berada lebih daripada 2.5 sentimeter daripada sumber yang mereput itu zarah alfa tidak akan sampai kepada kita.

Seorang Ahli: *[Bercakap tanpa menggunakan pembesar suara]*

Dr. Abd. Rahman bin Omar: Zarah alfa dan pereputan itu adalah 4 milimeter elektron volt. Tenaga yang sedemikian merentas di udara cuma sejauh 2.5 sentimeter, bermakna kalau kita lebih daripada 2.5 sentimeter, tiga sentimeter atau lebih sinaran itu atau zarah itu tidak akan sampai kepada kita. Macam inilah, saya berani bertumbuk dengan Mike Tyson kalau saya berada tiga meter daripada dia kerana tangan dia cuma 2.5 meter. Jadi macam mana dia *swing* pun tidak akan sampai kepada saya.

Tuan Pengerusi: Prof telah meletakkan asas fakta.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Pengerusi: Bagaimana...

Dr. Abd. Rahman bin Omar: Itu tidak...

Tuan Pengerusi: ...Fakta yang Prof letakkan itu mengenai torium....

Dr. Abd. Rahman bin Omar: Itulah faktornya...

Tuan Pengerusi: ...Boleh menjawab...

Datuk Abd. Rahman Dahlan: Di sebelah sini profesor, pengerusi yang bercakap, sini-sini.

Tuan Pengerusi: Okey Prof telah meletakkan asas mengenai torium okey.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Pengerusi: ...Bagaimanakah asas itu boleh digunakan untuk menjawab isu dan kebimbangan yang dibangkitkan dalam Lynas? Boleh terangkan kepada kita? saya percaya Prof tahu latar belakang mengenai projek Lynas.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Pengerusi: ...Tahu apakah kebimbangan ataupun isu yang dibangkitkan dan bagaimana dengan berasaskan kepada fakta tadi boleh membantu kita untuk memahami perkara yang dibangkitkan. Kebimbangan mengenai Lynas itu boleh memberi kefahaman kepada kita untuk kita memahami dengan sebenarnya berasaskan kepada fakta saintifik, boleh bantu?

Dr. Abd. Rahman bin Omar: Jadi kalau torium itu berada di satu tempat dan kita berada lebih daripada satu inci daripada tempat tersebut, sinaran alfa tidak akan sampai kepada kita. Akan tetapi ada kemungkinan habuk. Jadi, habuk itu boleh sampai dan kita mungkin boleh menghidu dan itu akan merupakan satu risiko tetapi itu tidak tinggi. Kalau ada risiko pun kepada pekerja-pekerja. Jadi pekerja-pekerja harus diberikan peralatan yang secukupnya supaya tidak menanggung sebarang risiko, itu yang pertama. Dalam balas membalas dalam *Malaysian Insider* itu, ada yang mengatakan kebimbangan tentang, ada yang mengatakan torium boleh sampai masuk ke sungai, ke laut dan sebagainya dan memusnahkan kehidupan marin, saya rasa itu agak *outrageous* lah ya. Kerana hampir kesemua kompaun ataupun sebatian torium adalah *insoluble*, tidak larut dalam air, *thorium dioxide, thorium sulfide* dan sebagainya.

Kemudian, sebatian ini ketumpatannya adalah sekitar 10 ketumpatan air. Ia tidak larut dalam air dan semestinya akan jatuh, *precipitate,* mendap di tempat takungan sebegitu. Ada kebimbangan tentang kewujudan koloid. Benda yang halus itu boleh menjadi koloid, terapung. Akan tetapi saya jangka yang jatuh dan mendap itu jauh lebih banyak daripada koloid, koloid harus diberikan perhatian. Saya bukan *expert* dalam koloid kena rujuklah, profesor koloid.

Tuan Pengerusi: Perkara yang dibangkitkan, torium ini *low level radiation*.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Pengerusi: Ada perbezaan pendapat dalam saintifik komuniti antara ECRR dan IAEA.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Pengerusi: Boleh Prof komen mengenai perkara itu?

Dr. Abd. Rahman bin Omar: Saya rasa kena rujuk kepada pakar onkologi, pakar perubatan daripada itu kerana bidang saya adalah mengkaji daya-daya di dalam nukleus itu. Tetapi, apa tadi soalannya?

Tuan Pengerusi: Ada perbezaan pandangan di antara saintifik komuniti mengenai *risk.*

Dr. Abd. Rahman bin Omar: Oh, ya yang itu.

Tuan Pengerusi: *Risk of low level radiation.*

Dr. Abd. Rahman bin Omar: *Radiation.*

Tuan Pengerusi: Jadi boleh komen tidak?

Dr. Abd. Rahman bin Omar: Memang ada perbezaan. Seperti yang saya katakan *I'm not qualified to answer that,* tetapi masalah yang selalu dikatakan *low level*, dia tidak beritahu *what level,* berapa *millisievert* atau apa semua? Jadi *unless* kita ada unit-unit yang tertentu, aras yang dipersetujui baru boleh menjawab dengan pastilah. *I denial* kan jawapan itu kerana itu bukan bidang saya.

Tuan Pengerusi: ...Pandangan Prof mengenai Lynas ini macam mana?

Dr. Abd. Rahman bin Omar: Okey, antara yang diutarakan adalah penggunaan asid yang pekat *and* kemudian dikatakan asid ini akan masuk dalam sungai, *just half the truth. The other half of the truth is a matching amount of alkali will be used to naturalize this acid*. Jadi jika digunakan asid sulfurik kemudian ia akan di *naturalize* kan dengan air kapur *calcium hydroxide* maka akan mendapat *calcium sulfide which is gypsum* dan torium ini akan *will be embedded in this thorium, I mean in this gypsum* dan saya dapat maklumat bahawa ada syarikat di China sanggup membeli *gypsum* ini kerana menepati piawaian keselamatan antarabangsa.

Jadi kalau kita tidak mahu, ada *buyer,* tetapi saya ingin menyatakan bahawa *thorium* yang sangat dibenci oleh *Save Malaysia Stop Lynas* ini adalah suatu yang sangat berharga kerana satu tan torium boleh menjanakan tenaga *equivalent* sama dengan 10 *million ton coal.*

■ 1040

Jadi *10 million tonne coal* cukup untuk menjana satu gigawatt selama setahun. Jadi tenaga elektrik yang dihasilkan adalah sekitar RM1 bilion hingga RM2 bilion. Kalau kali dengan 2,000 tan yang akan dihasilkan di Gebeng nanti torium itu bernilai RM2 trilion hingga RM4 trilion. Kita jarang dengar duit macam itu. Jadi tolong jangan buang.

Dato' Abd. Rahman Dahlan: Dr. sini depan sini.

Dr. Abd. Rahman Omar: Ya, saya minta maaf pandangan saya sudah 30 tahun *diabetic.* Saya ada masalah pandangan. *So I am sorry.*

Dato' Abd. Rahman Dahlan: Okey tidak ada masalah… *[Ketawa]* Yang bertanya soalan depan ini pun yang lain cuma mendengar. Minta maaf.

Dr. Abd. Rahman Omar: Ya.

Dato' Abd. Rahman Dahlan: Profesor saya tertarik dengan kesimpulan ini sebab *this is first time* pertama kali saya mendengar bahawa torium ini boleh digunakan untuk menjana tenaga sampai *equivalent to 10 million tan of coal or* arang batu dan Gebeng berpotensi menjana empat trilion *of world of energy* setahun. *Where do you get the…, because* saya tidak tahu kawan-kawan yang lain tetapi ini kira satu *revelation, to me, has it been done.* Ada tak penjanaan kuasa IPP kah di mana-mana di seluruh dunia yang menggunakan torium sebagai *fuel cell* dia ataupun dia punya ini bahan bakar.

Dr. Abd. Rahman Omar: Satu sahaja berlumba-lumba untuk membuat benda itu *on the large scale.* Benda ini telah berjaya dibuat di *Oak Ridge National Lab, Tennessee* pada tahun 1968 hingga 1972 hinggalah Richard Nixon memerintahkan pada masa itu untuk menutup reaktor tersebut. Ada dua teori yang mengatakan satu adalah lobi *the oil company,* ada yang mengatakan adalah kerana jeneral-jeneral hendakkan sedemikian kerana masa itu ada dua *competing technologies,* satu uranium, dan dua, torium. Torium ini di India banyak, Australia banyak, Malaysia pun banyak, China banyak. Jadi uranium adalah strategik bagi mereka kerana mereka sahaja yang boleh memproses uranium pada masa itu. Itu sejarahnya. *Yes it was done successfully* di *Oak Ridge National Lab.*

One thing good about this thorium punya *reactor, thorium is non proliferation* atau *proliferation resistant* tidak boleh jadi bom. Kemudian, *failure is much less* kalau gunakan teknologi uranium wap dijanakan *pressure* lebih kurang sampai 70 hingga 100 *atmosphere* itu yang meletup di Fukushima, Chernobyl dan sebagainya. Akan tetapi kalau guna *thorium Molten-Salt Reactor it operates* dekat *ambient pressure atmosphere* tidak akan tidak meletup, *no melt down* dan sebagainya. *Nuclear physicist and engineers believe that this is inherently safe.*

Tuan Pengerusi: Maknanya dia boleh jadi alternatif kepada nuklear reaktor yang menggunakan uranium.

Dr. Abd. Rahman Omar: *Yes.* Sebenarnya *for the past 30 years*, *I oppose* kerana *it is uranium*. *As* surat khabar keluar *said it if something an fail, it will fail* seperti *Three Mile Island, Chernobyl* dan sebagainya. Sekarang *there is technology that I can support. In fact thorium* ini kalau kita buka *thorium for Singapore okay, Singapore* menganggap *thorium* adalah penyelamat mereka. Bukalah. *Welcome to the future* begitu. *It is a security for energy and water security* dan sebagainya. Saya persilakanlah semua.

Jadi sebenarnya kita patut tiru Singapura ini dia *educate* dan *advocate* sebelum projek bermula. I rasa kita buat kesilapan ini kerana *we do not educate and advocate* projek Lynas ini.

Tuan Liang Teck Meng: Dr. Tidak adakah risiko kebocoran walaupun kita menggantikan dengan torium untuk loji nuklear.

Dr. Abd. Rahman Omar: Kebocoran di mana? Di Lynas atau di...

Tuan Liang Teck Meng: Loji nuklear.

Dr. Abd. Rahman Omar: *There is always - if we do not do it properly so it will become engineering* atau *technical issue.* Akan tetapi dari segi saintifik *it should be safe*. Ya lah kadang-kadang *lining* tidak buat betul-betul, *thickness* kita, *welding* tidak betul begitu dan begini, ya ada risiko, *yes.*

Tuan Teng Boon Soon: Tuan Pengerusi saya hendak tanya satu soalan. Profesor *I read somewhere*, saya sudah baca bahawa negara China menggunakan torium untuk menggantikan uranium.

Dr. Abd. Rahman Omar: *Yes, they are working very hard, learning.*

Tuan Teng Boon Soon: Dalam mengeluarkan *energy nuclear energy and is it more effective than uranium?*

Dr. Abd. Rahman Omar: *Yes.*

Tuan Teng Boon Soon: *It is true?*

Dr. Abd. Rahman Omar: *Yes, because uranium it is solid fuel* dia ada *casing, radiation alpha beta gamma make the casing brittle. So only after ten or 15% usage* benda itu sudah tidak guna, kena *reprocess. Thorium* ini boleh digunakan *until the last drop because the technology is…,* campak sahaja dekat situ, tidak ada *casing,* tidak ada apa.

Jadi efisien dari segi itu kemudian efisien dari segi *energy* yang dikeluarkan *energy density of thorium is much more. We should go* - kerana dalam *Economic Transformation Program* kita ada 15 saya rasa mungkin 2012 penubuhan *Malaysia Nuclear Power Corporation*, saya dapati mereka ada mencadangkan empat nuklear reaktor dan semuanya uranium. *I think we should throw those four out* ganti dengan torium.

Tuan Pengerusi: Tidak mengapalah kita tidak masuk bab itu, kita hal Lynas tidak apa.

Dr. Abd. Rahman Omar: Tidak mengapa *because uranium will be under the mercy of the uranium supplier.*

Tuan Pengerusi: Akan tetapi itu kita akan bincang bila sampai masa.

Tuan Teng Boon Soon: *Okay. We come back to Lynas. Another issue relating to Lynas* iaitu dalam *management of waste,* salah satu *by product* WLP *water leaching product*. Saya hendak tanya apa yang dicadangkan oleh Lynas dengan menggunakan *recycling method to manage waste.* Jadi WLP mungkin mengandungi torium juga.

Dr. Abd. Rahman Omar: Itulah memang...

Tuan Teng Boon Soon: Saya hendak tanya profesor, adakah kaedah *recycling* ini *advisable from the environmental point of view*.

Dr. Abd. Rahman Omar: *I am not from profession that* tidak tahu sangat tentang *recycling* itu, apa yang dimaksudkan dengan *recycling.* Akan tetapi apa yang saya...

Tuan Teng Boon Soon: *Recycling* kalau boleh supaya dia boleh menjadi bahan membina jalan, misalnya menggantikan pasir dan juga dia menggunakan bahan itu jadi baja. *So* dari segi seorang dari pandangan pakar torium adakah itu *advisable* dari segi *environmental point of view.*

Dr. Abd. Rahman Omar: Seperti yang saya katakan tadi untuk mengekstrak *rare earth* kita menggunakan *concentrated sulfuric acid*. Sudah dapat *rare earth* maka kita meneutralkan asid tersebut dengan *alkaline* dan produk yang dihasilkan adalah *gypsum. Concentration of thorium in the gypsum from* yang akan dilaksanakan adalah lebih rendah daripada *concentration* masa dia datang. *Concentration* masa dia datang, adalah lebih kurang *19,004 per million* begitu.

Masa dalam bentuk *gypsum* boleh jadikan bentuk *brick* dan sebagainya dijalankan akan sekitar *1,504 per million.*

■ **1050**

Jadi, nilai ini adalah apa yang dikenali sebagai *naturally occurring radioactive material* (NORM), *level NORM*. Jadi, menurut piawaian antarabangsa adalah *safe* untuk buat jambatankah, gitu, gini. Jadi, kalau itu yang dimaksudkan dengan *recycling. I don't think that is called recycling. Just the dillution process, they make it more diluted, then store in the bricks*kah*, in cement, in gypsum* itu. *Gypsum*lah untuk siling dan apa semua.

Tuan Teng Boon Soon: Mengenai orang ramai, orang awam risau bahawa dengan kaedah *recycling* itu ia akan memberikan kesan negatif kepada kesihatan, keselamatan awam. Bagaimana pandangan sebagai seorang pakar torium? *Is it better we do against that method, recycling method.*

Dr. Abd. Rahman bin Omar: Tidak. *Just* macam kita *use gypsum* dalam siling dekat *wall* apa semua. *So, is* macam sama dengan *gypsum* itu. *Unless gypsum* itu hancur jadi habuk *then*, tetapi kalau tidak hendak guna tidak mengapa, buat guna untuk benda lain, jambatankah, jalan raya, apa semua.

Tuan Pengerusi: Itulah isunya, antara perkara yang dibangkitkan oleh orang ramai ialah dari segi *waste disposal* itu, penggunaannya. Kita dimaklumkan *waste disposal* itu dijadikan produk yang boleh digunakan dalam bentuk lain tetapi telah diberhentikan di negara China.

Tuan Teng Boon Soon: Lima tahun dahulu.

Tuan Pengerusi: Lima tahun dahulu, jadi di sinilah kita hendak ambil peluang untuk *verify the fact* untuk...

Dr. Abd. Rahman bin Omar: Itu tidak betul. Rasa di China tidak diberhentikan pasal...

Tuan Pengerusi: *The waste product.*

Dr. Abd. Rahman bin Omar: *Yes,* yang mengandungi torium itulah. *When we talk about waste product, there's only one thing, it is thorium.* Yang lain *is not really waste*. Jadi, torium yang saya katakan tadi, sekarang ini di dunia cuma satu negara sahaja yang memproses torium *whichis* China. Umpamanya, mentol lampu minyak gas itukan. *Supplier only* daripada China dan sebagainya. Di negara China masih memproses torium dan apa yang saya katakan tadi, mereka sanggup membeli torium yang ada dalam *gypsum* tadi. *I don't think it is wise to reveal which company* apa gitu, gini, *but* kalau *committee* hendak...

Dato' Zulkifli bin Noordin: Maksud profesor, *waste* daripada torium itu di*recycle* balik di China?

Dr. Abd. Rahman bin Omar: Sebenarnya, *waste* itulah *is the thorium.*

Dato' Zulkifli bin Noordin: Di*recycle* balik?

Dr. Abd. Rahman bin Omar: Dekat sana sebagai diguna untuk *building material* dan ada sahaja. Ia boleh ekstrak untuk tujuan-tujuan lain untuk tenaga dan sebagainya. Jadi...

Tuan Teng Boon Soon: Setahu profesor, mengapa China berhentikan kaedah *recycling* lima tahun dahulu. Adakah bukti-bukti telah menunjukkan bahawa kaedah itu tidak lagi boleh dipakai.

Dr. Abd. Rahman bin Omar: Saya tidak tahu fakta yang ia telah diberhentikan lima tahun dahulu. Yang saya tahu, proses itu masih berjalan di negara China.

Tuan Pengerusi: *Add with us* yang benda itu masih lagi diteruskan. *Later,* bukan sekarang. Kalau boleh bantu carikan maklumat.

Dr. Abd. Rahman bin Omar: *I think, insya-Allah* saya akan dapatkan maklumat itu ya. China terus memproses torium.

Tuan Pengerusi: *Professor Badrul, because this is all very technical. You have anything to- so, that your question can help to illuminate* perkara-perkara yang patut kita tahu. Sebab ini *very technical.*

Prof. Dr. Badrulhisham bin Abdul Aziz [Timbalan Naib Canselor (Akademik dan Antarabangsa Universiti Malaysia Pahang), Kementerian Pengajian Tinggi]: Saya rasa…, *I think that is* amat jelas Tuan Pengerusi, cuma apa satu kita kena beza di antara torium yang tadi yang digunakan dalam *waste* itu dengan apa yang disebutkan oleh Dr. Rahman tentang torium yang digunakan untuk *fuel.* Saya rasa dalam bentuk Lynas tadi torium itu tidak diekstrak keluar di dalam bentuk *oxide* yang sentiasa duduk dalam itu dan hanya *level and that,* apa yang disebutkan oleh Dr. Rahman tadi itu.

Seorang Ahli: *[Bercakap tanpa menggunakan pembesar suara]*

Prof. Dr. Badrulhisham bin Abdul Aziz: *[Ketawa]* Okey, saya rasa isu dia, tengok balik kepada Bukit Merah dan juga dengan Lynas. Di Bukit Merah kita ada lebih kurang 360,000 ppm *of thorium* dalam *waste* dia. *Which is very high, which is very valuable* yang kalau kita ekstrak *that thorium* itu kita boleh jadikan ia *fuel.* Dalam Lynas, *waste* dia mengandungi torium itu lebih kurang 1,650 ppm itu, *very low. Which is not warrant for* ekstrak untuk *fuel* sebab ia terlalu rendah berbanding yang dekat... Jadi, semasa kami projek dengan nuklear Malaysia dulu, semasa kita ekstrak di Bukit Merah, ia tinggi sebab itu ia ada *potential* sebagaimana yang disebut oleh profesor tadi. Akan tetapi di Lynas, dibiarkan dalam bentuk itu sebab *is not worth it to extract, because the cost will be very expensive and you get very little thorium.* Itu maksud dia.

Seorang Ahli: *[Bercakap tanpa menggunakan pembesar suara]*

Prof. Dr. Badrulhisham bin Abdul Aziz: Ya? Yang di Lynas tidak ada. Ia kekal dalam bentuk *waste* itulah. Itu yang kata *waste* itu tadi boleh di*recycle*kan dijadikan produk lain. Apa yang dimaksudkan *gypsum* tadi oleh Dr. Rahman, ia ada tiga *waste* dekat situ.

WLP mengandungi torium, yang lain itu, yang *gypsum* itu, torium dalam *gypsum* yang dua dalam produk yang lain itu *very-very low. It's much more lower than the* WLP itu. Isu sekarang kita ini ialah WLP itulah.

Tuan Pengerusi: Akan tetapi, walau bagaimanapun oleh kerana telah dikemukakan kepada Jawatankuasa ini bahawa usaha sebegitu telah diberhentikan di negara China, kita hendak tahu sama ada itu satu kenyataan...

Prof. Dr. Badrulhisham bin Abdul Aziz: Saya rasa saya kena perbetulkan *statement* itu sebab saya berada semasa seminar itu dibuat. Apa yang dikatakan oleh profesor daripada China daripada *Beijing University* itu ialah apabila ditanya tentang *waste* itu, dia kata tidak digunakan. Akan tetapi dia kata dia bukan *expert* di dalam benda itu. *He is the expert in the processing, not in the waste management. That was the...*

Dato' Zulkifli bin Noordin: Siapa...

Tuan Teng Boon Soon: *The problem this statement has come out very markedly,* secara ketara dalam akhbar Cina bahawa kaedah ini tidak lagi digunakan, tidak diguna pakaikan di negara China yang mempunyai pengalaman 30 tahun dalam menguruskan *rare earth.* Pada sekarang kita hendak gunakan pula.

Prof. Dr. Badrulhisham bin Abdul Aziz: Yang Berhormat, tetapi saya rasa kita kena baca *full statement* yang dibuat oleh profesor itu. Saya minta yang itu. *I was there, the statement* keluar dekat situ. Apabila ditanya, profesor itu menjawab. Sebagaimana Dr. Rahman kata, saya bukan *expert* dalam *waste management* itu. Ini pendapat dia tanpa ada rujukan. Itu yang disebut oleh itu.

Dato' Abd. Rahman Dahlan: Akan tetapi profesor, *to be fair to us, it was mentioned by the very person. Even though* kalau dia kata, dia *qualify statement,* dia kata dia bukan *expert. The fact is that he uttered those statements.* Dia kata benda ini sudah tidak diguna pakai di China *five years ago. So, that carries weight.* Apa yang Tuan Pengerusi minta itu, saya rasa saya setuju. Kalau kita boleh dapat *statement* daripada Profesor Yen itu, kata *clarify once and for all, what did he mean by* di China tidak pakai lagi. *Then it would make our life* inilah...

Prof. Dr. Badrulhisham bin Abdul Aziz: *That's why* ada beberapa isu di situ.

Tuan Teng Boon Soon: Akan tetapi kita rujuk balik kepada Profesor Yen Chun Hua, orang yang membuat kenyataan itu.

Prof. Dr. Badrulhisham bin Abdul Aziz: *Yes, clarification ada a few things* yang kita kena *be very careful* bila kita minta *that clarification. Is it a recycle for the fuel, recycle as a by product* lain atau *recycle* lain. Ketiga-tiga itu kena *very clear. Its not only...*

Tuan Pengerusi: Ini antara isu yang perlu kita ada penjelasan. Jadi, memang kita hendak carilah apa-apa pun daripada siapa pun.

Dato' Abd. Rahman Dahlan: Dua perkaralah kalau boleh Tuan Pengerusi. Satu, penjelasan tentang tadi itu, *by product* untuk jalan raya *and all the other things* yang baja.

Kedua, tentang *the* profesor kata tentang *fuel energy* ini. *If we can get a little bit more information,* profesor boleh bantulah nanti.

Dr. Abd. Rahman bin Omar: Ya, *insya-Allah.*

Tuan Teng Boon Soon: *Because, it has become a focused issue.* Pandangan *public*, *they want the waste to be exported rather than to remain in Malaysia. That's why we need the clarification very urgently.*

Tuan Pengerusi: Kalau benda itu boleh *recycle, there is no need to export it* tetapi dengan syarat yang *recycle* itu bukanlah suatu yang mendatangkan masalah kepada *environment* seperti yang dibangkitkan. *So,* kita kena *clear all these things.* Jadi, soalnya kena dapatkan penjelasan termasuk daripada *that professor.*

Dato' Zulkifli bin Noordin: Profesor, saya hendak tanya satu penjelasan. Selalu dibangkitkan perbandingan antara isu torium di Bukit Merah dengan torium di Lynas ini. Boleh beri penjelasan sedikit, ada bezakah atau betul persamaan yang dibuat itu.

■ **1100**

Dr. Abd. Rahman bin Omar: *Thorium is thorium*. Sama *everywhere in* dunia ini.

Dato' Zulkifli bin Noordin: Apa beza isu yang di Bukit Merah dan isu yang di Lynas ini? Dari segi *waste thorium* itu?

Dr. Abd. Rahman bin Omar: Akan tetapi *let's us* – saya cadangkan begini. *Let's settle this issue once and for all*. Kita buat *joint committee between those who are agree with thorium and those who are against thorium,* kita buat. *Do the explanation*…

Dato' Zulkifli bin Noordin: Tidak. Soalan saya bukan fasal *joint committee*. Soalan saya, apa beza Bukit Merah itu, sama ada *joint committee* atau tidak kami akan buat keputusan. Akan tetapi kami hendak dapatkan input. Pasal persepsi dia sekarang ini Bukit Merah dengan Lynas sama. Kita tahulah isu Bukit Merah sampai mahkamah buat keputusan mesti ditutup disebabkan bahaya torium itu. Jadi, apa beza itu dengan Lynas? Ada perbezaan kah atau sama ataupun persepsi itu betul ataupun tidak betul?

Dr. Abd. Rahman bin Omar: Saya rasa persepsi itu yang tidak betul.

Dato' Zulkifli bin Noordin: Di mana yang tidak betul itu?

Dr. Abd. Rahman bin Omar: Kajian pun banyak *based on statistical* bukan *cause-effect, direct effect* dan sebagainya. Jadi hendak *pin-point* pun susah sangat. *It was based on emotion,* orang punya testimoni dan sebagainya. Jadi, saya kata kita buat sebab *thorium has not change much over the...*

Dato' Zulkifli bin Noordin: Tidak. Secara saintifik, kali ketiga saya ulang.

Dr. Abd. Rahman bin Omar: Ya, saya.

Dato' Zulkifli bin Noordin: Apa beza kesan *thorium* di Bukit Merah dengan yang disebut di Lynas ini? Ada beza kah ataupun...

Dr. Abd. Rahman bin Omar: *I think the intensity may* apa, *the threshold* kot.

Dato' Zulkifli bin Noordin: Mungkin? Saya tidak mahu mungkin. Profesor datang sebagai pakar ini. Kalau boleh bantu kami.

Dr. Abd. Rahman bin Omar: *Because that is health* punya isu. *I am not a medical doctor. So, I do not think I can answer that*…

Dato' Zulkifli bin Noordin: Tidak boleh jawab?

Dr. Abd. Rahman bin Omar: Tidak boleh *because that is health issue.*

Dato' Zulkifli bin Noordin: Siapa patut jawab itu?

Dr. Abd. Rahman bin Omar: Doktor-doktor *oncologist* yang selepas ini.

Dato' Zulkifli bin Noordin: Dari segi kadar *thorium* nya? Bukit Merah dengan Lynas?

Dr. Abd. Rahman bin Omar: *The only different is the intensity, the amount.*

Dato' Zulkifli bin Noordin: Ya lah, berapa perbezaan?

Dr. Abd. Rahman bin Omar: *I think a factor of* yang di Lynas *is about 1,900 ppm* di Bukit Merah berapa tadi? *What was the number*? Berapa *ppm?*

Prof. Dr. Badrulhisham bin Abdul Aziz: *Basically* di Bukit Merah *is about 360,000 ppm...*

Dr. Abd. Rahman bin Omar: *360,000 ppm.*

Prof. Dr. Badrulhisham bin Abdul Aziz: Dia punya *raw material is about very high.* Lebih kurang dalam *80,000 ppm.*

Dr. Abd. Rahman bin Omar: *360,000 ppm?*

Prof. Dr. Badrulhisham bin Abdul Aziz: Ya. Itu lebih kurang dalam 30 kali ganda dan *the... about* 60 kali ganda. *So, that is the* perbezaan. Itu ada dalam *report, I think something* yang kita boleh *verified*.

Tuan Liang Teck Meng: Profesor, saya ingin merujuk kepada kertas ini yang diberi kepada kami, muka surat pertama iaitu sinaran *alpha* tidak akan menembusi oleh manusia.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Liang Teck Meng: Okey, sebab andai kata seorang berada lebih daripada 2.5cm maka dia tidak berbahaya?

Dr. Abd. Rahman bin Omar: Itu udara. Udara *becoming the shield*.

Tuan Liang Teck Meng: Ya, jadi kalau seseorang itu terhidu partikel *thorium* itu dan ia masuk ke badan kami dan ia *stay forever* dalam badan ini, adakah ia berbahaya?

Dr. Abd. Rahman bin Omar: Hendak kata *statement* dia akan *stay forever* itu fasal *body* kita, ini doktor yang kena menjawab ya, doktor perubatan. kadang-kadang *reject,* kemudian *the fact that long life* itu*, the long half-life* bermakna terlalu sikit yang akan *decay*, ya. *Most of it remains intact as neutral unless the thorium* itu, dia punya molekul ataupun dia punya atom sendiri *is dangerous*. Akan tetapi saya rasa yang *dangerous is the nuclear part, okay.*

The nuclear part is the one that emit, bila dia *decay* yang *emit alpha but the percentage that will decay is very small because of the very long half-life.*

Dato' Abd. Rahman Dahlan: Ya, profesor. Kalau ia *airborne, dust*.

Dr. Abd. Rahman bin Omar: Ya, ya.

Dato' Abd. Rahman Dahlan: *Airborne*. *You* hidu, dalam pandangan profesor, dia tidak begitu membahayakan*? Is that what you are trying to say*?

Dr. Abd. Rahman bin Omar: Ada risiko akan tetapi tidak membahayakan.

Dato' Abd. Rahman Dahlan: Itulah. Maknanya tidak merbahaya. Apa...

Dr. Abd. Rahman bin Omar: *Depends on the dose* lah.

Dato' Abd. Rahman Dahlan: *Dose of...*

Dr. Abd. Rahman bin Omar: Berapa banyak habuk *thorium* yang disedut. Akan tetapi bukan semua habuk itu *thorium*. Ingat ya. *Thorium* itu cuma tidak sampai 0.2% daripada *ore* yang ada. Bukan semua habuk itu torium ya.

Dato' Abd. Rahman Dahlan: Okey, agak-agaklah berapa sudulah *thorium* ini, kalau kita – yang *pure one, you know,* yang betul-betul 100% torium ini. Kalau kita makan kena pergi tandas. *How much*?

Dr. Abd. Rahman bin Omar: *It is not in my – I could not answer it at the moment. I may be able to answer it if you give me time.*

Puan Hajah Nancy Shukri: *Can I just continue on from there? How much the content of the* – yang kita hidu torium ini *that can cause harm to somebody*? *Very simple.*

Dr. Abd. Rahman bin Omar: *How much*?

Puan Hajah Nancy Shukri: *How much that you* hidu *or you breathe in or whatever because* ada isu dekat sini, *when they breathe in the thorium*, *that it can cause harm to the people. So, how much of it that can really cause harm, that it is really so risky for us?*

Dato' Abd. Rahman Dahlan: *May I?*

Dr. Abd. Rahman bin Omar: *The only harm it can do if you ingest.*

Dato' Abd. Rahman Dahlan: *May I? Sorry.*

Dr. Abd. Rahman bin Omar: Kalau *you purposely* makan. Kalau letak di *palm, it will never penetrate through your skin*. Kemudian dalam air, dia tidak *dissolve* dalam air. *So,* itu yang dia kata, *the* risiko *is* kalau torium itu jadi *airborne.*

Dato' Abd. Rahman Dahlan: Ini yang – masalahnya profesor, kita dapat dua pandangan daripada *public,* daripada *Save Malaysia Stop Lynas* ini. Dia kata, *"kalau airborne sahaja, you sedut, you matilah."*

Dr. Abd. Rahman bin Omar: Tidak adalah.

Dato' Abd. Rahman Dahlan: *I mean something like that.* Lebih kurang.

Dr. Abd. Rahman bin Omar: *Nothing further from truth.*

Dato' Abd. Rahman Dahlan: Ya itu. *So*...

Dr. Abd. Rahman bin Omar: Itu adalah...

Dato' Abd. Rahman Dahlan: *If you are..*

Dr. Abd. Rahman bin Omar: *Too outrageous.*

Dato' Abd. Rahman Dahlan: *Professor have you been to* Lynas punya *site?*

Dr. Abd. Rahman bin Omar: *No*, belum. *I wish they can, they would invite me.*

Dato' Abd. Rahman Dahlan: *[Ketawa] Maybe I can ask* Raja Dato'. *If you are standing next to...*

Seorang Ahli: *The plant..*

Dato' Abd. Rahman Dahlan: *Not the plant*, bukan. Yang tempat menyimpan *waste* itu. *What did you call it?*

Dr. Abd. Rahman bin Omar: Kolam?

Dato' Abd. Rahman Dahlan: *No*. Sekejap, *I* tanya Raja Dato' Abd Aziz sekejap. *If you are standing there, the place that we went to last time and you just stand there. There is a wind blowing, how long must you be standing there until you know, you collapse because of thorium dust* ini*?* Oleh sebab persepsi yang kita dapat ini sampai dekat Kuantan kalau angin kuat, *the whole* Kuantan *people – they will be exposed to danger*. Akan tetapi cara *expert* cakap *it is very*...

Dr. Abd. Rahman bin Omar: Ya. *It is not unlikely. It is unlikely* pada saya.

Raja Dato' Abd Aziz bin Raja Adnan: Saya.

Dr. Abd. Rahman bin Omar: Benda itu dalam bentuk bukitkah, macam mana dia simpan?

Dato' Abd. Rahman Dahlan: Ketua Pengarah AELB ini. Sekejap.

Raja Dato' Abd Aziz bin Raja Adnan: Yang Berhormat, dia ada tiga perkara di sini. Satu, *is the long half-life of thorium. It is billions of years. To give you the life, the age of earth it is already about 4.5 billions years. So, we have not gone even through one half-life of thorium.* Itu pertama *but* tidak banyak yang *decay*.

Seorang Ahli: *What does it mean by... [Bercakap tanpa menggunakan pembesar suara]*

Raja Dato' Abd Aziz bin Raja Adnan: *Which means the age of the earth is only 4.54 billions years. [Disampuk] The thorium,* maknanya *for you to see this break-up, you have to wait for about another… [Disampuk] So, although it is radioactive, it is will not* 'menyepai.' Ia tidak akan *decay* dan dia tidak akan reput*. So, like* profesor kata *it is stable*. Itu pertama. Keduanya, *it is* 0.2% sahaja *the content.* Sebanyak *0.2% is two in one hundred is thorium.*

Dr. Abd. Rahman bin Omar: *Not one thousand?*

Raja Dato' Abd Aziz bin Raja Adnan: *Two in one thousand. Sorry, professor.* Profesor kena perbetulkanlah. *Then, the third one is* dia punya tempat kita simpan itu, *it is a demand of the regulatory authority that it is always kept moist. Therefore, there is no chance of that it being airborne.*

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So one of life. Dua, kandungannya. *Three, there is no airborne. By theory only workers are allowed to be there. The workers will monitor whether airborne*kah *or total* punya *dose?.* Jadi kita memang jaga. *So* kalau kita jaga, kita nampak *that dosage of the dose meter* yang dia ada itu *is high, we will not allow them to work. So it is impossible for them to have any effect, radiation effect.*

Dato' Abd. Rahman Dahlan: *Lets look at the worst case scenario*, Dato'. *Assuming that the moisturizing system to* rosaklah, *you know. Then, it becomes airborne.*

Raja Dato' Abd Aziz bin Raja Adnan: *Then, in their* SOP

Dato' Abd. Rahman Dahlan: *Look at 0.2 percent...*

Raja Dato' Abd Aziz bin Raja Adnan: *Then*, *in the* SOP *they have to attend to this that they will not produce anymore and they will have to have secondary and observatory* punya *emergency system to make that thing moist. We will not allow it, not to be moist.*

Dato' Abd. Rahman Dahlan: *I am talking about the worst case scenario*. Katalah, *will you get sick just by standing next to that storage pond* itu?

Raja Dato' Abd Aziz bin Raja Adnan: *That means a airbone is dry.*

Dato' Abd. Rahman Dahlan: Ya.

Raja Dato' Abd Aziz bin Raja Adnan: Maknanya, *how low...*

Dato' Abd. Rahman Dahlan: *Will you standing for let...*

Raja Dato' Abd Aziz bin Raja Adnan: *Technically you will die of radiation.*

Dato' Abd. Rahman Dahlan: *Radiation* tidak mengapa *but the inhalation of the dusts.*

Raja Dato' Abd Aziz bin Raja Adnan: Ya, *inhalation is because of the radiation that will be ingested when you inhale into your body. So you cannot die of radiation* sebenarnya *or by thorium. It is because content of thorium is very small.*

Prof. Dr. Badrulhisham bin Abdul Aziz: *Boleh saya tambah atau tidak di sini?* Kalau katakan benda itu yang seperti Dato' kata terbanglah *or whatever* dan *inhale,* benda yang akan masuk dalam *blood, thorium* itu cuma 0.33 gram. Kalau katakan 0.33 gram, bermakna *very* halus. Sedikit itu *you* perlu telan atau masuk 1000 *kilograms of waste* Lynas.

Dato' Abd. Rahman Dahlan: *You* sakit *because you* sakit perutkah atau pun *you* makan banyak sangat ataupun...

Prof. Dr. Badrulhisham bin Abdul Aziz: Tidak. Akan tetapi menunjukkan bahawa *you* perlu telan 1000 kilogram...

Dato' Abd. Rahman Dahlan: Ya, 1000 *kilograms then you* akan sakit, bukan?

Prof. Dr. Badrulhisham bin Abdul Aziz: Sakit *because*...

Dato' Abd. Rahman Dahlan: Tidak mengapa.

Prof. Dr. Badrulhisham bin Abdul Aziz: *You* dapat 0.03 gram...

Dato' Abd. Rahman Dahlan: *I understand. You* sakit sebab *you* makan 1000 kilogram.

Raja Dato' Abd Aziz bin Raja Adnan: *Technically, he saying that you* mati *not because of the thorium but because of* sakit perut. *Not, you* mati *because you get that dose.*

Dato' Abd. Rahman Dahlan: *Radiation*lah?

Raja Dato' Abd Aziz bin Raja Adnan: *Yes.*

Dato' Abd. Rahman Dahlan: *But at one* berapa? 1000 *kilograms*?

Raja Dato' Abd Aziz bin Raja Adnan: 1000 *kilograms*?

Prof. Dr. Badrulhisham bin Abdul Aziz: Kalau *you* hendak ada 0.3 gram sahaja dalam *blood, thorium* itu *you* perlu telan 1000 *kilograms of waste* Lynas. Faham atau tidak? Ini kerana...

Dato' Abd. Rahman Dahlan: *You get how much?*

Prof. Dr. Badrulhisham bin Abdul Aziz: *You got* 0.3 gram.

Dato' Abd. Rahman Dahlan: *You know fact factor radiation*...

Prof. Dr. Badrulhisham bin Abdul Aziz: Tidak. Itu baru dia punya - *I think* sebentar lagi mungkin Dato' Dr. Looi, pakar perubatan. Sekejap lagi dia akan *explain about this, on how* berapa banyak *you* perlu telan *that waste* Lynas baru *you* dapat itu.

Dato' Abd. Rahman Dahlan: *I understand. I was there. I understand. So are you saying that* 1000 *kilogram* ini*, you* sakit kerana - ya, *no way you can eat* 1000 *kilograms anyway, you will burst your tummy expose,* bukan? Akan tetapi kalau *you* sampai..., katalah *you* makan 1000 *kilograms* itu...

Dato' Zulkifli bin Noordin: *What will happen?*

Dato' Abd. Rahman Dahlan: *What will happen? Is it radiation? Now you have to reach the pressure of the radiation? Health issue…*

Dato' Zulkifli bin Noordin: *You* kena kanserkah...

Dato' Abd. Rahman Dahlan: Hah! You kena kanserkah atau pun you sakit perut *you* perlu pergi...

Prof. Dr. Badrulhisham bin Abdul Aziz: *I think* belum lagi. *I think* kalau ikut apa yang disebut oleh pakar perubatan, saya bukan pakar perubatan. Cuma kalau disebut yang tadi katakan, *in order for you to test that* seorang itu kena kanserkah untuk 20 tahun atau 30 tahun kanser*,* dia perlu ambil satu apa yang dikatakan *test one of two vials,* 25 cc, benda itulah. *That one* itu pun dia kata, kalau kita hendak lihat benda itu kesannya, kanser pada badan itu, *you* kena dekat sini 17,000 kilogram pula. Baru dapat kesannya pada badan *you* itu.

Dato' Zulkifli bin Noordin: *[Bercakap tanpa menggunakan pembesar suara]*

Prof. Dr. Badrulhisham bin Abdul Aziz: Ia tidak *fatal.*

Tuan Pengerusi: *It is not only* tidak *fatal* tetapi *possible.*

Seorang Ahli: *Possible.*

Tuan Pengerusi: *Okay, so it is okay. Truly establish that*lah. *So...*

Dato' Zulkifli bin Noordin: Tuan Pengerusi, saya hendak tanya apa lagi pada pengetahuan dan pengalaman profesor berkaitan dengan pendedahan pada *thorium* yang ada dalam negara ini yang kita terdedah pada *thorium* sama ada secara hariankah atau secara berkala selain daripada Lynas ini? Ada tempat-tempat lainkah?

Dr. Abd. Rahman bin Omar: Kita *could exist…, thorium* sebenarnya dengan bijih timah. *We live with that for* 100 *of years,* ya. Kalau betul begitu bahaya, kita sudah lihat ramai orang mati di lombong-lombong bijih. Jadi, ya.

Dato' Zulkifli bin Noordin: Makna perlombongan bijih timah di kawasan Ipoh, Perak, Batu Gajah dan semua itu, mengandungi *thorium*?

Dr. Abd. Rahman bin Omar: Ya.

Dato' Zulkifli bin Noordin: Berapa kadarnya berbanding dengan Lynas ini? Lynas dekat sini 1900 qbl

Dr. Abd. Rahman bin Omar: Lynas 1900qbl.

Dato' Zulkifli bin Noordin: Bijih timah?

Dr. Abd. Rahman bin Omar: Bijih timah mungkin kurang sedikit *but still thorium* itu wujud bersama bijih dan tidak salah dalam pemprosesan itu telah diasingkan bijih timah dengan *thorium.* Saya rasa kerajaan Perak ada simpan *thorium* ini dan selama ini sebelum isu ini timbul, kita telah hidup bersama dengan *thorium*. Jadi...

Tuan Pengerusi: Bermaknanya sekarang, *thorium* pada pandangan - dari segi hakikatnya adalah tidak merbahaya.

Dr. Abd. Rahman bin Omar: Tidak.

Tuan Pengerusi: Ia tidak merbahaya. *That is what you are trying to establish it today.*

Dr. Abd. Rahman bin Omar: Ya, *unless* kita sengaja makan *thorium.*

Dato' Abd. Rahman Dahlan: Makan durianlah, makan durian.

Tuan Pengerusi: *Then, okay*. *Maybe one or two last question.* Kita ada ramai hari ini.

Tuan Liang Teck Meng: *Last*. Ini saya juga ingin merujuk kepada muka surat 5.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Liang Teck Meng: Perenggan pertama, profesor kata, setelah artikel Lynas tidak berbahaya diterbitkan...

Dr. Abd. Rahman bin Omar: Ya.

Tuan Liang Teck Meng: Saya dapat kecaman dari banyak pihak. Saya membalas dan berbalas dengan membaca. Apabila saya mempunyai hujah yang kukuh, tulisan saya tidak diterbitkan.

Dr. Abd. Rahman bin Omar: Ya.

Tuan Liang Teck Meng: Saya ingin tahu lebih spesifik...

Dr. Abd. Rahman bin Omar: Ya.

Tuan Liang Teck Meng: Siapakah...

Dr. Abd. Rahman bin Omar: Bolehkah saya...

Tuan Liang Teck Meng: Yang banyak pihak ini, adakah mereka mengandungi atau termasuk pakar-pakar dan juga tulisan tidak diterbitkan oleh siapa ataupun ada media arus perdanakah?

Dr. Abd. Rahman bin Omar: *The Malaysian Insider in the case in point.* Jadi, dia terbitkan artikel *Utusan Melayu* itu dan saya jawab satu demi satu. Mula-mula dia beri. Selepas itu, apabila dia nampak hujah saya kukuh dan *expose the fallacies of* yang bercakap itu, tulisan saya tidak dikeluarkan. Saya beri contoh selepas itu*, these are the thing that,* tetapi lebih daripada sepuluh lagi yang tidak keluar. Apabila tidak keluar, selepas itu saya simpan apa yang saya tulis itu dan boleh bacalah apa yang saya tulis *which is natural, which is fact, and nothing offensives and so on but it does not appear.* Itulah saya *that I learn the hard truth.* Puak-puak yang hendak mengatakan dia *transparent, freedom of talk, freedom of expression*, dia tidak guna *the same yardstick for themselves.*

Dato' Abd. Rahman Dahlan: Profesor, tidak mengapa. Akan tetapi dalam penghujahan itu, antara berbalas-balas hujah itu...

Dr. Abd. Rahman bin Omar: Ya.

Dato' Abd. Rahman Dahlan: Profesor berbalas dengan - Kalau saya lihat di sini berbalas dengan orang yang menyokong Save Malaysia Stop Lynas, bukan?

Dr. Abd. Rahman bin Omar: Ya.

Dato' Abd. Rahman Dahlan: Atau pun Himpunan Hijau?

Dr. Abd. Rahman bin Omar: *Both*lah. Akan tetapi *I do not know* kerana dia guna *nickname* semua, bukan.

Dato' Abd. Rahman Dahlan: Oh! *It is just* normal *reader*lah, ya?

Dr. Abd. Rahman bin Omar: Ya. *So...*

Dato' Abd. Rahman Dahlan: *It does not...*

Dr. Abd. Rahman bin Omar: *I could not tell whether* dia Himpunan Hijaukah atau apakah...

Dato' Abd. Rahman Dahlan: Oh!

Dr. Abd. Rahman bin Omar: But *you know they are against* Lynas, itu sahaja.

Dato' Abd. Rahman Dahlan: *Okay, alright.*

Tuan Pengerusi: Dari cara dia berbalas itu seolah-olah mereka juga ada input daripada pakar. Adakah pakar juga yang berpendapat *thorium* ini berbahaya *as far as you know?*

Dr. Abd. Rahman bin Omar: Ya, ada *people in medical sector* yang ada *reservation* tentang *thorium* ini. *They do. In anything* pun...

Dato' Zulkifli bin Noordin: Saya hendak tahu soalan yang sama tetapi berbanding dengan pakar nuklear yang lain, ada perbezaan pendapat atau tidak?

Dr. Abd. Rahman bin Omar: Kalau *the nuclear physic, the nuclear scientist* rasa kita setuju tentang - Fakta yang saya nyatakan awal itu memang is *universally accepted. There is no* keraguan, tidak ada *the* fakta yang saya nyatakan di muka pertama itu. *There is no uncertainty in that and I stand with every word that I say.*

Tuan Pengerusi: *So you are trying to say that all nuclear physics will agree with you except that they will be other views* kalau ia datang daripada pakar perubatan dan sebagainya.

Dr. Abd. Rahman bin Omar: Ya, kerana...

Tuan Pengerusi: Ya.

Dr. Abd. Rahman bin Omar: Ini kerana perubatan...

Tuan Pengerusi: *Is that correct?*

Dr. Abd. Rahman bin Omar: *Yes*.

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Raja Dato' Abd Aziz bin Raja Adnan: *No, no, I disagree. As a regulator I look at this thing as to be out of risk, that's why we regulate. But in Lynas issue it this of the concentration and amount to which is very low. Nevertheless I think* profesor pun *agree that thorium in very high content would be toxic.* Akan tetapi itu yang dimaksudkan...

Dato' Abd. Rahman Dahlan: *[Bercakap tanpa menggunakan pembesar suara]*

Raja Dato' Abd Aziz bin Raja Adnan: *If carefully regulated, thorium is safe to operate. If carefully regulated and the amount is low. This is what I tend to believe.*

Tuan Pengerusi: *We may call you later.* Bukan hari inilah, kalau katakan kita perlu apa-apa input lain. Terima kasih banyak.

[Saksi-saksi individu keluar meninggalkan bilik mesyuarat]

[Saksi-saksi individu lain mengambil tempat di hadapan Jawatankuasa]

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Tuan Pengerusi: Okey, seterusnya Dato' Dr. Looi. Dia pakar perubatan Hospital Pakar Kuantan.

Dato' Abd. Rahman Dahlan: *Before he came in*, tidak apalah dia masuk. Boleh saya tanya sikit Dato', *for the purpose of clarification and also for the record. A lot of people are concerned about this figure 14 billion half life and all that Dato'. Some understand - Sorry.*

Tuan Pengerusi: *You want everybody to... [Bercakap tanpa menggunakan pembesar suara]*

Dato' Abd. Rahman Dahlan: *It's okay, outside* pun boleh. *No, because I think a lot of people are worried about the 14 billion half life of thorium ini.*

Not many people understand what that is. Is it in the very simple way could you just very quickly explain. I know what it means, but sometimes when we try to explain 14 billion, benda itu *decay 14 billion and then...*

Seorang Ahli: *[Bercakap tanpa menggunakan pembesar suara]*

Dato' Abd. Rahman Dahlan: *That's how* dia orang punya *perception*.

Tuan Pengerusi: Kita mati dulu.

Beberapa Ahli: *[Berbincang sesama sendiri]*

Dato' Abd. Rahman Dahlan: *So, you need to say to on record that if you got 14 billion product material* benda depan *you*, dia tidak akan *decay* dalam masa *14 billion. But, does that means it is not dangerous*.

Raja Dato' Abd Aziz bin Raja Adnan: Yang Berhormat *as a regulatory authority, I look at radiation and I regulate it.* Akan tetapi *you must look at it from very factual perspective. You have – this is naturally occurring radio isotope* yang dia punya *half life* itu *is 14 billion, yes. Which means to say,* dia punya *radioactivity* itu tidak tinggi. *The likelihood of an alpha particle coming from thorium is very, very low.*

Jadi, *you have to consume a lot of thorium before you die of radioactivity. You will have to eat a lot. A lot means is impossible here, and in terms of nuclear physics, some natural radionuclide, natural, not man made, with a very long half life like 14 billion years is considered stable because the half life is much longer than the life of earth* sebenarnya.

Tuan Liang Teck Meng: *So,* Dato' *how many types or how many isotopes thorium* ada? *Thorium 22...*

Raja Dato' Abd Aziz bin Raja Adnan: 232...

Tuan Liang Teck Meng: *232 and then thorium 229?*

Raja Dato' Abd Aziz bin Raja Adnan: 229?

Tuan Liang Teck Meng: *So, how many isotopes, I means...*

Raja Dato' Abd Aziz bin Raja Adnan: *The nuclides...*

Tuan Liang Teck Meng: *The thorium.*

Raja Dato' Abd Aziz bin Raja Adnan: *The several about five. I can't name you, but it's about...*

Tuan Liang Teck Meng: *So when we are saying thorium in Lynas case we are only talking about thorium 232.*

Raja Dato' Abd Aziz bin Raja Adnan: *We are concerned with thorium 232. We are only concerned with 232, because it is radioactive.*

Dato' Abd. Rahman Dahlan: Itulah yang kita kata tadi.

Tuan Pengerusi: *[Bercakap tanpa menggunakan pembesar suara]* Okey, *anyway we can say because we already have next* itu. Pertamanya, kita mengalu-alukan kehadiran Dato' Dr. Looi *and also* Profesor Dato' Dr. Proomwichit. *You are coming together, both of you?*

Dato' Dr. Looi Hoong Wah: Ya, *we are together.*

Tuan Pengerusi: Ya. Bagi pihak Jawatankuasa, kita ucapkan terima kasih kerana bersama untuk menjayakan pendengaran awam ini. Kita mengalu-alukan apa pandangan/cadangan dan sebagainya dan boleh diberikan sama ada dalam Bahasa Malaysia ataupun bahasa Inggeris. Apa-apa kenyataan yang dibuat akan direkodkan sebagaimana memang menjadi keperluan kepada Jawatankuasa.

So, I invite you to introduce yourself dan apakah perkara yang hendak dikemukakan kepada perhatian Jawatankuasa.

11.25 pg.

Dato' Dr. Looi Hoong Wah: Yang Berhormat*, I am just an ordinary citizen of Malaysia. In fact my name, of course, is Dr. Looi and…, but really get so fed up because of the whole business of* Lynas *is there. I mean it something so simple and yet it can make something like pimple out of a mountain of pimple. Small little pimple than make it a mountain.*

I mean as far as radioactivity is concerned, I mean the dose. As far as radioactive is concerned, the only significant radioactive substance in the Lynas waste is thorium 232. Now, thorium 232 gives out only alpha particle and alpha particle actually 2...

Tuan Pengerusi: *Doctor, to be fair for our record, you have to tell your credential, so that it will be recorded in Parliament.*

Dato' Dr. Looi Hoong Wah: *I studied in University of Manchester in 1967. About four years later, I sat for the conjoint exam in London and passed conjoint exam. So, for nearly one year I was the only student in the whole Manchester University which I also a qualified doctor. In other words, I was qualified one year earlier than everybody else.*

Because of that, I have a lot of time to read about this radioactivity. Other than a consultant physician, I have special interest in especially medical nuclear science and also in particle physics. What really interested me at that time, because when you were a student in Manchester University, we had special session on radioactivity. Nuclear physicist brought some uranium and some thorium, that uranium 238 with 5% 235 and thorium 232. We are playing around with it. I was holding it in my hand and yet there's no cancer in my hand at all. It is very ridiculous, because you find that thorium produces only alpha particle. What is alpha particle? Alpha particle is two protons with two neutrons. And whilst in the air and it picks up two electrons because of helium gas.

The one you feel balloons just feel helium gas and as the professor said, alpha particle especially with the bellow energy type within Lynas for thorium 232. It travels only a few centimetres in air, something within 4.4 mega electron volts. Just a short distance.

In body part, it travels less than 0.05 centimeter or 15 microns or much less than that in fact. And in solid state it doesn't move at all. You just move. In other words alpha particle does not cause any medical at all. It's no problem and does not cause an external threat at all.

Now, the only – that's a tiny amount of the when you separate this thorium, just a tiny amount of gamma rays with the nasty one of 0.09. And that actually count of radium from the thorium decay radium produces 0.09 mega electron watts of gamma. That is very tiny. Subsequently others like polonium and the alium, they produce some gamma rays. Now, the alpha rays does not cause any problem at all. It is the beta and gamma. Beta actually electricity electron as well, just electricity.

■ **1130**

And then the gamma rays of course those are nasty one. These are higher energy than X-ray. Those are the ones that can cause cancer as well. But remember, pure gamma ray, we use it to cure cancer? It's not just cure cancer, we use to cure cancer cells with gamma ray. So, we find that as far as the thorium is concern, it does not cause an external danger at all, absolutely no external danger. Now, only they are talking about ingestion and inhalation, these two things. Actually I really want to clarify this. Now, when you swallow the thorium, if you swallow thorium dioxide, pure thorium dioxide that you get about 0.02% absorption which is very tiny and I have calculated in notes, it is only that 0.02% in order to get about 5.58%, which is in a thorium plus which the area we inject foreign here. Thirty years later they end up with cancer – lungs and all diseases.

Now, to get the amount 5.55 grams of thorium we have to eat a minimum of 17 tons of Lynas *waste. 17,000 kilograms of* Lynas *waste and, mixed with clay, once you mix the clay, the clay stick very strongly to the the thorium molecule and it wouldn't when they release it. In fact they have calculated if you put less thorium in water and add clay to it, wait for 10,000 years, the concentration in the water and concentration in the clays itself – why they called the concentration of the clay is almost five millions times higher than the water.*

So, in other words, it cannot dissolve in the water at all. So, if you swallow, no matter how much you swallow, it will just end up passing out the other end with the faeces. So you swallowed and find you liked it, it doesn't matter. You can eat about 10,000 times of Lynas *waste, nothing will happen at the end. In the world in testing,* Lynas's *waste has only 6 Becquerel, 1 Becquerel means this integration per second and only six Becquerel. If you swallow, digested itself, it won't cause any harm because your alpha particle can't get out of the - can't travel more than a few microns inside the physique.*

And only the tiny bead in surface there are and it just can't cause any harm at all. So, ingection there is zero. So, they don't need to worry about eating thorium, eating thorium is just like eating…. [Disampuk]

Tuan Pengerusi: *Doctor, there are views from some other medical expert*.

Dato' Dr. Looi Hoong Wah: Ya.

Tuan Pengerusi: *Some other doctors that say you can't detect until many-many years from now. 15 years - 30 years. So these are the fears that has been brought to the general public that's why they appear. Because of what has been said by some of the medical experts.*

Dato' Dr. Looi Hoong Wah: Ya. *Now, Now the cause of cancer actually thorium itself is not classified as a carcinogen by the International Agencies Research and Cancer (IARC), is not classified as the carcinogen or cancer causing agent. It is classified cancer causing agent only if it is given by injection to the vein by Intravenous injection if you read my notes. Intravenous injection into the vein and they will gave 5.58 grams of thorium. Normally we use one vial of a 35% of 35 means or 25% and there is one vial of thorotrast for this contrast… That is sometimes we use…, two vial, in other words it's about almost 12 grams. Now, in order to get them on you have to inject how much of* Lynas *waste. You have to inject about 3.34 grams of* Lynas *waste into your veins before you can end up with cancer. That is not immediately 20 or 30 years later then you can end up with cancer. Do you understand now?*

Dato' Abd. Rahman Dahlan: *Doctor, sorry. Can I bring it to your attention to my colleague* Yang Berhormat Fuziah Salleh, *a blog you know* her bukan?

Dato' Dr. Looi Hoong Wah: Fuziah Salleh?

Dato' Abd. Rahman Dahlan: Fuziah, *you know MP for Kuantan.*

Dato' Dr. Looi Hoong Wah: Ya.

Dato' Abd. Rahman Dahlan: *In her blog, she said she quoted one or rather a* gerakan *or some fellows* lah *but it is in the blog*. Dia kata dekat sini '*A united, a Human Health Fact Sheet from the Argonne National University Laboratory Chicago US. In August 2005 stated that thorium is harmful to the human body, ingested even in small quantities." She added that "US National Academy of Science Biological Effects of Ionizing Radiation 7th Report has concluded that no dose of radiation are safe however small."* So, sekejap ya. So, dia kata dekat sini *this are one of the people that supported* Yang Berhormat Kuantan lah. *So, they say "they supported Malaysian Medical Association for urging the government to stop* Lynas *due to potential harmful effects from thorium-232". What you view on that?*

Dato' Dr. Looi Hoong Wah: *Now, my view is there a real big joke. Really. It's ridiculous...*

Dato' Abd. Rahman Dahlan: *Whatever it said this is American*.

Dato' Dr. Looi Hoong Wah: Ya, *it is American I know*. *An American we have to remember that American can come out with funny jokes as well.*

You know the Americans there is one part they say the potassium is a much less danger than thorium right, the same EPA much less radioactive than thorium. This absolutely ridiculous and I have already debunked it in my letter. The way they mention what they called the cancer risk, is very funny. They said the cancer risk for potassium 40 is calculated on the assumption that a person is standing, living on a field of soil, a thick layer of soil that contains one picocurie of potassium and as such four of these 100,000 people will die from cancer.

Why not five, why not six, why not seven? All the guess work that's why they all these are not real mathematical calculation. All these are just assumption. All this what they called assumed, assumption. This is a – that's why when we read all these EPA report all this years, you must read it in such a way that you have to applied to the correct citation. If you applied the wrong citation, you can count it also as the funny things. If you look at my explanation in the sheet I gave, technically all these are brought up before and I have already debunked them. And it's absolutely ridiculous they put this way. And I have argued with the nuclear physics about potassium and thorium and in the end they apologised to me because he was wrong.

So, whatever can I said, don't say I mean absolute truth. They are just the same things given example. Long time ago, do you remember the advertisement about when you make an emergency brake, you have to put two feet onto the brake paddle, you know that advertisement? Now, are there any Malaysian will do that? When you are driving, you tuck in two feet on the brake and the car will stall. The car was stop immediately, engine will stop and other cars will bang onto you or not? When I asked the Radio RTM why they do it, you know what they say?

"No, no! It's not us. It's the American Automobile Association, the expert from America who says that you should put two feet". I mean at that time the reason we are always, you know, the reason was so obvious. It's because in America, every car is automatic car. You put two feet on that, they car will stall and it is still guard. Malaysian at that time 99% of the cars are all gears. You have to change gears, you can't use the same things from America and then transferred it to Malaysia.

It is the same thing down here. When you use this they called mortality rates, cancer risk – you have to take it with a not a pinch of salt, you have to take a bucketful of salt. You have to know what you are talking about, what you're thinking about.

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Tuan Pengerusi: *Doctor, whatever that you say, is there any – From the sources to backup your…, the things you present to Committee?*

Dato' Dr. Looi Hoong Wah: *In fact, last time I collected lots of articles about thorotrast, thorium and all this things, but unfortunately all this are lost, in present you can looking there is lots sources, quote reputable sources in the internet, that are not proper…*

Tuan Pengerusi: *The other side, like what Dato' Rahman was saying the MP from Kuantan using some sources quoting from some reliable institution…*

Dato' Dr. Looi Hoong Wah: *There are lots of quotes, sources so-called reliable, are totally unreliable…*

Dato' Abd. Rahman Dahlan: *Doctor, since she quoted an institution a report…*

Dato' Dr. Looi Hoong Wah: *Whatever report they have, okay, just look at this, I meant with the clear mind, no report, no nothing at clear mind, you are told that thorium when it swallowed, nothing get absorbed right?*

When is in clean soil, not in pure thorium, pure thorium 0.02 percent absorb. When is in clear soil, when you swallow, no matter how much swallow, you get out from right from the - there nothing that absorb, if nothing being absorbed, alpha particles cannot travel a few micron in the physique, in the body face, how exactly it cause in the damage, common sense. I tell you it is cannot cause any damage at all. It cannot get in the body. Now, thorium is dangerous only if we can get it into the body, the only way to get into the body is by swallowing or by inhalation. And an nhalation, yes, to get the right particles because thorium, you know thorium-232 is almost a heavy lead and it can't get airborne that easy, even in water, is just stick to the base, goes to the bottom and you will not contaminate the water at all.

So, it doesn't contaminate the water at all and in the air, in order to get the 1.22 microns dust in air, which can get into the lungs and get absorbed, those type of things, it has to go the thorium mines, uranium mines, in Kuantan's *air, people who walking around the air-condition, mega mall and all this things, is impossible to get there, and even to get 3.4 kilograms of Lynas waste in* Kuantan, *that is impossible because of this brain washing of the people, we find that everybody believe it, even doctors, lawyers, and all my friends was are professors, they believe in thorium, potassium, is far more radioactive than Lynas waste.*

Puan Hajah Nancy Shukri: *Can I interrupt you here doctor, in case you go further. I want to go back to what you mentioned earlier on. Who was it apologies to you, you see, we understand when you trying to tell us, the professionals know about it. The thing is we are going back to the people, the layman, now, if there is anything that you can help to support what you have stated here, you was mentioning something about they was apologised latter, if we can produce that, you can give it to us.*

Dato' Dr. Looi Hoong Wah: *No, the thing is, you find that the people in* Kuantan *had been brainwash for over one year plus and once you are brainwashed to that extend, that no matter what you say, they would not believe you.*

Puan Hajah Nancy Shukri: *Yes, but we still have to do something…*

Dato' Dr. Looi Hoong Wah: *The only things that, we have to carry on giving them the facts, keep on, de-brainwashing them, have to give them facts.*

This is the facts in front of you, if you believe it, believe it and if you don't believe it, we can't help you. That's nothing we can do about that.

Puan Hajah Nancy Shukri: *Yes, but since you have something to back it up, you know, if you can still help us, because there is something for us to show…*

Dato' Dr. Looi Hoong Wah: *Yes, that's why, most of those are answers to those people coming out with also the funny ideas, that why I wrote, those are in the different blogs, that's why this blog, data, so people canread and so that they make up their mind from the spec rather than emotion. They just being emotional like the half life, one, 14 billion years, every time somebody said, "Oh! There is not for us, they are fighting for our descendant in 14 billions years times, the descendant still be is the Lynas". It is ridiculous because …*

Dato' Abd. Rahman Dahlan: *Professor, we understand that, but to say in one broad stroke like that, saying like that all this people, doctors, professors saying that this is not safe, and you said that they are crazy people. I think it is a bit…*

Dato' Dr. Looi Hoong Wah: *No, no, I just said…*

Dato' Abd. Rahman Dahlan: *I mean this guy, I know you've been exchanging your views with* Professor Dr. Chan Chee Koon, *of Centre of Population Health and Department of Social and Preventive Medicine, Faculty of Medicine University of Malaya, and he has take the opposite view what of you are saying. Surely, there must be some basis of their concern, these are all people who are highly learned people, who are qualified to speak what is all about.*

Dato' Dr. Looi Hoong Wah: *To be frank, you can be very highly qualified, highly learned person, if you believe in certain things that, just to disgrress a lot, if you believe in certain phase, with that particular phase, since you are young, no matter how illogical, become logical, you are not allowed to – because practically the brain will be in such a way. That's why in Professor Chan case, I mean, I had been countering all these allegation. You can read about the counter, on how I counter it, I mean to counter ridiculous situation of the professor saying that using the inverse-square law.*

Now, you see, inverse square law, if the – what you called from one meter inverse square law, if is one meter so much energy, particle near micron level, because one trillion times is powerful, that's why I said ridiculous, this kind thorium can't pass through more than one centimeter or two centimeter in air.

So, in one meter is how much? It is in zero, radiation will be zero; so, if zero multiplies with one trillion, still zero what. So, what the big deal? And they realised it, he couldn't answer me that either. This is I said, they do say things, even 'Rolls Royce' can breakdown once in a while and even broken down clock can tell correct time twice a day. So, don't ever think that somebody who are brilliant who's a big nuclear scientist, big professor or big consultancy.

Every time he says is correct, that why Malaysian, we have to train our people to think logically to challenge, no matter how big you are, it doesn't fit into my some sort of logic.

Then I had to reject it, no matter how big you are. If is what you tell me is logical then I accept it, but you find it of course somebody who is highly qualified more likely to be correct than wrong. That is why the sort of education system in this country is a bit in real flaw. In Manchaster I was working down there, you know Professor Black also, at that time world authority of kidney diseases, he was one of more famous kidney disease people in the world and he gave us lecture and as students we challenged him, and we know he makes wrong and we challenged him. And we tried to advise you, tried to explain to you, but in University of Malaya, you challenge the professor, tommorrow you fail already, you were out already.

That's why, in none of us, in Malaysia, none of us, they done tochallenge the authority. Sometimes as I said, 'Rolls Royce' can still breakdown, if happened to breakdown, nobody dares to challenge it, this is what…

Tuan Pengerusi: *Okay Doctor, once again, can you repeat under what the circumstances thorium just now, dangerous?*

Dato' Dr. Looi Hoong Wah: *Thorium, as I said by ingestion is not dangerous, no matter how much you eat…*

Tuan Pengerusi: *You are talking as a doctor?*

Dato' Dr. Looi Hoong Wah: *Yes, as a doctor, if you put in clay soil, nothing can happen, it won't kill, it won't do anything, it may cause constipation. That's all it be does.*

By inhalation, it has a huge amount in the thorium mines, and uranium mines, Kuantan is not a thorium or uranium mines. Therefore zero effect on inhalation and if you inhale about 3.4 kilograms of Lynas waste before you can end up with cancer, potent 20 to 30 years later, and lung cancer. If you are not a mining worker, you don't need to worry, so externally there is no danger, inhalation there is no danger, swallowing also, what else?

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Don't you think if LYNAS safety is never taken serious, LYNAS waste will go around injecting people. There is the only danger. That's all that I can see. And there's another type danger about this radium, radon gas. Radon gas from the pile of thorium will come out and then split all its content to everybody but the trouble is, they don't realize that radon has two types of radon gas, radon 222 and radon 220. Now radon 220 comes from thorium decay chain and it has has a half-life of only 55 seconds. So another word, even you have a huge mountain of LYNAS waste, only the external about one centimeter or two centimeters the radon gas can come out and a gas come out for short while, gone already. They can go on and fast. The one which cause a lung cancer is actually radon 222. It comes from nuclear disintegration.

Now, those are the one dangerous because half live 3.8 days which is much fast longer. There's accumulate in cellars closed rooms and all these things. Now those are the once, which have been known to cause cancer of lung. So, as far as thorium is concerned, it doesn't produce this type of radon gas, Radon 222. It produces only radon 240. So, there are no dangers at all.

Tuan Pengerusi: *Okay, thank you.*

Tuan Teng Boon Soon: *Doctor, from a medical point of view, you have said the thorium is safe, when you inhale, you digest.*

Dato' Dr. Looi Hoong Wah: *Not to say inhale is safe, it depends on the amount in here.*

Tuan Teng Boon Soon: *Big amount.*

Dato' Dr. Looi Hoong Wah: *As far as LYNAS waste is concerned, you need to inhale about '3.4 kg'...*

Tuan Teng Boon Soon: *Okay, I assume…*

Dato' Dr. Looi Hoong Wah: *...No, 3.4 kilograms of LYNAS waste before you get in trouble.*

Tuan Teng Boon Soon: *Okay, I'm asking another aspect of the question. In the management of waste do you agree that the recycling method suggested by LYNAS as a form of managing the waste can couse harm to the environment and to human health?*

Dato' Dr. Looi Hoong Wah: *No, as far as waste is concerned non toxic, non radioactive waste. That's what I being always talking about and LYNAS concern we have to talk about waste – other types of waste but then if we said because of waste, we stop the LYNAS plant. You know what happen? If you shut down all of our factories because all of them produce fume same as LYNAS so, why we have to discriminate against LYNAS? I'm not pro LYNAS, I'm nothing to do with LYNAS but from what I can see, totally irrelevant and irresponsible for us to close down a factory just because of the risk management, when the other…*

Tuan Teng Boon Soon: *Doctor, we are coming back, we are focusing on LYNAS issue. That is if we recycle the waste, is it advisable? Was this matter has any implication as through the effect of environment and human health.*

Dato' Dr. Looi Hoong Wah: *I understand. As far LYNAS waste is concern, whether you recycle or doesn't recycle, it is not the threat at all. As I said, thorium waste will stick with oil and I it won't be leach out in our raven river. In the river it will sink in the bottom of the river and sit down there next 14 billion years to 15 billion years. And there's no effect at all even if the waste is released on the river. Now, you must remember if…, we have about nearly around 26 on average, around 26 Becquerel. No, 26 parts per million of thorium in our soil. So, we are already sitting on thorium all this time. So what's the big problem?*

Tuan Pengerusi: *Doctor, thank you. Are you still practicing?*

Dato' Dr. Looi Hoong Wah: *No. I decided not to practice. Go into full time in particle thesis.*

Tuan Pengerusi: *Full time?*

Dato' Dr. Looi Hoong Wah: *In particle thesis in UTeM as well.*

Tuan Pengerusi: *I see. Okay, thank you. Thank you very much for your presentation and your time. I'll call Professor Datuk Dr. Proom. Can you introduce yourself?*

11.55 pg.

Prof. Dr. Proom Promwichit: *Thank you Tuan Pengerusi. I think I wish to state – I mean on record that I'm not siding any side. I'm speaking here at the expert in my own area. That's my own right. Now, I've been working on – I think in fact, sorry to say. In fact, I am here walking in without preparing anything, I'm sorry about that but I wish to say that I've been talking about nuclear since I was in first year in the university and until I retired as an academician in UKM, after 34 years So, I think nuclear is part of what I've done the whole of my life.*

Now, my real expertise that's I'm more research scientist, and we have done research on how radiation damage the biological system at molecule level and I think we have done more than anybody else. Nobody have done more that what we have done in UKM. And we have to stand to answer if you want to know anything about the radiation at molecule level I'm here to answer you. But unfortunately, you may not recognize me because I don't have Mat Salleh skin… [Ketawa] In fact, we even have done a research on how effective treatment of cancer using radiotherapy, that is using radiation. Unfortunately, we try to get grant from government for RM10 million but until today nobody want to give it to us again because our name is not John or Micheal. So, this is what we are in Malaysia. I have spent recent 28 years just doing this research and you can ask me. I think many question has been asked in the past session and I'm here to answer on their behalf if you want.

Dato' Abd. Rahman Dahlan: *I just to remind you, professor. Actually, if LYNAS goes on, they will set aside amount of money on R&D.*

Prof. Dr. Proom Promwichit: *Thank you, thank you. I hope I got the opportunity before I just say good bye to this world.*

Dato' Abd. Rahman Dahlan: *It is about RM300 million to setting a side. So if you asking for RM10 million, I think the issues is covered.*

Prof. Dr. Proom Promwichit: *Thank you, thank you. We are now working with FRIM. And we did research on radiation including protecting radiation damage at molecule levels, using herbs, food and all type of herbal products. We also did research on laser and you see that if you see - maybe you are not aware that laser can cause you total blindness. Now, people come and tell us that handphone doesn't cause any effect. I think there's totally wrong. If you are a research scientist, we can prove to you that – part you call handphone can cause those defect.*

Out of ten babies born, nine without leg, without finger, without knee, and unfortunately the deplication of the brace material, it is all here. So many things we have done and last, I like to remind our friend, if we off record.

Dato' Abd. Rahman Dahlan: *[Bercakap tanpa menggunakan pembesar suara] [Ketawa] If you want to off record, you must switch off your mike because whatever you say here, 20 reporters in the other room and the whole world will listen to you.*

Prof. Dr. Proom Promwichit: *Okay, okay, alright. If you see now, if you see people have privilege to use – to take bath, warm water but they are not aware that this can cause permanent sterile, if you use it more than 43 degrees. This is to remind you and to remind the rich people that sometimes they make so much money but they have no what you call it inheritance. So, this is the thing… [Bercakap tanpa menggunakan pembesar suara]*

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Tuan Pengerusi: *Anyway doctor, let's go back to professor. Let us come back to Lynas. What is your view on Lynas.*

Prof Dato' Dr. Proom Promwichit: *Yes. Okay, I will answer what I can, but I will skip what I'm not very sure of. Okay, thank you.*

Tuan Pengerusi: *Do you think that the fear of the people is justified on Lynas?*

Prof Dato' Dr. Proom Promwichit: *I think, okay Dato' Seri, let me explain the events. We are one of the biggest countries producing tin and the next one is Bolivia. We have been doing this for the last almost 50 years, producing tin. Now in Malaysia, we never see any problems from what you called, bringing up the earth from underneath despite the fact that we have a lot of thoriums, uraniums, abundance everywhere but, in Bolivia, the method of mining is dry mining in a cave, where people hack it. Most of the workers have a life expectancy of not more than 50 years.*

The reason is that they might be having lung cancer, could be due to radiation inhalation of this material or the heavy metals together that come out with the dust. So, I think when people have fear, there must be some reasons but, in my opinion as a research scientist, I cannot see any reason why people fear of Lynas if it is properly manage. I want to give you one example, how safe is driving a car? How safe is our car? You will answer yes, safe. Well, last year we have 396,000 accidents cases.

So, how you you look at it, is it safe? But, we have how many million cars in the country? So, coming back to Lynas, it depends how you handle it. If you handle it properly, I think people shouldn't be scared of anything, but if you mishandle it and they have reasons to be scared of.

Dato' Zulkifli bin Noordin: *What is the worst case scenario that can happen, as far as Lynas is concern? Assuming there is a blast, drought. What is the risk, what can go wrong?*

Prof Dato' Dr. Proom Promwichit: *You see, we have Lynas, we are talking about uranium, we are talking about thorium and the whole.*

And now, these types of radioisotopes, emits two types of radiations - alpha radiation and gamma radiation. What is being detected is gamma radiation? So, they say, it is below the safety level, but that is not the problem with the gamma radiation. People have been exposed to X-ray and so many other gamma or X-ray resources, but the danger lies in the alpha particles. The alpha particles, it can be years, one alpha particle is enough to create mutation in a cell.

The cells when exposed to radiation, there are three consequences. One, if there is a repair, then the cell get back the normal property. The cell can be death, so the story closed there. But, the cell also can be mutated. Now, this alpha particles can cause, what we are concern is at the molecular DNA levels. You need 34 electron volts that is a little bit amount of energy to create one DNA strain breaks. You need 104 electron volts to create double DNA strain breaks.

So, this double DNA strain breaks, if it is repaired. It is fine. In a case of a normal DNA damage, DNA double strain breaks may be repaired within one hour. But, in the case of alpha, we are not very certain that this can be repaired. If cannot be repaired, if the cell died, that is the end of story. But, again I emphasize here is the mutated cells that lead to maybe subsequently about cancer. We have Professor Fuad, when we talk about cancer, you can ask him more about cancer afterwards, not me. Thank you.

Puan Hajah Nancy Shukri: *Dato', I just want to go back to what you mentioned earlier on that Lynas is still very safe compared to any other factories. I think earlier on, Dato' Dr. Looi also mentioned that. In what way- can we really make it…, earlier on you were also asked what risks can happen. You are mentioning about unless it is very well managed, otherwise there is no problem at all.*

So, how can we really convince the people that this thing is really very-very safe and it is nothing to do with health risk or any other risk. It is just that something that people really spin up to mislead the people, because we are here to convince the people that this Lynas is really safe for the people. Thank you.

Dato' Abd. Rahman Dahlan: *Can I refresh, add on to Yang Berhormat Nancy's questions?*

Prof Dato' Dr. Proom Promwichit: *Let me answer first. I will answer you later, please.*

Dato' Abd. Rahman Dahlan: *I will add on just on that one.*

Prof Dato' Dr. Proom Promwichit: *No, later… [Ketawa] Okay, thank you. I cannot convince the public because I'm not a psychologist. I'm a nuclear scientist. Now, the safe way is properly manage, it is just very simple. You never allow the opportunity for that dust that might contain this uranium dust or thorium or whatever it is, to enter your body, just as simple as that. So, you just stop it from going into water ways and the environment, the air to avoid being taken into your body or breathe into the system.*

So, the best suggestion that I can suggest to Lynas is pack your waste immediately after it comes out from the production line. Pack it immediately, so that you never allow the opportunity, the dust to go into the atmosphere because you can never identify the dust containing the uranium active and non active. You can never. So, the safest way is to pack it. Thank you, I answered your question?

Puan Hajah Nancy Shukri: *Yes, it is as simple as that. Thank you.*

Dato' Abd. Rahman Dahlan: *May I ask you questions now professor?*

Prof Dato' Dr. Proom Promwichit: Ya, *sure*.

Dato' Abd. Rahman Dahlan: *We are the Chair here.*

Prof Dato' Dr. Proom Promwichit: *Sure, I know, but the thing is, I want to answer one by one. I don't want to confuse other people.*

Dato' Abd. Rahman Dahlan: *Fair enough. Thank you. Actually, if you allowed me it would have been a clearer question.*

Prof Dato' Dr. Proom Promwichit: *Okay.*

Dato' Abd. Rahman Dahlan: *Okay, thank you. You mention about this plant is safe provided that…*

Prof Dato' Dr. Proom Promwichit: *Properly managed.*

Dato' Abd. Rahman Dahlan: *Properly managed and you make sure that this is running properly and all the…*

Prof Dato' Dr. Proom Promwichit: *No, running properly is the works of an engineer. Mine is just about the waste.*

Dato' Abd. Rahman Dahlan: *Professor, this is Parliament, it is one way.*

Prof Dato' Dr. Proom Promwichit: *Okay*.

Dato' Abd. Rahman Dahlan: *In lecture room, yes. You can ask the students. I ask questions, and then you will answer. Of course you can add on if you think that my questions is out of tangent.*

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You said that if its run properly, precautions are taken then it is safe. My next question to you is in law experience, you are Malaysia, you are obviously very learned person. In law experience all this years, do you trust the regulatory bodies in Malaysia? Do you trust AELB to be able to handle this? Do you trust the Department of Environment, those regulatory bodies in Malaysia because it seems that there are people out there especially some colleagues in Parliament who feel that this agency are just full of – you know, I have some expertise words for it about they are… good. Do you agree to that or you think that these people are able to regulate the industry or the plant?

Prof. Dr. Proom Promwichit: Tuan Pengerusi, *can I use one word in* bahasa? Orang kita ini *"hangat-hangat tahi ayam."*

Dato' Abd. Rahman Dahlan: *Please elaborate that professor.*

Prof. Dr. Proom Promwichit: *Any regulation we introduce, we maybe active just in the first one year or maybe six months. After that we have forgotten. For instance, lets take Indah Water, if it is alright to bring in. Now Indah Water, if you go to any low cost flat area, early in the morning, you cannot pass by. No one take care, regulation is there and there is something that concern to the public, why the people are not doing anything after years or six months. So, I think we Malaysian have this type of mentality, we have a lot of public place being done, everything, after six months we abandoned it. So, I think time has come we are moving into a new millennium that the supervisor, that the implementers make sure that this is being carry out. Do I answer your question?*

Dato' Abd. Rahman Dahlan: *Yes but surely Professor, I mean as much as I appreciate that response, surely this is totally different matter because you are talking about Indah Water and radiation is a totally different matter. My question to you is, you mentioned earlier on that you are very confident that this is safe, provided that precautions are taken and obviously regulators are there. Now that you mentioned to me that there is a problem with Malaysia. Are you still saying that this is going to be a problem?*

Prof. Dr. Proom Promwichit: *Well, you see, one issue I am talking about technical aspect. Technical aspect Lynas is, if properly managed, is safe. Now the other one is the working ethics, is another matter. So, if the board implements it, makes sure that everything is smooth as it is. I think it shouldn't be a problem because we have* Nuklear Malaysia*, they are up-to-date in their monitoring of the radiation in environment and all these thing. So it depends, I think when we come to serious matter, I think it's well aware…, in this case like* Nuklear Malaysia*.*

Dato' Abd. Rahman Dahlan: *Okay, so in other words just for – as far as radiation is concern and what not, you believe that the regulatory bodies in* Malaysia yang menjaga, memantau Lynas ini *will be able to do their job. Can I take that as a conclusion?*

Prof. Dr. Proom Promwichit: *My answer is yes.*

Dato' Abd. Rahman Dahlan: *Thank you.*

Tuan Teng Boon Soon: *Professor, Lynas the issue in question is not only a question of science, it is also a question of perception. So, I am asking a question because just now you lamented that the Malaysian scientist contribution or whatever research you have done are not recognized in the academic society because we are not mat saleh and my name doesn't carry John or something like that. That is something that touched my heart. So, I have a question to ask. With due respect because it also concern our Committee, the public perception of local scientists is that* mungkin tidak boleh dipercayai.

They only trust the foreign experts, they want foreign experts to audit, to certify certain facts so that they can be convinced. Now I am asking a question with due respect. Professor, in your research and study, have you also presented your research paper in the international publication, where the Malaysia scientists are recognized in their academic society, academic world.

Prof. Dr. Proom Promwichit: *I think you misunderstood me. I am here to represent the Professor's Council. So, if I am not recognized, I won't be here this morning to represent them. So, there I think you are misunderstood on that.*

Tuan Teng Boon Soon: *Yes, I am sorry for that because you lamented just now.*

Tuan Pengerusi: *I think no, I think when Professor mentioned about he is not getting the allocation for R&D. There is nothing to do about recognition, it's about the resources that we have.*

Dato' Zulkifli bin Noordin: *I want to get some clarification. The perception I have from the other expert, Dr. Looi is that this Lynas is safe, this thorium place is safe but you mentioned something about if it is properly regulated, properly controlled, properly enforced. My question is, what if we think of a worst case scenario, it's not regulated, it's not enforced, what is the worst case that can happen?*

Prof. Dr. Proom Promwichit: *I think I cannot predict the future to answer that, but if the whole thing goes into atmosphere or it goes into the water system then we can expect there might be a negative impact of pollution. Do I answer your question?*

Dato' Zulkifli bin Noordin: *[Bercakap tanpa menggunakan pembesar suara]*

Prof. Dr. Proom Promwichit: *Operative active material.*

Dato' Zulkifli bin Noordin: *And it will lead to health hazard?*

Prof. Dr. Proom Promwichit: *Yes. Anything, any radioactive material.*

Dato' Zulkifli bin Noordin: *Dr. Looi, do you agree with that?*

Dato' Dr. Looi Hoong Wah: *The thing is, what he actually means is that when radioactive material get into the environment, if it is high enough, if it's very high enough like Fukushima or whatever it is.*

Dato' Zulkifli bin Noordin: *That is the theory, I am talking about Lynas. Lynas case…*

Dato' Dr. Looi Hoong Wah: *In Lynas, it is a totally different story.*

Dato' Zulkifli bin Noordin: *Even if it's not regulated, not enforced, everybody put a blind eye toit, will it cause any effect?*

Dato' Dr. Looi Hoong Wah: *Yes, even the mud itself, ordinary mud in your house, if you washed in the drain of course it will cause an effect. Anything that is material which is wash in the river, of course it causes an effect…*

Dato' Zulkifli bin Noordin: *We are talking about health and environmental effect.*

Dato' Dr. Looi Hoong Wah: *In terms of health because of radioactivity, because we started… a low radioactivity of 6 Becquerel gram of Lynas waste. It starts a rise at low level and thorium is such a peculiar substance, which has extremely long half-life and therefore it only a weakly radioactive. We already got this material in the soil everywhere. In fact as we walked down the house, we have it. So, in other words, it is already everywhere, so that tiny feet if it is spread over the whole of Kuantan. What sort of a difference that it make? Of course it make a tiny difference but there again in life, tiny difference I think we better ignored it. Too tiny to be significant, that is all I can say - far too tiny to be significant.*

Dato' Abd. Rahman Dahlan: *Dr. Looi, you mentioned that 6 Becquerel just now. We have been listening to AELB many days, many weeks and many months in Parliament. I think do you agree with me that in – well not my problem but in* Malaysia ini, *our threshold of radiation, we put it so low that even naturally occur radiation, slightly more than that will be monitored by AELB. I think one of the problems that we have here in Malaysia is that our threshold point is very low. Our standard is so high but if we look – correct me if I am wrong Raja Dato' Abd Aziz, is that 1 Becquerel I think, anything above that is under your jurisdiction?*

Seorang Ahli: *No, 10.*

Raja Dato' Abd Aziz bin Raja Adnan: *I agreed, by regulation in Malaysia.*

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Dato' Abd. Rahman Dahlan: *By regulation is one Becquerel and above?*

Raja Dato' Abd Aziz bin Raja Adnan: *Yes, they will be regulating.*

Dato' Abd. Rahman Dahlan: *They will be regulating and this is far much more tighter and stricter than any country in the world. Even I believe in Australia, in US and any other countries. So in a way that we are very strict but by being strict also then slightly higher than one Becquerel then people say is not safe because now is regulated by AELB.*

Dato' Dr. Looi Hoong Wah: *There is a bit over doing it. It is definely over doing it because if we look again, the soil in our garden is if you add up all the radio nuclear, you can easily get more than one Becquerel. Therefore for we should regulated the soil. The soil in our garden and everything must be put under regulations. Anybody who carries a bucket of soil has to get special permission from* Atomic Agency.

Raja Dato' Abd Aziz bin Raja Adnan: *No. If I may correct, regulated is a fixed process.*

Prof. Dr. Proom Promwichit: *Can I answer please?*

Tuan Pengerusi: *Professor, yes going back to you based on this …*

Prof. Dr. Proom Promwichit: *Hold on, hold on. I just answer the* Yang Berhormat *just now. If not proper regulated, you blame him. Anyway, it does not matter regulated or not regulated as long as it does not go into the system. The answer is, if it doesn't go to the system it is safe. If it go into the system, it is not safe. Body system and I dispute his answers.*

You have to think two ways. The Alpha radiation and Gamma or x-ray radiation have different type damage mechanisms, different. So this is why we are talking about Alpha radiation here, not about Gamma radiation or X-ray. What I been talking about is Alpha radiation. Please do not misunderstand.

Dato' Dr. Looi Hoong Wah: *May I add a little bit. When they said Alpha radiation is not dangerous, what I mean is it when it is external. Once it is inside the body it is a different story. That is what I mean and you find that the thorium, you can get it in the body significant amount either by swallowing or inhalation, you have to go to the mines to inhale that amount or you have to get somebody in jacket to inject it into you. So if it can not enter your body, just like our professor said, they can not enter the body therefore there is no track.*

Tuan Pengerusi: Professor, *going back to what* Datuk Zul *ask you just now, being a research scientist, can we safely says that currently the control of human progress in controlling radiation radiate very good for advance stage and therefore what is being said about the worst case scenario will never happen.*

Prof. Dr. Proom Promwichit: *I think I just repeat that as far as radiation and nuclear control regulated, I think they well taken care of the moment and I think they will do it this good job even in the future.*

Dato' Zulkifli bin Noordin: Professor, *there is always this chance of disaster. You know, few days a go something a blast happen in* Kerteh*. I think* Petronas *plant I think. That was never expected. So we are thinking, I think the people are thinking of being given the perception that what if that sort of thing happen in* Lynas*. Would it cause any health or environmental problem to the people if that sort of incident happens? That is what that concern the people.*

Prof. Dr. Proom Promwichit: *My answer is no, okay? My answer is no…*

Dato' Zulkifli bin Noordin: *Why?*

Prof. Dr. Proom Promwichit: *Because this is the dust and it does not involve in the process of engineering aspect. There is just a dust in going in and come up, that's it. So I can not see there is any danger what happen in* Kerteh*.*

Dato' Zulkifli bin Noordin: *I like one of the remarks not really to say like but one of the remark during the public hearing in* Kuantan*, they said why not put it in your backyard. So my simple question is if somebody in the* Pahang *government offer you a piece of land beside* Lynas *in full operation, would you build your house there and stay there?*

Prof. Dr. Proom Promwichit: *No. I think…*

Dato' Zulkifli bin Noordin: *Would you?*

Prof. Dr. Proom Promwichit: *I think put it this way, you give me a piece of land, I inspect how they treat the dust and all the instructing, and so I feel safe and take it.*

Dato' Zulkifli bin Noordin: *So you still need to inspect?*

Prof. Dr. Proom Promwichit: *Sorry?*

Dato' Zulkifli bin Noordin: *You still need to inspect* Lynas?

Prof. Dr. Proom Promwichit: *I have to inspect whether the dust will be going into the atmosphere or not, whether it being goes into my house or not.*

Dato' Zulkifli bin Noordin: Dr. Looi?

Dato' Dr. Looi Hoong Wah: *To be very frank, that question was asked to me and by a lot of those bloggers and anti* Lynas *people. Why won't you put your house next to* Lynas *and I told them, if they can give me a piece to stay on a two acres land, freehold land with the bungalow built, if they are willing to buy me and pay for me and give it to me two acres of land just next to* Lynas *and build a house of my own design, I am willing to stay next to* Lynas*.*

Dato' Zulkifli bin Noordin: *With* Lynas *in full operation?*

Dato' Dr. Looi Hoong Wah Ya. *If* Lynas *fully operation and please buy me also about 10,000 kilogram of pure thorium for me also then I'll be more thankful to you. I'll keep it in my house and later on I sell you for nice profit.*

Tuan Pengerusi: *Can we have a last question?*

Tuan Liang Teck Meng: *Last question.*

Prof. Dr. Proom Promwichit: *I think I just answer it, I think forgot that.* Datuk Yang Berhormat, *here I have been talking all the times is about Alpha particle, Alpha radiation okay? Now the X-ray, I cannot see if the result the five products of the uranium decay is a gamma radiation. So I am not so much concern about that and this Alpha particles, you use a face mask is good enough to protect it. Face mask and that's it. So it is not what people think. Whether X-ray and gamma radiation penetrate the system, but the dose is not high enough to create any health problems as I mentioned earlier that the damage can be repaired within one hour. Okay? So when I going to give me the land please. Thank you.*

Tuan Liang Teck Meng: Professor, *last question.*

Tuan Pengerusi: *Can we have a last question?*

Prof. Dr. Proom Promwichit: *I think now look this way, I am here to answer. You have many questions earlier, I heard from outside that had not been answered. I am here coming walking as a nuclear person to answer what you want to know.*

Tuan Liang Teck Meng: Okey. Professor, *can you explain to me, this question which is also a public concern. They say, well, the waste they produce is six Becquerel per gram but then annually we have 20,000 tonnes of this kind of waste. So 20 multiply by 1,000, multiply by 1,000 and 1,000 again and multiply by 6 Becquerel, so annually you get huge amount of Becquerel radioactive material and the potential radiation quantity. So, whether this theory is correct or not?*

Prof. Dr. Proom Promwichit: *Mathematically yes, but in term of radiation we must understand. As I told you even you wear mask, is good enough to prevent from Alpha particle but you must understand that this is being stacked in the soil. So if there is any decay of the radioactive materials and meet Alpha I think, that is enough to taking care of itself being absorb by the soil itself. So, it would not be emmited to the environment. So in material because you must understand that this is what - we are not talking about* Lynas *earlier when we talk in the classroom. We are talking about the safety in the uranium mine. Do not say you never know rare earth business. Same things you see, because this it act at the shield or we call it shielding for the radiation from being emmited to the environment. I answer your question?*

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Tuan Liang Teck Meng: *No, I think may be I ask another way. So okay, for example we have one kilo of this WLP that the radiation that exposed and having tons of this kind of waste and the amount of radiation. Are they the same?*

Prof. Dr. Proom Promwichit: *I didn't get your question.*

Tuan Liang Teck Meng: *I...*

Prof. Dr. Proom Promwichit: *Now look. Please don't confuse please. You see, you look at this one. The ready material in the soil it can be just about 0.8%. The other is non-radioactive. So people shouldn't feel that all uranium is radioactive. It is not the case, okay. So that's why when people talk about uranium, they think everything is radioactive. Not that way. There we have metal uranium.*

Tuan Liang Teck Meng: *No, what I am saying is for example, I have this little amount of WLP of waste here. So if I measure it, the radiation may be example 0.5 mSv per hour. But what if I stand on upon the big amount of WLP? Am I exposed to the same amount of 0.5 mSv per hour? If I compare these two, are they the same?*

Prof. Dr. Proom Promwichit: *I think you know different dose if there is. We are talking in this case you are standing at the distance, we are talking about gamma or x-ray okay. Then it could be different.*

Dato' Zulkifli bin Noordin: *He is talking about the amount.*

Prof. Dr. Proom Promwichit: *Yes.*

Dato' Zulkifli bin Noordin: *If a small amount of WLP and a big amount of WLP, is there any difference?*

Prof. Dr. Proom Promwichit: *It should be different if you are talking about x-ray or gamma ray being emitted. In this case the waste is gamma radiation. It should be different but that is I think in that case but anyway it doesn't cause any harm to your system.*

Tuan Pengerusi: Okey Prof. Badrul ada apa-apa hendak itu? *You got to help us because sometimes* you itu...

Prof. Dr. Proom Promwichit: Tuan Pengerusi...

Tuan Pengerusi: Ya.

Prof. Dr. Proom Promwichit: *I am a Malaysian. I will do anything for Malaysia and I don't take side. Here the same thing. I talk as I walk in the expert otherwise I cannot tell you what my credibility is. When come to radiation damage I don't think anybody has done more than what we have done. No doubt we are from university* kampung *Malaysia.*

Dato' Abd. Rahman Dahlan: *Professor, just to share with you.*

Prof. Dr. Proom Promwichit: *Yes*.

Dato' Abd. Rahman Dahlan: *What are the other – there were four experts that we have met, the* Jawatankuasa *met. One is from America, one from Australia, one from Canada and one from China. Each one of them: German, Canadian, American and China. All of them have visited* Lynas*. Just want to let you know, when they told us that the moment they enter* Lynas *plant in* Kuantan*, there were all Malaysian scientist there except for one or two* 'Mat Salleh'*. And they were so impressed with these Malaysian scientists who work in* Lynas *that when they asked question, these boys, these Malaysian scientists,* budak-budak kita ini*, without hesitation could answer each and every question that they asked. That I think if you were there you would be very proud of that statement coming from all these experts in radiation, expert in heavy metal, expert in rare earth.*

So they were very impressed with the people running Lynas*, just an observation for you.*

Prof. Dr. Proom Promwichit: *Yes*. *I think put it this way*. Malaysia, kita sendiri orang Malaysia ini, *we don't recognize home products. We have many nuclear scientists in the country. Many of them have retired are of my generation. We just say that we always feel that we don't have and we have nuclear science. The knowledge of nuclear I think we are well equipped. Do I answer your question?*

Dato' Abd. Rahman Dahlan: *Yes, yes*.

Tuan Pengerusi: *Thank you very much on behalf of the committee.*

Prof. Dr. Proom Promwichit: *Thank you.*

Tuan Pengerusi: *Thank you for the time.*

Prof. Dr. Proom Promwichit: *Anyway* Tuan Pengerusi*, I apologize if I use any harsh words but that is the way how we present. If you want to convince me, I have to convince you and I base on technical aspect. Though here I don't use technical terms because I feel that is more for the layman, for the public consumption rather than I give a technical terms and talking to myself alone, so I am sorry if I use any harsh words.*

Tuan Pengerusi: *It's okay.*

Prof. Dr. Proom Promwichit: *But I am sincere in giving my opinion.*

Tuan Pengerusi: *I am used to dealing with professor... [Ketawa]*

Prof. Dr. Proom Promwichit: *Thank you very much.*

[Saksi-saksi keluar meninggalkan bilik mesyuarat]

Tuan Pengerusi: Panggil satu lagi sebelum kita *adjourn for lunch*. Kita ada dua orang di sini iaitu Profesor Dr. Jamal daripada UKM juga dan Dr. Fuad Ismail daripada UKM.

[Saksi-saksi individu lain mengambil tempat di hadapan Jawatankuasa]

12.36 tgh.

Tuan Pengerusi: Bagi pihak Jawatankuasa kita mengalu-alukan kehadiran untuk memberi kerjasama kepada Jawatankuasa Pilihan Khas ini dalam sesi pendengaran awam yang ketiga yang kita adakan di Kuala Lumpur.

Sebelum kita mulakan saya berharap dapat diperkenalkan diri dan dinyatakan apakah perkara pokok yang hendak disampaikan dan untuk makluman juga semua perkara yang dibentangkan dicatat bagi maksud pembentangan ke sesi Parlimen yang akan datang. Jadi saya jemput siapa dulu? Kalau boleh kita cuba setiap seorang dalam 15 minit. Sila.

12.37 tgh.

Prof. Dr. Jamal bin Othman: Baik, terima kasih. Yang saya hormati Yang Berhormat-Yang Berhormat, Dato' Seri, Datuk-datuk, *Assalamualaikum* dan salam sejahtera.

Nama saya Jamal bin Othman. Saya profesor dalam bidang ekonomi, sumber dan alam sekitar. Saya datang di sini tentunya dijemputlah tetapi atas kapasiti mewakili NPN Sektor Ekonomi. *I am an economist. I was trained as economist and I think everyone, all of you here love economics. You always talk about things which make sense. It is all about dollars and cents. So, I am not going to touch anything technical as did my colleagues earlier. So, first and foremost, I must say I have not done any economic analysis about the* Lynas *Project. So, do never has anyone approached me or my colleague in economic to conduct an economic appraisal about the feasibility of* Lynas *or particularly land which you know is sited at* Gebeng, Kuantan*. Anyway, from the economic perspective it is very easy, very clear cut and straight forward on how to deal with the resentment that arises, you know the various disscent coming out from the public.*

First and foremost, we must be able to establish what will be the benefits to our country as opposed to the cost that will be incurred by the project. In short, we need to be able to convince the public that this project is desirable economically as well as socially.

First and foremost, it's another thing again although it is first too but it is something very obvious that people know that this product so called rare earth elements or unsur nadir bumi*. It is something very extremely precious as well as extremely strategic and it happened that although quite a number of countries are having deposits of these rare earth elements but not many are able to produce for many reasons.*

■ **1240**

And we know that the only supplier so far is China. Producing almost entirely, the world supply of rare earth element. But again they too are the major consumer, consuming more than 80% of what they are producing themselves. Of course the rest are composed of the majority of us with countries America, Japan, Europe, and Russian, and so on. So, I would say so far China has been dominating this industry and many years back, US was also a major supplier but they lost to China. And now Malaysia is coming in. Of course we don't have the raw material but we know how to deal with it and Australia just coming up teaming up with the Malaysia with Lynas.

Anyway, is very easy to clear that, to see that, it will be kind of "duopoly", or I would say there will be two firms, two players now coming in this strategic industry. We also know that US is coming up. US is relooking their policy towards this rare earth elements industry. So anyway, there is a fear that Malaysia might be a competitor to the states, to the US I mean. But that is not really the big picture here. It is not really something that we should care. What we should care more is to be able to convince that there are net benefit to the country.

And so far as I see in terms that the document from Lynas*, in terms what the country can benefit, they list down a number of benefits like new jobs being created, amounts of* FDI's *coming in, how much they will spent each year? But as economist I would like to see all these types of benefits being translated into dollars and cents. What are the components of intangible benefit in terms of dollars and cents, what are the components of the intangible benefit that includes intellectual capacity or technology transfer and that should be translated into dollars and cents too and of course the cost. What will be the cost to the country that has be to translated into dollars and cents and in terms of our cost I would like to emphasize that, that is would include as well intangible cost including psychological fear or the increase of the anxiety faced by the public near by the* Gebeng *facility.*

They are now facing this anxiety. It was not the case before. So this is a cost to them. So what has been this cost is being translated into dollars and cents. I think you may wonder how we can do that. Is it possible to translate that into dollars and cents but this is not the forum to talk about the mechanics. There exist various mechanisms to….

Dato' Abd. Rahman Dahlan: Prof, sekejap*. That particular point that you made about anxiety among the* Kuantan *of the* Gebeng *people, have you cited any studies on that before you even translate that into cost dollars and cents?*

Prof. Dr. Jamal bin Othman: Ya*...*

Dato' Abd. Rahman Dahlan: *Anxious of the moment you belief?*

Prof. Dr. Jamal bin Othman: *My point here is that there are ways to convert that into dollars and cents. And of course they are indeed very concern about that as we are seeing and this is the very reason why we are having this hearing I think.*

So, I think is very important that we find ways to appease the public by showing what will be the nett benefit to Malaysia after considering all the various cost.

Dato' Abd. Rahman Dahlan: *Professor, I understand where you going to. I can understand that. I just want to make it clear, whether you have cited or you have done any studies as far as anxiousness this concern, anxiety…*

Prof. Dr. Jamal bin Othman: *Well, I must...*

Dato' Abd. Rahman Dahlan: Sekejap, sekejap*. I know this issue is every where the moment and I will be the last person to say that there is no concern of this plant among the local people there. But for the purpose of your deliberation* ini*, I just want to ask whether you have cited* atau *pun you* sudah terbaca atau *is there any studies saying that, yes, the people of* Gebeng *as a whole are very anxious at the moment. Because we have some evidences earlier on, prices of land, prices of properties in those area are still maintained. In fact it is going up. So, that is all I want to ask whether you have done or you just make may be an intelligent assumption.*

Prof. Dr. Jamal bin Othman: *Yes, I think it is quite obvious that the very fact we are hear now, having this hearing is all repercussion of those kind of fear that the public is having an experiencing. So, and I also said on the JKR and I can see the lots of comment related to how the people they are facing these psychological fear. Anyway you asked about where we have done any studies on that. Yes, I did the study but not related to the* Gebeng *facility. It was study on solid waste disposal. Yes, is being published in one journal, it is about valuing the psychological fear of having a facility behind our back yard. Anyway, is very clear that the market is there.*

The world demands something like 185,000 metric tons of rare earth elements by 2015. China is producing 140,000 metric tons by 2015, but China is service consuming 130,000 metric tons. What that means is that the world needs to further supply and additional amounts of rare earth element of about 45,000 metric tonnes and this has to come from a new source and surely has to come from Malaysia. Malaysia will produce something like 23,000 metric tons. The rest will come from the new plan in the State. So the market is there. So, of course we can infer that Lynas *is here. Because yes to do with cost, yes to do with incentive that we are providing including the tax break for 12 years. And this is well known. I am not trying to raise that issue but the point here is very important that we be very transparent when comes to showing the public what will Malaysia gains from this facility? In terms of foreign exchange, in terms of potential intellectual capacity development, in terms of perhaps the new supply chain will come out from this kind of situation. What other benefits that entire multiplier effect with example which is not very difficult to the estimated?* Lynas *just need to invest some money to conduct these benefit cause analysis.*

Dato' Abd. Rahman Dahlan: *Professor, have you got answers for those questions that you are posing us?*

Prof. Dr. Jamal bin Othman: *I haven't got any answers. But I have to show that is very important, we deal with these in a very transparent manner. In terms of showing the public, the dollars and cents, so what we can gain from this facility.*

Dato' Abd. Rahman Dahlan: *Sorry, in terms of time professor. You are suggesting as that we should look into explaining or really look into what other economic benefit that this country will get out of this projects?*

Prof. Dr. Jamal bin Othman: *Yes that proposing and I am proposing various…, that* Lynas *must conduct a comprehensive benefit cost analysis and it shows that there will be nett benefit to the country. But is a matter of communication. Is a matter of relating that figures to the public well because the public will then see. You know, they will then balance, we have the risk but we have the benefits.*

Dato' Abd. Rahman Dahlan: *Professor, can we get since you are an economist, can we get you're at least again in the interest of time that say that I am looking at the clock there. Looking at whatever information that you have right now. You got the tax break, you got the down stream supply chain, demand that you are mentioned just now. Do you believe that this country will get economic benefit out of this and the benefit will be far outweighing in the report?*

Prof. Dr. Jamal bin Othman: *My hunch says that there are net benefits to the country but the challenge is how to demonstrate these, the figures in dollars and cents to the public.*

Tuan Teng Boon Soon*: Ya, Professor one question. We are talking about the multiplier effect, whole of them asking about the remitication effect. Based on China's experience as a sole major and producer on the rare earth. Can you tell us the China experience, in the past this years? So, what is the remitication effect from producing rare earth as an industry, upstream, downstream and so on. Can we learn from the China experience?*

■ **1250**

Prof. Dr. Jamal bin Othman: Ya, *I won't have the details but some general observation I think can be inferred. For example China has a very strong in all this supply chains in terms of their industries which utilizes rare elements. They never ever export those rare elements abroad. They use it themselves. So, they have a very strong supply chains, very strong vertical integration. In order to see a large multiply effect we need to have this kind of arrangement, this kind of supply chains or vertical leakages within the industry.*

So, in the case of Malaysia maybe we will not be as large as those in China because you know that we source the raw material from Australia but certainly there are ways for us to further expand our potential downstream industries from the facility there in order to see a higher multiply effect.

Tuan Teng Boon Soon: *In short that cans you also tells us the implication to the development of high tech industry in Malaysia?*

Prof. Dr. Jamal bin Othman: *So far I have seen a number of arrangements like having joint ventures with industry users like Lynas with Siemen and so on. This is a very important first step to see more value adding activities being done in Malaysia. So, I can see the potential that we can establish such downstream or higher value activities related to REE rare earth element.*

Tuan Pengerusi: *Thank you Profesor, we take note of the point and your suggestion on coming up with the economic benefit to the country. Thank you very much. Now I call upon our next presenter.*

12.52 tgh.

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *Thank you Mr. Chairman. Assalamualaikum warahmatullaahi wabarakaatuh to all the* Yang Berhormat. Saya Dr. Fuad Ismail. *I graduated from UKM and I became an Oncologist in 1996. Oncologist here means I deal with all adult solid tumors or solid cancers. So, I have been in UKM literally since graduation. I have been Head of Department for the last about 13 years. I am seen as an expert in cancer treatment less so in causes of cancer but I try my best to answer any questions that you have based on what I have done. I do teach the Master of Clinical Oncologist. One of the lectures and I teach is on result exposure of whole body to radiation.*

So, first of all we know that radiotherapy or radiation is useful in medical imaging and also in treatment of cancers. So, without a doubt that has its uses but here we are talking not of useful radiation medical term but you are talking about radiation effect on mainly two things which is one, cancer formation or carcinogenesis and second, any heriditany effect to baby, malformation or genetic effects. So, the radiation exposure we are all exposed to radiation every day. There is radiation all around us. Most of it is from natural background radiation about 80%. So, if you have a lot radon gas in this room you have a lot of internal radiation transmitter mainly the potassium 40 which is in our blood. So, you can't run away from that. That's big source of our radiation. So, we know we cannot deny the fact that radiation has been shown to cause cancer and many parts of the body. The key one should be thyroid, breast, skin, liver. But in terms of ability to cause cancer is actually a weak carcinogen compared to many things especially chemical and infection such as virus HPV, HIV they are strong causes of cancer in humans.

So, what happen if you get radiation is that radiation can cause DNA damage. Most of the time our body can cope with DNA damage and repair itself but occasionally the damage is not repaired and we inherited as a mutation. It is not that all DNA damage will call mutation. It is only important if the mutation occurs in the part of our DNA that has genetic material. Huge amount of our DNA does not have any genetic means produces a protein of particular gene.

So, when you are talking about carcinogenesis of cancer which is what we call a stochastic risk. Which is means that the risk is not determined by dose, but the risk increases by dose?

Most of the estimates are on them what is called linear no threshold estimate which means that we do not think that is a definite safe dose of radiation with does not cause cancer. But a lot of this data on very low level of radiation is extrapolated from data on big cohort studies. The big cohort studies are mainly from those especially where the radiation disaster or such as Hiroshima or Nagasaki or Chernobyl and we can see that when you talk about the risk of carcinogen dose is very important. So, we can sure that is the dose response in Chernobyl or let say what Dr. Looi alluded earlier you give thorotrast it is quite specific that it causes cancer in the liver because the liver concentrate the thorium given as a imaging dye.

So, we need to estimate what the dose that a person get if he's exposed to radiation and although they say that is theoretically no threshold from the data that is available from this big cohort studies that there is no evidence to show that radiation less than 5 mg is risk of that access cancer, 5 mg exposure. In fact if you look at big cohort of radium dye workers, these were ladies who work in factory and what they did was they use radium to make luminescent watches. So they use a brush, they lick the brush and they paint. So, they were ingesting radium on regular basis and look at the graph of risk of bone cancer where the radium concentrated the threshold dose appears to be about 10 g when ingested and deposited into the bone.

We also have to realize that the background radiation in Malaysia is quite high. If the estimate of increasing background radiation of 0.002 mSv is true from the Lynas factory, than this would seem to be negligible dose increase versus what we have in the background.

In the big cohort studies done in India where they look at 70 to about 100,000 people in Kerala where the background dose of radiation is very high somewhere between 4 mSv up to 70 mSv per year then they did not manage to show any difference dose the number of cancer in those in the high background radiation versus the low background radiation. This study is also similar to result seen in China. So, difficult for us to actually show that is a tiny increase in background dose of radiation will cause great access risk which of cancers in the future.

Looking at the risk to children, children are little bit more sensitive to radiation. If we look at the Chernobyl studies those who are under five years old are the greatest risk of getting cancers but Chernobyl is peculiar in the way that it was mainly of radioiodine which is concentrated in the thyroid. If you look at more general form of radiation such as Hiroshima atomic bomb whether a cohort of 30,000 children who followed up they could not detect any additional genetic effect on each children after about 30 years of follow up. So, that the background that I have and my comment on this. There, does not appear to be a very significant if what we heard from the physicist that the thorium is not absorb, the thorium emits alpha particles which is mainly stopped by skin and that the level of radioactivity by thorium is extremely low although there are some short live transmitters of beta and low energy gamma, this should be very small because the parent product itself has got very low activity.

Dato' Abd. Rahman Dahlan: *Thank you Doctor. Just want to ask your opinion* dari segi Bukit Merah. *I don't know whether you've mentioned in your long speeches now because I was reading but I did not hear you're talking about Bukit Merah as far as cancer incidences happened. Would you like to comment on that?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: Bukit Merah, *I think from my understanding is that Bukit Merah the exposure to radiation is higher is something like 40 to 50 times more than what Lynas is producing. The interesting thing is although a lot of this data actually what you call mathematical modeling. People had done mathematical modeling and they suggested that the risk of cancer at Bukit Merah should be 100 times more than the natural risk of cancer in the population.*

■ 1300

But what is even more interesting is nobody has actually shown that this is true. If I think of cancer hundred times more we should be seeing lot more cases from Bukit Merah. You should be seeing whole cohort of people who would be getting cancer. The lead time is already there because Bukit Merah I believe was in 1980's, so it's already 20 plus years. You don't get cancers immediately but we think that you get leukemia at about average of lead time of five years time from exposures. Solid tumors maybe about 10 to 20 years, so we have enough time to see a greatly increase if 100 times so we should see so many more cancers from the population over there. So the mathematical calculation is fine, but where is the actual cases?

Dato' Abd. Rahman Dahlan: *So in your professional view based on this mathematical formula, obviously we haven't found so far evidences of cancer cause by the mishap in Bukit Merah. Is that you are trying to say Professor?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *I think so because I think that it's depends on the type of radiation you are producing. If you are producing alpha particles, unless it's ingested and absorbed in your body, you are not getting much radiation internally. It has to be absorbed; it has to be deposited in certain areas but if it just alpha particles in the background, they just stopped by piece of paper, your clothes and so on. It would not really expose your body to much radiation.*

Tuan Liang Teck Meng: *Dr, is that true that for those people who have been living high radiation level place and they may get immune. That's why even they are exposed to higher level they won't get any illnesses such like leukemia or cancer.*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *Theoretically it's possible and then again if you look at the genetic makeup the repair mechanism for the DNA damage is very similar among population. You only have very few radiation sensitive syndromes where the body the genes are not there to repair radiation damage but otherwise if your capacity is to repair the radiation damage*

is similar I cannot see how the body can adapt or improve s capability to repair by adapting to higher radiation background levels.

Again is speculative but I think there is not a clear cut dose response in terms of background radiation and much higher rate of cancers in different part of the world. So if you look at the different part of the world where background doses are high, background doses are low, the cancer incident is very similar and it's more function of each.

Tuan Teng Boon Soon: *Dr, as far as you know today there is no record of death related to the operation or processing in Bukit Merah, in medical circle I mean.*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *Okey, I will say I'm not qualified to speak on that one. Again, this is regarding cancers and leukemia if there was a cluster we should hear about it. It's a cluster of events. If you are talking about isolated cases, there will be some leukemia cases and cancers in that area. The question is, it in excess to you are expected.*

Tuan Pengerusi: *Going back to Lynas. I think the issue, problem of radiation phobia. How do you help us to separate between the myth and the fact about radiation?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *I think it is very unfortunate. As the moment people hear radiation they are scared because radiation is something you don't see radiation is always related with cancers because people always think about almost atomic bomb blowing up in your back yard but if we look at it without emotions I mean just look at the clear scientific facts, alpha rays are not dangerous in general unless they ingested. So if they are ingested and absorb then they are dangerous. If you absorb high radioactive substances with high radioactivity, it will absorb in your lung yes you get high dose in your lungs but if the variant compounds such as thorium gets such a long half life, then the amount of decay, the amount of radiation produce is very small. It is not very much higher than what you are getting naturally in your body. So we are talking about there is no threshold dose but yes you are getting radiation in your body every day, every second so…*

Dato' Zulkifli bin Noordin: Boleh bagi *example* tidak.., *the daily exposure to the radiation?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *In this room, the radon gas in your body, so those two probably contribute about 70% of your body exposure. So just be indoors, in fact you probably get more radiation being indoors than outdoors because of the…*

Dato' Zulkifli bin Noordin: *And the source?*

Prof. Madya (K) Datuk Dr. Fuad Ismail: *The source radon gas, radon gas comes from earth. So it is in the bricks some of it will leak out so it will build up in enclosed areas.*

Dato' Abd. Rahman Dahlan: *Now we are in the room, the radon…*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *Yes that's the radon, you didn't open the window. So you need to open the windows and let the aircond out. So the radon builds up in enclosed area.*

It is more so in down stairs like in other country they got cellar, they build up the cellar and there is no circulation. And internally 40K, Potassium 40 is there all the time you can't escape from it. We are not only getting outside in this room, we are getting it internally as well. So, we are exposed to the radiation every day. It just we don't know it. For most parts if you take a geiger counter and run over your body, you are not going to get reading because it's too low.

Dato' Zulkifli bin Noordin: *Somebody was mentioning like this gypsum bought gypsum ceiling is thorium based waste product, recycle. Is that true?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *Okay, I'm not material expert from, from my reading understand its true but again as I said all of this material will have some amount of radiation. Is it significant, is it more than what you are getting from yourself and from the background. I think the question is it more…*

Dato' Zulkifli bin Noordin: *But you have mentioned that your wife is also radioactive.*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *I haven't measured her either... [Ketawa]*

Dato' Zulkifli bin Noordin: *I think it was one of the report.*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *He told me about that. All of us are radioactive. All of us got potassium 40. So we have sensitive enough we can detect these things. So we are getting radiation within ourselves. Is it more is Lynas going to give us much more? Somebody was asking about if we have ton of it that you going to get much more radiation, I think the thing is alpha emitter so you have a ton, you are going to spread up one ton of one acre, I think its going to be that thick. So all of this is self absorbed.*

Dato' Abd. Rahman Dahlan: *Profesor, last question from me. I just want to reiterate what you have said just now.* Saya hendak ulang balik*. You said that if there was any incidences of cancer in Bukit Merah, this time would be the peak time where it will be shown on record that many of the cases cancer comes from the area, 20, 30 years. Is that what you were saying just now?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *The minimum time should be about 10 years to 20 years. That means you must see the cases starting 10 years or 20 years. So you wouldn't expect solid cancers especially bone tumors and so on to come before that. So by now we should see, it is more than 20 years now.*

Dato' Abd. Rahman Dahlan: *So you don't see the peak, the spike in the graft?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *The cancer communities are small. If we saw cluster of people coming from certain area than I think we would be alert enough to know it.*

Dato' Abd. Rahman Dahlan: *Last one what do you make out of this unimaginable hysteria out there when it comes to radiations. Why all these phobia ini?*

Almost all experts coming and testify - all actually saying this is as safe as a baby. Why is a lot of people out there being so scared?

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: …*Because it is radiation. It's very dramatic to show pictures of mutation and so on. So if you talk about radiation effect to even babies so people say after such and such radiation the baby is deformed or something like that.*

Dato' Abd. Rahman Dahlan: *But on box of cigarette you can see very nasty pictures of cancer of lungs but people still smoke… [Disampuk] Some.*

■ **1310**

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *I agree. I think those same people who said that radiation damage probably left the meeting and started smoking outside.*

Dato' Zulkifli bin Noordin: *You are right Professor.* Yang Berhormat Liang *so concern about radioactive now. He is carrying this meter, it reads 0.16 milisievert in this room.*

Tuan Pengerusi: *Dato' Raja, just want to ask you about Bukit Merah. It is under your regulatory control currently*? *So,* maknanya...

Raja Dato' Abd Aziz bin Raja Adnan: *No,* Bukit Merah *is now has been deregulated yang under* ini *is* Bukit Keledang sekarang ini *where the repository is*.

Tuan Pengerusi: *So, whether* Bukit Merah *previously* ataupun Bukit Keledang, *there is no case of problem whatever or even cancer or something like that?*

Raja Dato' Abd Aziz bin Raja Adnan: *On our records, just for record purposes, on the records, there was one particular physician who testified that during the operation of ARE there were about six or seven cases of child leukemia. The court was not convinced because of that, because the lead time was quite short and then it happened during the operation of Lynas. I'm not a medical doctor, I would ask Dr. Fuad to comment about this, but that was in Asian Rare Earth during that time. He testified and he calls himself a toxicologist. I dare not tell what his name is, but certainly I would like...*

Tuan Pengerusi: *Because you will be the authority that will regulate Lynas. Whatever that you do in Asian Rare Earth* ataupun Bukit Keledang, *shows the standard that you will be performing. There is no issue there, so the same thing should be accorded to you. Maknanya, the recognition or acceptance of your being the regulator for Lynas.*

Raja Dato' Abd Aziz bin Raja Adnan: *Yes* Dato' Seri, *in fact in case of Lynas, we had requested the Lynas to make a cancer prevalence study to have a snapshot now whether it is useful later on, before operation, we have that. We will be insisting, not regularly, but maybe in 5 or 6 years snapshot each time. I need the medical doctors to...*

Tuan Pengerusi: *Whatever it is, is there any issues or reports against you in terms of you being the regulator has it is now on Asian Rare Earth and* Bukit Keledang, *was there any question?*

Raja Dato' Abd Aziz bin Raja Adnan: *I don't think there is any issue because we were formed partly, among others, because of* Bukit Merah. *We have commissioned the closure of Bukit*

Merah and that we have done successfully. Then the repository was built under our supervision Dato' Seri. *This is what we have been arguing for the last 10 to 15 years. Thank you.*

Dato' Abd. Rahman Dahlan: Lynas,kan? *Snapshot of the cancer.*

Raja Dato' Abd Aziz bin Raja Adnan: *It is now with our record, this prevalence study.*

Dato' Abd. Rahman Dahlan: Sudah buat?

Raja Dato' Abd Aziz bin Raja Adnan: Sudah, *we will keep it for record purposes.*

Tuan Pengerusi: Dr. Fuad, *you have anything more to add or to answer some of the issues post back to you.*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *I think there will cases of cancers, but what we need to show is their excess. I think medical fratenity as a whole, we are conservative. We are always worried about radiation. So, we always earn on the side of caution, but if you look at the facts of the types of radiation it is produce, it should be safe. Having said that, it is prudent to have a prevalence study, have a cohort. You have the cohort around Lynas and you follow them up for so many years and you see whether there is access cancers than what you would expect and make the provision. You were saying that it looks quite safe, but we should do this to be prudent, to just be doubly sure that there is not another mechanism that we don't understand. It happens in medical, sometimes we think we understand the mechanism, but that might not the whole thing.*

Tuan Pengerusi: *Thing that you proposed*?

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *The same. I understand that they are going to look at the population in Lynas and followed them up, what is the incidence of cancer now and what is the incidence in 5 years time or 10 years time, so that we can see whether there is an actual increase risk.*

Tuan Pengerusi: *But, there is a fear among the medical fraternity that Lynas is not safe. So, what do you have got to say to that, being a member of the same group.*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *We have to be* rajin *and read all the papers and come to an informed decision rather than hearsay.*

Dato' Zulkifli bin Noordin: *I just want to recap what you say about Bukit Merah. If a according to the calculation they have done before, so by now we should be seeing a mass cancer occurence in that area, are you saying that..., if it is true?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *If it is true, it is 100 times. 100 times is a lot. That means, if you...*

Dato' Zulkifli bin Noordin: *So far, nothing?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *So far, nothing outstanding that I can think of. I mean, as in Perak, there is no cancer treatment centre in Perak. So, it will be captured mostly either in GH or one of the University Hospitals in KL, either UKM or UM. So, we see a lot of cancer in Selangor, Perak and slowdown to Negeri Sembilan.*

Dato' Abd. Rahman Dahlan: *Professor, you are in the* Jabatan Radioterapi dan Onkologi, Pusat Perubatan UKM. *I just want to ask you, I asked this to the previous witness who came. Are you comfortable with the level of competency of our regulatory bodies in Malaysia* ini*. Vis-a-vis, AELB and the other departments, Department of Environment, specifically on Lynas because, there are a lot of concerns out there, rightly or wrongly, that says,* 'kalau stadium pun boleh jatuh..., *that kind of mentality, that kind of the reasoning. 'Kalau stadium boleh runtuh, anything could happen to this plant'. So, in your profesional capacity, are you confident that AELB being the main regulatory body for this and the rest of the regulatory bodies are able to carry out their job properly?*

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *That's a tough question but, I think if we are transparent in what we do, then it should be clear. That means, if we do something, we take readings and so on and it should be there for everybody to see. You can not be suspecting everybody to say, "This guy, he is working such and such. Obviously he doctored the readings or something like that". I think many of us who works as academician and so on, in a way resent this sorts of thing. In fact, I was called to this Committee on Thursday and there is always the suspicion of government, unfortunately. So, the moment I was called, even my own student suspected, this must be a set up job. Yes, so I think it is just an impression. Unfortunately it is just an impression of public that everything that we do is suspect. While most of the time that the people who are actually doing it, are doing it in honesty. So, I've come without any knowledge of what transpired before and has to do all the readings over the weekend. So, to me there is no bias there.*

Tuan Pengerusi: Ada apa-apa?

Dato' Abd. Rahman Dahlan: Ini untuk tadi cerita fasal *equipment*kan? *I just want to quickly mention that in the Yang Berhormat Kuantan's Blog, there is one article that says that the calibration or the authenticities of the readings of the equipments used by AELB are suspect. So, I don't know whether you have read it professor, but if you so, now like what you say,* dalam mula itu cakap*, 'okey, suspect'.* Selepas itu, *when you are being transparent and show the readings. They said, "There is something wrong with the machine", but, apparently Dr. Raja, the allegation was not repudiated by AELB. Can you just clarify, for the purpose of record, maybe AELB because,* dia kata *you all* tidak *response* langsung tentang *allegation that equipments used by AELB* ini tidak begitu tepat *calibration*nya*.*

Raja Dato' Abd Aziz bin Raja Adnan: Yang Berhormat, *I'm happy to report that all our instruments are calibrated by Nuklear Malaysia and Nuklear Malaysia has been designated the National Secondary Standard and they also have recognition from the International Atomic Energy Agency. You can actually follow this standards to a primary standard of laboratory. Therefore, but like in any other electronic equipments, it breaks down. Sometimes when our monitoring equipments breaks down also* tetapi *certainly we have a secondary to* - macam *we have a primary, secondary and tertiary, so we do not depends on only one system.*

So, several systems. If you only depend on only one system, then its going to be very difficult. So, we do not need to inform them how we do it. We follow international standards and international good practices. This is the most important. We don't need to justify what we do and we do the best for the country.

Prof. Madya (Klinikal) Datuk Dr. Fuad Ismail: *Can I add to that? Just one comment. In fact, we do that as well, because those meters are calibrated by Nuklear Malaysia and we have this small little meter which we put on patients. We sent those independently to IAEA just to double check the dosing and usually they come out about correct*.

Tuan Pengerusi: Okey, Dr. Fuad *and* Profesor Jamal, terima kasih banyak-banyak. Okey, kita sudah terlebih sedikit. Kita akan *adjourn.* Selepas ini kita ada tiga sahaja lagi kalau tidak ada siapa yang datang selepas itu. Kita ada tiga sahaja lagi. *So*, kita hendak mula balik pukul berapa?

Dato' Abd. Rahman Dahlan: Pukul 2.15 petang.

Tuan Pengerusi: Pukul 2.15 kah, 2.30?... Pukul 2.15. *So,* kita *adjourn for lunch.* Jemput semua makan tengah hari. Pukul 2.15 ya.

Mesyuarat ditempohkan pada pukul 1.22 petang.

Mesyuarat disambung semula pada pukul 2.23 petang.

[Tuan Pengerusi ***mempengerusikan Mesyuarat]***

2.23 ptg.

Tuan Pengerusi: *Assalamualaikum warahmatullaahi wabarakaatuh,* salam sejahtera. Kita sambung sesi kita pada sebelah petang hari ini. Kita sebenarnya ada tiga lagi individu yang ingin berjumpa dengan Jawatankuasa kita. Dari segi latar belakang, ketiga-tiga individu ini mempunyai latar belakang yang lebih kurang sama. Dua perubatan, seorang pakar fizik nuklear. Saya hendak cadangkan supaya ketiga-tiga ini, semua datang daripada universiti yang berbeza. UTM, UM dan USM supaya ketiga-tiga ini dapat masuk sekali membentangkan pandangan masing-masing. Selepas itu kita boleh tamatkan sesi pendengaran awam kita. Jadi, kita panggil ketiga-tiga sekali.

They are all academician, so they can or dia patut mampu untuk berbeza pendapat. *They live with different used.*

Seorang Ahli: *…In front of their Minister... [Ketawa]*

Tuan Pengerusi: Tidak ada *doubted,* tidak ada *plan... [Ketawa]*

[Saksi-saksi individu lain mengambil tempat di hadapan Jawatankuasa]

2.24 ptg.

Tuan Pengerusi: Dijemput duduk depan ini. Saya jemput ketiga-tiga sekali. Okey, sila. Daripada *three different universities,* bukan? *Can they all sit together...,* boleh kan?... *[Ketawa]*

Pertamanya, saya hendak mengalu-alukan kehadiran untuk bersama dalam Sesi Pendengaran Awam Jawatankuasa Pilihan Khas Mengenai Projek Lynas pada hari ini. Seperti yang kita sedia maklum, Jawatankuasa ini diwujudkan bagi mendengar pandangan-pandangan, mengumpul input dan juga cadangan-cadangan yang ada daripada pelbagai pihak termasuklah pihak awam.

Pada hari ini merupakan hari yang ketiga, sesi ketiga yang telah kita usahakan untuk kita menjayakan pendengaran awam ini. Sebelum saya menjemput, saya berharap kita dapat memperkenalkan diri, kepakaran kita dan apakah perkara yang hendak kita sampaikan kepada jawatankuasa ini. Jadi, saya serahkan siapa dahulu? Ya, dijemput. Mikrofon....

2.26 ptg.

Prof. Dr. Ahmad Termizi Ramli [Individu]: Saya Ahmad Termizi bin Ramli daripada Universiti Teknologi Malaysia. Saya dalam bidang perlindungan radiologi alam sekitar dan kajian saya mengkhususkan dalam bidang yang sama, radiologi alam sekitar. Jadi, Lynas ini...

Beberapa Ahli: *[Menyampuk]*

Prof. Dr. Ahmad Termizi Ramli: Radiologi alam sekitar. Jadi, Lynas ini memang sesuatu yang sangat rapat dengan bidang kepakaran saya. Saya berkelulusan daripada *University of Leeds* dan khusus dalam bidang perlindungan radiologi dan kesihatan radiologi daripada Universiti Salford dan PhD. saya dalam bidang *medical physics* daripada *University of Wales.* Jadi, saya akan menyentuh salah faham lazim yang utama dalam isu Lynas ini. Itu sahaja sebagai pengenalan.

Beberapa Ahli: *[Bercakap tanpa menggunakan pembesar suara]*

Prof. Dr. Ahmad Termizi Ramli: Terus kepada pembentangan ya..., tidak ada *power point* ya?... *[Disampuk]* Tidak ada, tidak apa. Kalau macam itu saya baca sahajalah. Dokumen sudah diedarkan. Jadi, pertamanya keprihatinan dan kepekaan rakyat Malaysia mengenai isu ini bertepatan dan wajar difahami. Saya juga ingin merakamkan kesungguhan dan iltizam semua pihak yang memperjuangkan isu ini demi untuk menjamin keselamatan dan kesihatan negara wajar dihargai dan dihormati.

Jadi, dalam negara kita yang bebas ini semua mempunyai tempat dan peranan strategik untuk menjamin kesejahteraan dan kemajuan negara. Walau bagaimanapun, ianya mesti diasaskan kepada ilmu, data dan fakta saintifik yang betul dan sah.

Sorry. Salah fakta, tanggungjawab kita bersama untuk membetulkannya. Salah tanggapan dan natijahnya ketakutan yang melampau, fobia mungkin, perlu diperjelaskan. Okey, sekiranya berlaku penyelewengan fakta ianya wajar dibongkar dan diperjelaskan dengan hujah ilmiah. Jadi, saya membentangkan ini cuma menjelaskan salah faham lazim yang utama yang sering berlaku dan kerap kali diulang-ulang.

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Pertamanya, salah faham Lynas sumber sinaran yang sangat berbahaya. Jadi saya hendak meletakkan persoalan ini dalam perspektifnya yang betul dan seimbang. Kalau kita ambilkan dos maut untuk manusia iaitu maksud dos maut ini 50% akan mati dalam masa 30 hari. Ini ada ilmu radiologinyalah, tidak apa kita ambil itu sahaja. Jadi lazimnya dianggap sebagai 4 Gy, 1 Gy ini kalau ahli fizik ialah jatuh dari tangga 10cm, 1 *joule* per kilogram iaitu sama dengan tenaga yang terlibat untuk jatuh dari tangga setinggi 10cm. Tidak apalah, maknanya tidak ada apa-apa tidak ada orang mati tetapi dari segi sinaran ada orang mati, boleh mati. Okey.

Jadi 4 Gy ini perlu berlaku sekali gus terhadap seluruh tubuh. Kalau 4 Gy kena tapak tangan, tidak ada apa-apa. Cuma sinaran matahari sahaja, kesan seperti sinaran matahari sahaja. Okey. Aras dos sinaran yang dibenarkan akibat operasi Lynas ini cuma 114 nano gray sejam ada enam titik kosong kosong kosong itu. Sebanyak 0.00000114 Gy sejam. Jadi jumlah yang sebenarnya sangat kecil. Saya hendak bandingkan kerana isu ini isu tidak dihadapi dengan betul secara kuantitatif. Sebut sahaja sinaran, tetapi tidak mengerti apa nilai kuantitatifnya. Jadi kita hendak bandingkan dengan – kalau kita bandingkan dengan 4 Gy ini, kita setarakan dengan Gunung Kinabalu, ketinggian Gunung Kinabalu 4,000 meter. Lebih kurang begitulah, boleh 4,013 meter pun tidak apalah.

Jadi 4 mGy akan setara dengan 4 meter, satu per seribu. Sebanyak 4 mGy akan setara dengan 4 milimeter. Jadi 114 gy akan setara dengan 0.1 milimeter. Itu kalau kita hendak bandingkan secara skala unit. Kita bicara tentang Gunung Kinabalu seperti orang risau tentang debu. Perbandingan saiz secara magnitudnya, secara kuantitatifnya ialah antara saiz debu 0.1 milimeter *almost* rambut belah sepuluhlah, rambut belah tujuh berbanding dengan Gunung Kinabalu. Jadi, singkatnya dari segi dos sinaran yang terlibat *none issue*. Bila ini jadi isu di kalangan ahli fizik, kita akan ditertawakan oleh dunia. Maaf ya, itu istilahnya. Kita cerita tentang debu, itulah aras yang kita bincangkan yang demonstrasi dan seumpamanya itu. Siapa salah itu cerita lain ya.

Jadi dalam radioterapi, kalau kita bayangkan dos yang sepuluh kali ganda lebih besar sekurang-kurangnya digunakan, 70 Gy. Maknanya lebih kurang sepuluh kali Gunung Kinabalulah kalau hendak dibandingkan. Jadi ini adalah jumlah dos yang sangat kecil. Itu kita kena faham ya. Kalau cerita-cerita lain, dia akan jadi *irrelevant*lah bila kita memahami isu ini dalam perspektif saintifik kuantitatif yang sebenarnya. Okey itu pertamanya.

Jadi aras dos sinaran yang dibenarkan oleh undang-undang di Malaysia akibat operasi seperti Lynas ialah 1mSv setahun. Jadi 1mSv setahun tadi saya bahagi dengan 8,000 jam setahun, itu yang dapat 114 nanogy tadi sejam okey. Sebanyak 1 mSv ini ialah 1 mSv di atas dari dos latar belakang. Dos latar belakang di Malaysia, Semenanjung Malaysia sudah 2.4 mSv semua sekali.

Jadi dos yang dibenarkan itu lebih rendah daripada dos latar belakang yang ada di Semenanjung Malaysia. Sabah Sarawak dia kurang sedikit, mungkin satu perpuluhan berapa mSvlah setahun. Akan tetapi di Semenanjung Malaysia, dos puratanya ialah 2.2 mSv setahun, okey. Menurut Lynas akibat daripada operasinya ini di*claim*lah, memang rasa *claim* itu tidaklah munasabah ya, dia akan menambah 0.002 mSv setahun. Ini makna memang *insignificant.* Kita tidak perlu, tidak perlulah di gembar gemburkan macam kes Fukushima dan seumpamanya. Julat biasa latar belakang dia kena kira ya, julat biasa latar belakang antara satu hingga sepuluh milisievert setahun, itu biasa. Saya pernah ukur kawasan di Perak, kawasan di Johor yang sampai itulah 8 milisievert setahun, ada kawasan macam itu.

Ada orang duduk kawasan-kawasan itu, kampung pun. Sebanyak 8 milisievert setahun jauh lebih tinggi daripada aras yang kita akan benarkan daripada undang-undang yang boleh dikeluarkan dilepaskan oleh Lynas. Kampung Sungai Durian di Tanjung Tualang, masa itu maknanya dia punya Ahli Majlis daripada MCA. Kampung Balai Badang di Segamat, saya bermalam di rumah Ketua Pemuda UMNO situ yang rumah dia saya ukur memang itu bacaannya. Itu biasa. Kalau sampai 8 milisievert atau milligraylah lebih tepat, itu biasa. Jadi apa yang akan di sumbang oleh Lynas ini tidak perlulah kita jadi bahan tertawa kelas dunia. Maaf ya, kasar sedikit itu. Akan tetapi saya cuma menyatakan apa yang sebenarnya okey.

Jadi, kajian saintifik menunjukkan tidak ada kolerasi di antara dos latar belakang satu sampai 10 milisievert dengan kejadian kanser, tidak ada. Kalau tidak kita tidak adalah Perdana Menteri yang dapat berkhidmat selama 22 tahun kerana asal usul dia daripada kawasan yang dos tinggi, okey. Contohlah maknanya. Jadi maknanya ini setakat 10 mSv, tidak ada *evidence*. Saya boleh bawakan, saya ada *research paper* dan seumpamanya yang terkini daripada China sendiri yang buat kajian selama 10 tahun terlebih. Antara kawasan dos tinggi dengan kawasan biasa, memang tidak ada kolerasi. Antara kawasan torium tinggi dan kawasan torium biasa pun tidak ada menunjukkan kawasan itu lebih tinggi akan dapat kanser lebih daripada kawasan tidak.

Oleh sebab apa, sebab tubuh dapat menampung dan sel ada mempunyai kemampuan baik pulih terhadap dos sinaran aras rendah ini. Setakat inilah yang kita lazim terima di dunia ini sejak dari zaman Nabi Adam lagi. Logiknya, kalaulah dos pada aras ini boleh menyebabkan kesan menyeluruh kepada manusia, tiadalah manusia yang masih wujud di muka bumi kecuali sebagai mutan cacat, *ninja turtle* atau *Spiderman* begitulah. Okey maknanya begitu. *Incredible Hulk*kah. Itu semua ahli-ahli fizik yang tidak habis-habis buat PhD. Jadi maknanya ceritanya begitu ya.

Makna kalau aras yang latar belakang ini yang kita terima setiap hari daripada pelbagai sumber boleh menyebabkan kesan menjejaskan manusia, kita akan faham perubahan genetik akan berlaku dengan teruknya. Kita akan faham Sastera Homer dan Ililad dan seumpamanya kerana masih telah lama cukup untuk mengubah manusia jadi mutan. Kalau dikumpulkan dos itu secara terkumpul ya.

Jadi itu maknanya hakikatnya tubuh mempunyai kemampuan baik pulih. Kalau sel itu rosak pun, kita ada bilion-bilion sel. Setakat satu dos rosak *no problem,* akan diganti segera oleh sel-sel yang berhampiran okey. Kalau kerosakan berlaku pada DNA, DNA mempunyai kemampuan baik pulih yang agak baik. Cuma dia tidak boleh baik pulih kalau kerosakan itu melibatkan dos tinggi, ini bezanya okey. Persoalannya macam soal apilah. Api bahaya tidak? Tidak bahaya? Apa sebab tidak bahaya? Persoalannya macam mana penggunaannya. Kalau kita bagi mancis pada anak-anak kecil bahayalah. Akan tetapi kalau api terkawal diguna, memang api boleh membakar, boleh memusnahkan juta-juta pun. Akan tetapi konteks itu kena difahami. Ini saya akan terangkan nanti dalam konteks memahami, konteks tentang bahaya, keracunan torium ini ya.

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Keracunan torium. Torium 232 berkeracunan tinggi. Betul. Akan tetapi konteks dan jumlah yang terlibat jauh tidak berkenaan dengan isu yang dihadapi ini. Okey. Ini adalah berkaitan dengan industri pemprosesan torium kerana torium ini ada bermacam-macam-macam kegunaannyalah. Tempoh hayat 14 bilion tahun. Kepada mereka yang sengaja hendak menyesatkan manusia, dia kata, *"Bahaya! 14 bilion tahun".* Kepada kita yang faham, gelaklah kan. 14 bilion tahun tidak bahayalah pasal 14 bilion tahun baru habis mereput, baru separuh mereput. Secara mudah, jika ada 1,000 tan, ini jumlah yang digembar-gemburkan, torium tulen, kalau kita hendak kira daripada segi fizikalnya, itu isi padu lebih kurang 100 meter padu, lima kali lima itulah, empat perpuluhan beberapa kali – besar bilik inilah. Ada 0.1 miligram sahaja yang akan mereput dalam masa sehari.

Jadi maknanya saya pernah pergi kilang membuat bahan api ini. Bahan bakar nuklear itu, ini uraniumlah. Samalah dengan torium dan boleh diangkat pun. Ia tidak menimbulkan bahaya daripada segi aras sinaran. Tulen. Bukan yang campur-campur dengan sebagaimana yang Lynas tadi. Ini yang tulen itu. Sama juga, torium tulen boleh dipegang. Bukanlah sahaja-sahaja hendak pegang, bukanlah kita hendak buat bangunan torium. Akan tetapi makna kalau setakat pegang sekali-sekala, ia bukanlah bahaya sebagaimana yang kita bayangkan atau yang digembar-gemburkan, sebagaimana macam bahaya *cyanide* dan seumpamanya, mati tujuh keturunan dan seumpamanya. Itu semua adalah cerita-cerita karutlah, okey.

Bahayanya lebih sebagai logam berat. Betul. Torium ini sebenarnya lebih *abundant*, lebih banyak daripada plumbum dalam kerak bumi. Jadi, bahayanya lebih sebagai logam beratlah kalau kita dapat debu, dalam bentuk logam berat dan kita sedut.

Jadi, sebenarnya pada aras Lynas itu, kepekatan debu yang akan dikeluarkan oleh Lynas, kalau ada keluar pun, kita mungkin memerlukan beribu paru-paru seorang. Ia dapat mencapai aras yang boleh menyebabkan mudarat. Ia satu paru-paru tidak cukup. Perlu ada beribu-ribu paru-paru, apabila semua itu disedut, semua beri kepada kita, barulah ia dapat aras yang - jadi betul kalau kita daripada segi pemprosesan torium, kilang pemprosesan torium dengan debu dan seumpamanya, kalau ada, itu memanglah ada aras-aras bahayanya.

Akan tetapi kalau aras yang terlibat dalam alam sekitar, aras yang terlibat sebagaimana yang ia dibenarkan oleh undang-undang negara ini, itu tidak akan menyebabkan apa-apa bahaya pun daripada segi kemudaratan kepada manusia.

Jadi, jumlah yang terlibat dengan Lynas terlalu kecil, sekiranya peraturan dipatuhilah. Kalau kita sengaja hendak mencari pasal, cerita lainlah kan. Jadi, seterusnya – itu mungkin orang kata propaganda. Hakikatnya belum ada kes keracunan torium dari alam sekitar. Tak ada, okey. Macam juga kalau kita kata ada atau tak kes mabuk alkohol daripada cuka. Semua orang tahu dalam cuka ada alkohol, bukan. Pernah kita dengar orang minum cuka mabuk? Macam itulah, ya. Jadi – dan tidak dijangkakan boleh berlaku. Analogi kes ini ialah sebagaimana analogi satu tadi aras alkohol, ya. Pada cuka dan tapai, tidak menjadikan cuka dan tapai haram. Ia tidak menghilangkan kemampuan akal. Tidak dianggap sebagai mengancam kesihatan. Itulah juga analoginya, analogi murah aras torium dalam bahan mentah dan buangan Lynas. Aras itu setaralah dengan aras alam sekitar. Tinggi sedikit, betul. Tidaklah lebih daripada apa yang disebutkan tadi dalam – sekiranya dikendalikan mengikut peraturan, memang tidak adalah. Kalau ikut pegangan, torium ini tidak larut air pun sebenarnya. Cerita torium akan mengalir ke Laut China Selatan, ini cerita dongeng, *wallahualam... [Ketawa].*

Jadi, macam harimau dan kucinglah. Jadi, harimau dan kucing ini sifatnya sama. Masing-masing ada kuku, masing-masing ada taring, masing-masing membunuh mangsa dan seumpamanya tetapi harimau makan manusia sedangkan kucing mainan manusia. Jadi, bahaya itu memang bahaya tetapi konteksnya itu, arasnya, dalam keadaan mana. Itu kita perlu fahamlah. Jangan ambil rangkum semua alkohol haram. Ada alkohol, semua haram, tapai pun haram. Cuka pun haram. Itu dia sudah buat benda peliklah dalam itu. Sama juga macam analogi awal saya tadi, api. Api itu tidak bahaya. Siapa kata api tidak bahaya tetapi tetap kita menggunakannya dengan peraturan-peraturan, dengan kawalan yang betul.

Seterusnya, sebatian torium juga tidak larut air. Gembar-gembur penyebaran torium ke Laut China Selatan seperti saya kata tadi, tidak ada asas saintifik dan pengambilan torium – torium pertamanya, tak larut air pun macam mana hendak mengalir dalam air kecuali kita ubah ia punya pH lah. Lazimnya ia tak larut dalam air, sebatiannya tak larut dalam air. Macam kita bayangkan sebatian besilah. Ia akan masuk dalam air, jatuhlah, bukan larut. Ia mendap. Jadi, pengambilan torium boleh – pengambilan tubuh sangat rendah.

Penyerapan oleh sistem gastrousus cuma 0.02%. Kalau pun kita tertelan, termakan, terhidu dan seumpamanya. Kita hidu ia masuk ke paru-parulah. Paru-paru pun ada kadar pengambilan dia yang juga rendah. Jadi dalam tubuh manusia, sudah memang ada torium. Bukan pun luar biasalah maknanya. Kita ada lebih kurang 30 mikro gram torium yang terdapat daripada pelbagai sumber sepanjang kehidupan kita dari kecil dan setiap hari kita akan menelan 30 mikro gram sehari torium dan kita akan keluarkan balik.

Selama 30 hari sepatutnya bertambahlah setiap hari bukan? Tidak. Ini kerana tubuh mengambil pada kadar yang kecil dan jumlah yang kecil itu biasanya tubuh dapat menampung DNA dapat melakukan baik pulih. Jangan sengaja telanlah. Bukan saya mencadangkan kita telan atau sedut torium, bukan begitu. Akan tetapi maknanya dalam keadaan tadi, itu suatu yang telah lazim pada, telah sedia ada dalam kehidupan manusia.

Jadi kilang seperti Lynas yang mengikut peraturan, ini yang kita hendak jaga, kita perlu mengikut peraturan, tidak dijangka akan mengubah aras ini dan tidak merupakan ancaman sinaran dalam. Jadi, apabila kita telah buktikan tidak ada ancaman sinaran luar sebelum ini, dia mula tukar pada torium bahaya, torium racun, torium boleh terkumpul bersama, itu semua tidak berdasarkan pada fakta saintifik dan pengetahuan tentang sifat tindak laku torium dalam alam sekitar dan dalam sistem biologi. Okey.

Jadi seterusnya, kesan kilang – ini satu mitos yang sangat popular. Tadi saya dengar Yang Berhormat dari Kulim juga menyebutnya seolah-olah satu fakta. Kesan kilang *Asian Rare Earth* sering dirujuk bahawa kilang *Asian Rare Earth* telah membawa kesan buruk. Pertama, kilang ditutup kerana perintah mahkamah, tak. Itu fakta yang salah. *Asian Rare Earth* telah memenangi kes itu pada peringkat rayuan. Memang pada peringkat pertama, kita tidak ada pegawai, kerajaan pada masa itu tidak ada pegawai yang cukup cekap, kalah. Pada peringkat rayuan telah menang kerana mahkamah mendapati hujah yang dikemukakan tidak dapat diterima. Jadi, *Asian Rare Earth* telah memenangi kes ini dan ia hanya ditutup kerana *Asian Rare Earth* didapati cukup dah dia punya keuntungan. Dia sendiri tutup atas dasar pertimbangan dia sendiri, bukan kerana perintah mahkamah. Itu dibetulkan. Satu fakta yang perlu dibetulkan.

Kedua, kilang telah menyebabkan pencemaran berlaku di persekitaran. Juga satu mitos. Pemantauan yang dilakukan oleh agensi-agensi kerajaan dan saya juga turut terlibat melihat dan seumpamanya, membuktikan tiada pencemaran radioaktif berlaku pada aras yang signifikan. Kalau ada pun, biasalah itu, *variation* dan seumpamanya. Akan tetapi, saya boleh sebut, yang kita pantau, di Bukit Kledang, memang tidak menyebabkan apa-apa pun pertambahan kepada dos dalam sekitar.

Ketiga, banyaklah lagi - saya ambil isu yang lazim sahaja, ya. Kilang telah menyebabkan sembilan kematian akibat leukemia. Tidak ada asas saintifik. Kalau ada, sekarang ini ia menjelma kerana daripada kes Hiroshima, masih pendam leukemia yang popular itu, 22 tahun.

Bom jatuh pada tahun 1945, kemuncak leukemia tahun 1977. Kalau kilang beroperasi tahun 1994. Tutup tahun 1992, *practically* sepatutnya sekarang ini memuncak. Tidak ada pun. Lapan terjadi itu pula yang lagi luar biasanya, kalau kita hendak memberi fakta, cerita itu biarlah munasabah. Berlaku sebelum tahun 1994. Sebelum habis masa pendam untuk leukemia. Ia tidak lagi munasabahlah. Pertamanya, cerita sahajalah. Saya berikan analoginya macam inilah ya.

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Ini adalah mitos paling popular dan di jaja merata-rata, saya pergi mana-mana pun orang cerita itu, saya suruh *student* saya buat esei tentang isu Lynas, *so* hampir semua menyebutkan kes *rare earth* sembilan mati kerana leukemia. Jadi kalau pelajar fizik kesihatan sehingga boleh percaya, sungguh menjelaskan, tetapi tidak luar biasalah kalau orang ramai percaya. Okey, analogi macam inilah UTM berada di Skudai sejak 1985, kita kumpulkan semua orang yang tinggal di Skudai sejak 1985, inilah kesan kehadiran UTM... Beginilah status hubung kaitnya, tidak ada basis saintifik pun tetapi jika ingin melihat dengan lebih lanjut semua yang terlibat tidak ada kena mengena dengan keradioaktifan dari kilang *rate earth,* semua yang saya sebutkan tadi orang luar, tidak ada kena mengena bukan anak pekerja, bukan pekerja pun dan para pekerja kilang *rare earth* sendiri tidak mencatatkan dos yang signifikan, bahkan tidak boleh catat pun, aras di bawah paras catatan.

Bagaimana pula orang luar boleh mendapat dos yang menyebabkan leukemia? Ini satu perkara yang pelik tetapi ini menggambarkan keadaan masyarakat kita yang boleh percaya apa juga. Minta maaf keadaan ini perlu kita sama-sama perbaiki, *insya-Allah.* Jadi kalau kes ini serius, betullah kalau kes ini serius dan ada merit tentulah telah lama berjaya dikemukakan dan tuntutan untuk pampasan di mahkamah dan mahkamah telah menolaknya pun sebenarnya. Kita tidak ada kes tetapi sebagaimana kata Gobbler*, "Fault suit defeated many times to became…",* telus.

Okey. Jadi rumusan dan cadangan saya, keradioaktifan dan dos sinaran dalam kes Lynas ini, saya tidak sentuh isu-isu lain ya, isu-isu lain itu bukan bidang saya, saya tidak mahu menjangkaunya tetapi kalau berkaitan dengan keradioaktifan dan sinaran *it is none issue* dalam kes Lynas – sedikit ada dia punya *reading* lah sekiranya peraturan dipatuhi.

Baik, undang-undang Malaysia dan pelaksanaan saranan IAEA telah lebih daripada memadai sebenarnya untuk menjamin keselamatan dan kesihatan pekerja, masyarakat awam dan alam sekitar. Mengenai Lynas dengan loji nuklear itu lagi huru-hara. Apatah lagi dengan insiden Fukushima adalah satu salah tanggapan yang serius, yang perlu ditangani dengan penjelasan yang berkesan kerana ini telah menjadi punca ketakutan yang melampau. Jadi seterusnya pengambilan kesempatan dari kejahilan rakyat tentang isu keradioaktifan dan sinaran ini perlu ditangani dengan serius untuk menakut-nakutkan rakyat secara melampau.

Saya juga berhadapan dengan orang-orang yang takut tidak keruan ini, tidak ada – bila hendak percaya betullah.

Itulah pada saya ini sama dengan analogi kes pocong lah, tidak ada orang percaya pocong betullah pocong itu, takut hendak keluar malam dan seumpamanya tetapi ketakutan yang tidak ada asas ini tidak boleh menjadi dasar polisi awam negara kita. Ia mesti ada data saintifik dan tidak berdasarkan kepada..., kerana ketakutan ini telah menjadi *real*.

Ini juga kerana kegagalan kita menanganinya dengan baik juga boleh menjejaskan kemajuan negara dan mempengaruhi polisi awam. Ini tidak boleh kita benarkan dalam negara kita yang berasaskan kepada fakta dan kepada ilmu sains.

Isu ini perlu dikendalikan secara terbuka dan telus oleh semua pihak pendekatan tertutup, sembunyi-sembunyi, menghakis keyakinan semua pihak. Jadi negara memerlukan sikap dan pendekatan yang terbuka, telus dan tulus untuk melangkah..., kalau kita hendak melangkah ke era nuklear demi untuk menjamin keselamatan dan kesejahteraan negara. Sekian, terima kasih.

Tuan Pengerusi: Terima kasih..., *question.*

Dato' Zulkifli bin Noordin: Proffesor Termizi.

Prof. Dr. Ahmad Termizi Ramli: Ya.

Dato' Zulkifli bin Noordin: Dalam muka surat sembilan berkenaan dengan rumusan dan cadangan. Keradioaktifan dan sinaran adalah *non issue* dalam kes Lynas, saya tengok banyak pendapat dan laporan pakar dia mesti di hujung itu menulis sekiranya peraturan dipatuhi.

Prof. Dr. Ahmad Termizi Ramli: Ya.

Dato' Zulkifli bin Noordin: Soalannya ialah apa jadi kalau peraturan itu tidak dipatuhi.

Prof. Dr. Ahmad Termizi Ramli: Kita ...apa jadi kalau peraturan tidak dipatuhi.

Dato' Zulkifli bin Noordin: *So* maknanya ada isu lah.

Prof. Dr. Ahmad Termizi Ramli: Ada isu kalau tidak dipatuhi.

Dato' Zulkifli bin Noordin: Selepas itu

Prof. Dr. Ahmad Termizi Ramli: Jadi maknanya....

Dato' Zulkifli bin Noordin: ...*Concern* yang dilahirkan oleh segelintir pihak iaitu ketidakpercayaan mereka kepada institusi kerajaan tentang penguatkuasaan dan penyeliaan, *monitoring* dan lain-lain.

Prof. Dr. Ahmad Termizi Ramli: Okay.

Dato' Zulkifli bin Noordin: Jadi katalah tidak ada kepatuhan kepada peraturan, macam kata *traffic light* tadi tidak dipatuhi akan berlaku *accident, so* akan ada kematian serta akan ada...

Prof. Dr. Ahmad Termizi Ramli: Ya.

Dato' Zulkifli bin Noordin: Apa jadi kalau dalam kes Lynas ini peraturan tidak dipatuhi, peraturan apa yang dipatuhi yang boleh, yang sepatutnya menimbulkan *concern* kepada rakyat.

Prof. Dr. Ahmad Termizi Ramli: Pada saya sebenarnya kalau peraturan dari segi keradioaktifan tidak terlalu sukar hendak dipatuhi, bahaya Lynas ini dari segi *schedule waste* dia atau sisa berjadual yang bukan radioaktif dan itu yang lebih bahaya.

Dato' Zulkifli bin Noordin: Apa maknanya?

Prof. Dr. Ahmad Termizi Ramli: Bahan-bahan seperti asid dan seumpamanya itu tipikal *chemical engineering* punya *factory,* ia bukan isu keradioaktifan dan sinaran.

Apa yang saya sangat tidak selesa, tidak setuju apabila dikaitkan keradioaktifan dan sinaran dengan *Save* Malaysia, dengan *sign* mereka yang tidak ada kena mengena langsung...

Dato' Zulkifli bin Noordin: Maknanya kalau peraturan itu tidak dipatuhi, isu berkaitan dengan *thorium* itu akan menyebabkan masalah kesihatan dan *environment* tidak timbul?

Prof. Dr. Ahmad Termizi Ramli: Secara dasarnya tidak.

Dato' Zulkifli bin Noordin: Tidak timbul?

Prof. Dr. Ahmad Termizi Ramli: Tidak timbul, arasnya yang terlibat tidak cukup besar untuk timbul, lagi sekali...

Dato' Zulkifli bin Noordin: Masalah kesihatan dengan persekitaran yang lain itu mungkin adalah dari segi kimia itu, dari segi *thorium* itu sendiri tidak?

Prof. Dr. Ahmad Termizi Ramli: Saya sebut tadi, api lah. Siapa kata api tidak berbahaya, kalau tak, tidak adalah bomba, perlu ada bomba kan tetapi api akan sentiasa dikawal tidak? Walaupun kita buat semua peraturan tetap ada kebakaran, tetap perlukan bomba macam itulah keadaannya. Tidak ada terdapat dalam keadaan dunia ini satu keadaan yang sentiasa selamat 100%.

Dato' Zulkifli bin Noordin: Maknanya ketidakpatuhan kepada peraturan itu adakah akan menyebabkan isu berkaitan dengan *thorium*...

Prof. Dr. Ahmad Termizi Ramli: Tidak*,* ia boleh menyebabkan tetapi tidak pada aras yang maknanya ada...

Dato' Zulkifli bin Noordin: Apa maksud ada itu?

Prof. Dr. Ahmad Termizi Ramli: Maknanya *thorium* sebab saya kata tadi kalau kita sahaja keluarkan dia pekat dan seumpamanya, tidak dikawal dengan baik, kemudian kita taburkan merata-rata, *extreme* punya tidak kawalanlah.. Saya rasa tidak sampai begitulah keadaan kita di Malaysia ini dan saya yakin agensi-agensi kerajaan mempunyai kemampuan untuk mengawal dengan baik.

Dato' Zulkifli bin Noordin: Memang yakin tetapi ada rakyat yang tidak yakin itu masalahnya.

Prof. Dr. Ahmad Termizi Ramli: Jadi kalau kita tidak yakin itu, itu masalah politik...

Dato' Zulkifli bin Noordin: ...Mereka diberikan gambaran ada kemungkinan penguatkuasaan ini mungkin ada *loophole.*

Prof. Dr. Ahmad Termizi Ramli: Ya.

Dato' Zulkifli bin Noordin: Jadi kita bayangkan macam tadi disebut perlu disiram waste – WLP. Okey katalah berlaku kemarau ke ataupun macam berlaku di Ketereh baru-baru ini, *a blast, what will happen?* Apa akan terjadi?

Prof. Dr. Ahmad Termizi Ramli: Aras bahayanya jauh lebih rendah daripada semua kes yang tadilah, saya tidak tahulah tidak ada bahaya langsung tetapi tuduh pula AELB tidak betullah itu, tetapi ....

Dato' Zulkifli bin Noordin: Itu soalan saya hendak adakah apa yang AELB buat ini patut atau tidak?

Prof. Dr. Ahmad Termizi Ramli: Saya rasa...

Dato' Zulkifli bin Noordin: Kemungkinan besar penglibatan AELB yang menyebabkan ketakutan.

Prof. Dr. Ahmad Termizi Ramli: Tidak sepatutnya begitu, kalau kita hendak menjaga ini dengan baiklah.

Dato' Zulkifli bin Noordin: Tetapi ada soal sama ada Lynas ini sepatutnya diletakkan di bawah AELB ke ataupun di bawah PBT sahaja?

Prof. Dr. Ahmad Termizi Ramli: Kalau...

Dato' Zulkifli bin Noordin: Sebab cara cakap tadi seperti boleh tidur di sebelah Lynas.

Prof. Dr. Ahmad Termizi Ramli: Kalau amalan di Eropah, sisa semacam itu memang di bawah PBT sahaja.

Dato' Zulkifli bin Noordin: Maknanya –itu saya hendak rumuskan begitu sahaja. Maknanya meletakkan Lynas di bawah AELB ini tidak wajar lah patutnya.

Prof. Dr. Ahmad Termizi Ramli: Kalau kita hendak kira dari segi ...

Dato' Zulkifli bin Noordin: Ikut standard Eropah lah?

Prof. Dr. Ahmad Termizi Ramli: Kalau hendak kira dari segi ilmu begitulah tetapi dari segi politiknya tidak begitulah kerana kita kena – isu-isu sinaran ini kena dilihat, dijaga dengan baik dan kemudian dilihat dijaga dengan baik.

Tuan Pengerusi: Maknanya standard kita tinggilah?

Prof. Dr. Ahmad Termizi Ramli: Standard kita tinggi sebenarnya, jika standard Eropah bahan ini boleh dibuang dengan lapisan tanah sahaja, itu sahaja.

Dato' Zulkifli bin Noordin: Maknanya kalau Eropah dia tengok kita ini gelak melihat kita.

Prof. Dr. Ahmad Termizi Ramli: Gelaklah.

Dato' Zulkifli bin Noordin: AELB yang kena jaga Lynas ini.

Prof. Dr. Ahmad Termizi Ramli: Itu maknanya itu juga satu, kita dihormati jugalah.

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Dato' Zulkifli Noordin: Kita terlampau tinggilah maknanya.

Prof. Dr. Ahmad Termizi Ramli: Tinggilah sebenarnya.

Tuan Pengerusi: Ini saya hendak tanya Prof. dari segi kilang itu sendiri dan sistem keselamatan yang diguna pakai.

Are you aware of the pembinaan kilang itu dan sistem-sistem yang dia telah letak dan sama ada kita boleh berpuas hati bahawa segala langkah keselamatan terdapat dalam kilang itu untuk menghalang daripada berlaku apa-apa yang mungkin tidak diingini.

Prof. Dr. Ahmad Termizi Ramli: Okey. Jadi saya tak nak jawab *direct*. Itu yang saya sebut semua orang ada peranan dan tempat dalam negara kita yang merdeka, yang bebas ini. Jadi golongan yang menentang Lynas berperanan untuk memastikan perkara-perkara yang disebutkan tadi dilaksanakan. Khidmat dia kepada negara dalam konteks itu perlu juga dihargai walaupun kita tidak setuju dengan mereka dari segi saintifik tetapi sebagai mana *Greenpeace* dan seumpamanya di Eropah memainkan peranan yang penting ini untuk memastikan reaktor nuklear dia selamat atau sekurang-kurangnya selamat.

Kita juga perlu melihat dengan positif peranan golongan-golongan yang kita hendak kata "gila-gila" pun tidak apalah, seperti ini dalam konteks kita hendak menjana keselamatan. Ini kerana kita tahu manusia ini kalau tidak ada yang tolong tengok dia, dia akan alpa. Jadi saya jawab *direct*. Jadi setakat ini okey balik kepada persoalan pertama tadi setakat ini yang saya difahamkan yang saya ditunjukkan, saya tidak tahu apa yang tidak ditunjukkan saya yakin keadaan kilang itu cukup selamat. Okey Tuan Pengerusi.

Tuan Pengerusi: Akan tetapi mungkin mengenai *the waste*. *Do you want to ask about the waste*, dari segi sisa produk yang dirancang oleh kilang ini untuk diguna bagi di*recycle* untuk buat bahan-bahan tertentu. Ada yang mengatakan bahawa di China itu sudah lagi tidak digunakan. Ada Prof. hendak komen apa-apa mengenai dengan ini?

Prof. Dr. Ahmad Termizi Ramli: Okey. China ini sebenarnya masalahnya bukan masalah *waste* sahaja. Dia masalah penguatkuasaannya kerana ketidakterbukaannya. Jadi isunya dia lebih kepada isu pencemaran alam sekitar, lebih kepada proses-proses kimia yang berkenaan. Jadi memang berlaku pencemaran tetapi ini adalah kerana sikap mereka yang sangat tertutup. Tidak *boleh complain* ini *people interest*. Siapa yang berani *complain*? Siapa *complain* akan menentang, *against the people and so on.* Jadi itu yang menyebabkan banyak berlaku di negara China penguatkuasaan yang sangat tidak berkuat kuasa. Jadi China bukan contoh kitalah. Jadi kita boleh *recycle* bahan-bahan ini mengikut peraturan-peraturan kita yang telah sedia ketat.

Kalau mengikut peraturan-peraturan yang telah sedia ketat, torium yang ada itu adalah torium yang arasnya sama dengan aras alam sekitar dan kita tahu aras alam sekitar terbukti daripada semua kajian saintifik selama ini tidak menyebabkan, tidak boleh dikorelasikan dengan kejadian kanser. Okey kerana seperti yang saya sebut tadi tubuh kita iaitu kita mempunyai kemampuan untuk baik pulih yang cukup memadai. Boleh begitu. Jadi makna kalau ikut peraturan kita, ikut standard kita bahan-bahan itu kalau di kitar semula pun selamat.

Akan tetapi kalau tidak ikut standard, tidak ikut peraturan dan tidak ada golongan pendesak yang berperanan gila-gila ini pada saya mungkin kita juga akan alpa, mungkin agensi kita juga akan dan saya juga tidak menaruh keyakinan yang tinggi terhadap mengenai badan-badan antarabangsa maksudnya multinasional *corporation* yang berasas kepada keuntungan ini. Kalau kita tidak menjaga negara kita, mereka akan mengambil kesempatan untuk menggandakan untung.

Tuan Teng Boon Soon: Prof. izinkan saya bertanya satu soalan. Bagaimana kita dapat mengawal untuk memastikan *waste* dalam proses *recycling* itu dia tidak memberikan kesan buruk kepada kesihatan manusia.

Prof. Dr. Ahmad Termizi Ramli: Ada standardlah. Selagi standardnya dipatuhi, maknanya aras torium di alam sekitar, aras pelepasannya dibenarkan, air yang keluar itu telah dipastikan aras kandungan toriumnya sudah rendah daripada yang sepatutnya, itu semua akan memastikan keselamatan alam sekitar. Kita ada standard. Sekarang ini perlu tenaga kuat kuasa dan perlu ketelusan dari segi penguatkuasaan itu berlaku dan dilihat berlaku. Jadi isu itu isunya.

Tidaklah penguatkuasaan dilakukan senyap-senyap. Ini akan menghakiskan keyakinan rakyat. Jadi saya rasa *waste* ini pada saya bila kita kata hendak hantar balik ke Australia saya rasa orang gelak. Ini bahan yang sangat berharga. Potensi tenaga daripada torium jauh lebih tinggi daripada potensi uranium dan potensi bahan bakar fosil yang ada sekarang ini. Ini tenaga masa hadapan kita kena simpan buat apa hendak dihantar kepada luar negara. Jadi tidak apalah dari segi kepentingan politik kena hantar keluar negara, Lynas pun sudah sain akur janji hendak hantar tidak mengapalah. Akan tetapi pada saya satu perkara yang sangat tidak wajar dan sangat tidak cerdik. *Wallahua'lam.*

Tuan Teng Boon Soon: Prof. orang awam sering kali sangsi tentang kemampuan Malaysia dalam kemampuan penguatkuasaan khususnya penguatkuasaan dalam hal Lynas itu memastikan dia selamat. Apakah pandangan Prof. tentang kemampuan dari segi teknologi kemahiran dalam bidang penguatkuasaan?

Prof. Dr. Ahmad Termizi Ramli: Jadi rasanya kita negara merdeka dan kita perlu bebas daripada institusi kompleks ini. Negara kita jauh maju sebenarnya dan telah mempunyai cukup kemampuan kepakaran. Cuma yang kita perlulah keterbukaan dan ketelusan supaya penguatkuasaan itu dapat disemak, ada unsur semak dan imbang dia yang berkesan. Ada kumpulan pendesak *civil society* yang memastikan dia berjalan dengan betul dan seumpamanya.

Kita tidak kurang kemampuan itu, kepakaran memang sudah ada. Kalau tidak apa ertinya 20 universiti awam dan 50 lebih universiti swasta yang ada di negara ini dan ribuan pelajar kita yang keluar negara. Jadi, kalau tidak ada kemampuan kita satu penghinaan kepada bangsa ini sebenarnya.

Dato' Abd. Rahman Dahlan: Saya rasa Tuan Pengerusi setuju dengan *statement* itu… *[Ketawa]* Saya hendak tanya tadi mengenai kenyataan yang dibuat awal tadi yang mana Profesor mengatakan bahawa sisa ini tidak berbahaya dan amat berharga dan perlu dikekalkan di Malaysia. Apa pandangan Profesor mengenai pandangan negara Australia Barat, *West Australia Government* yang mengatakan mereka tidak mahu menerima sisa tersebut kembali ke Australia. Itu seperti menjawab ada pertelingkahan sedikit dengan pendapat awal Profesor yang mengatakan sisa ini berharga dan tidak berbahaya.

Prof. Dr. Ahmad Termizi Ramli: Itu amalan antarabangsa. Maknanya kita jual getah kita, kita tidak ada pula ambil balik sisa daripada getah kita. Jadi kalau kita *start precedent* itu maknanya bahan kita jual di luar negara sisa hantar balik negara kita. Haru perdagangan antarabangsa jadinya. Jadi sisa itu sebenarnya kalau takrifan Australia tidak dianggap radioaktif pun. Jadi dia pun peliklah kalau kita hendak hantar balik. Itu sahaja. Dari segi amalan perdagangan antarabangsa tidak berlakulah sisa bahan jualan kita kena hantar balik ke negara asal.

Itu satu *precedent* yang rasanya dari segi perhubungan antarabangsa yang sangat luar biasalah. Kalau orang buat kepada kita pun berat kepada kita juga nanti. Kita banyak eksport barang, semua barang ada sisa pulang balik. Berat kita.

Dato' Abd. Rahman Dahlan: Akan tetapi Profesor kata tadi sisa ini berharga dan mempunyai nilai komersial yang tinggi yang tidak berbahaya. Jadi bagaimana kenyataan itu boleh diselaraskan dengan kenyataan kerajaan itu. Sedangkan kerajaan itu - Walaupun mungkin saya setuju *if you say that it is international norm that you send the product out then you don't send back the waste. I can understand. But from where you are coming from your statement was very strong saying that the waste was valuable*, ada gunanya. Akan tetapi kenyataan itu, kenyataan daripada negara *West Australian Government was very strick against the receiving back those of the thorium.*

Prof. Dr. Ahmad Termizi Ramli: Ya. *It is matter of principle*. Saya anggap itu as a *matter of principles international trade.* Jadi dia sendiri ada banyak torium*.* Australia ada banyak uranium jadi tidak perlu bahan-bahan tersebut. Jadi pada saya dia akan *incur cost* hendak hantar balik dan hendak simpan. Bahan dia tidaklah - walaupun saya sebut di Eropah bila sudah dipekatkan perlulah kita buat kawalan-kawalan dan seumpamanya. Jadi mungkin dari segi *cost effectiveness* yang dia tidak mahu itu. Bukan dari segi prinsip saya tidak boleh *put your word in your mouth.* Akan tetapi pada pandangan saya itu, ada dua isu iaitu prinsipnya dengan antarabangsa. Keduanya, kos *effectiveness of the whole process*. Pasal benda ini tidak ada masalah simpan di sini sebenarnya.

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Dato' Abd. Rahman Dahlan: Atau mungkinkah undang-undang mereka itu *is a blanket law that any waste which is include uranium*kah, apakah *any waste*lah *you sell the raw product outside, you send it out, sending it back as a category of waste* ini hisab tidak diterima dan itu...

Prof. Dr. Ahmad Termizi Ramli: Pernah, negara mana pun macam itu. Kita tidak sahaja...

Dato' Abd. Rahman Dahlan: *Are you familiar with that particular law...?*

Prof. Dr. Ahmad Termizi Ramli: Tidak ada. Saya tidak *going to that detail*lah. *The areas are not my area.*

Dato' Abd. Rahman Dahlan: Okey, okey.

Tuan Pengerusi: Pada saya – terima kasih Prof.

Prof. Dr. Ahmad Termizi Ramli: Okey, terima kasih.

Tuan Pengerusi: Akan tetapi *along the way, maybe ada anything crop up* mungkin Jawatankuasa akan juga terus soal.

Prof. Dr. Ahmad Termizi Ramli: Okey. Terima kasih kerana sudi mendengar dan saya minta maaf kalau ada yang *over* sedikit tadi kerana saya memang *emotionally attached with the issue because* saya sangat dukacita. Seluruh masyarakat kita diperbodoh-bodohkan dengan *non* isu ini. Jadi *intellectual* itu bukan kata yang buat itu orang ramai itu tidak mengapalah. Orang-orang yang saya kena jawab dapat diperbodoh-bodohkan. Minta maaf menggunakan sirah yang sepatutnya non-*Parliamentary,* kan?... *[Ketawa]*

Dato' Abd. Rahman Dahlan: ...Duduk dekat SPM.

Prof. Dr. Ahmad Termizi Ramli: Saya rasa tidak...

Dato' Abd. Rahman Dahlan: Yang kawan sana boleh duduk dalam...

Prof. Dr. Ahmad Termizi Ramli: Saya yakin dengan keikhlasan semua orang saya tidak hendak – tadi maknanya terus *optimistic. However better it is to anybody. Wallahualam.*

Tuan Pengerusi: Ya, *thank you Prof*. Terima kasih. *So,* saya jemput *the next one,* Profesor Ng dari UM.

3.12 ptg.

Prof. Ng. Kwan Hoong: Selamat petang Yang Berhormat Dato' Seri Mohamed Khaled bin Nordin dan Yang Berhormat-Yang Berhormat yang lain dan juga saudara-saudari. Saya sudah pilih satu topik ialah mengenai komunikasi risiko yang berkesan, *the effective risk communication.* Prinsipnya adalah tersentuh tentang persepsi orang awam termasuk kita semua. Saya hendak minta keizinan Tuan Pengerusi supaya saya menggunakan bahasa Inggeris. Okey, terima kasih.

When we talk about something that is affecting us all, first of all I'm a Senior Professor from the Department of Emerging Medical Physics Unit University Malaya also a Senior Consultant at University of Medical Centre.

My background has been in medical physics, and I have been in this field working the hospital for some 30 years now with medical 'imaging' also consult for the IAEA for the batch whole and also an expect for the international commission of non unassigned protection the covers, the radio wave, microwave. Also I've been leading one of the researches in mass communication with the MCMC, the Malaysian Communication and Multimedia Commission.

Also last year was invited to Japan to speak on the Fukushima incident on the risk communication particularly how social media affects the people perception of that. Okey, *I just want to begin – we just showing if… book some – now imagine you're driving behind this truck alright which hass radiation warning or explosive.*

Dato' Abd. Rahman Dahlan: *Bercakap tanpa menggunakan pembesar suara]*

Prof. Ng. Kwan Hoong: *No, it's not a real one, I doubt. We see thus often in the America.* Ya, *so far we do right the driven behind this, it was still far away. You try not to have anything to do with that and we have that straight away which is over immediate risk assessment. The reason I ask for this special – thank you for allowing us to use the power points. As a do with image part we see that issue affects us. So, the cause it is crazy truck driver and the effect we think, oh! It might explored, it is turn dangerous, stay far away so, based on the images and our conception and our judgment.*

So, similarly we come to the radiation issue, we react with concern angle, is a same process taking place in mind. The decision people make depend on our level of trust that driver, the traffic law are in the information provided or whether authority is fair and whether we have any control or choice over this hazard. And it is decision is secondary only based on information provided. Now, what happen if we don't trust information or the source information while you will make your decision base on your peer group, right, on your friends, your neighbors, some activists of people or the media which is very influential on information from the internet or social media.

*This is quite rational many of us, most of us do that. In fact of merely see right you have nuclear nightmare, poison with radiation, and deadly radiation. Read that in local press as well, all languages and you will see that atomic bomb explosion. This is how we watch television, or this comes to us and we say, "All die*lah, *radiation coming", all these are ver worrying. It is common. These are some common basis of radiation fear and Prof. Dr. Ahmad Termizi also mentioned earlier I am glad that he has prepared the introduction for me, right? We associate radiation with cancer.*

I've been working over the years with radiation in radiology, also teaching in oncology, working and see lots of that and it's something that cannot see, cannot feel so we cannot control, so we are fearful and we always see something happen, you know something that radiation is deadly, poisonous.

So, we think of our children, next generation also the long term harm to property. This morning, for the public property values effected and that's no escape. Look at this woman with some radiation burns so these scary images form in your mind. It is very interesting - Lynas to the last different hazard and risk. Now the car itself is hazard. We drive a car is definitely health hazard, alright. The risiko *it depends when we drive very fast car increase so the greater risk of road accident. So, every human activity has and also a social risk. It is something most people won't understand. So, we can diminish it right, we're avoiding something or we have insurance, we monitor, we communicate about activity.*

For example like tsunami, earth quake you know that some risk. We still live in those area of landslide. So we cannot get risk totally. So the another example is electricity we use it right we had air condition light but sometimes the building catch fire alright because insulation has turn bad…, so, it is immediate effect we get electrocuted and another hazard it is also another issue in Malaysia, which also have a part in that working with teenage, another is the power line. Which it is not quite settled. Long term exposure may cause people who live near the power lines get leukemia and so on. This is chronic effect. So, it's something important which accept to do. Are we willing to accept risk or not?

So, there is no such thing as zero risk. Though we here people talk about zero, Oh! Zero harm as assured by Lynas so it is something that is not possible. Everything has some risks so the citizens would aspect our government to manage the risk so that risk to the environment we live into acceptable level. This acceptable level is very much depending on the society, the culture and also the background of the people. This is a classic example, a map of hazard which is well known quite old, 1957, classic people in risk management in psychology, sociology will learn.

Notice in the top right hand corner right this is the radioactive waste and this perceived risk and the benefit is considered low. On the bottom left alright, mobile phone or bicycle, this risk…, because on the notice is warranty alright. We can choose the right bicycle, we can use but we know the certain amount of risk. People still accept that but not those belong to those which is risk that delay, fairly new to us also if it is happened, it is cetastrophy.

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So, others would be the issues of pesticides, asbestos and also the DNA cloning. All these makes people fearful. So, we did understand where this radioactive waste, the sisa *comes from. They understand that. So, that is the established model. I am going to talk to you a lot of the* asas-asas, *the basis on that, so that we can understand how to address these problems.*

We heard quite a lot of people are ignorant. What is radiation, what is an alpha particle? They are very uncertain, kebimbangan, kerisauan*. All these come in, right.., anxiety and then lead to fear? Now, when we fear something that can lead to all kinds of things, one, it is aggression and violence, isn't it?*

We have seen this happened a lot. Not only Lynas issue, but in previous example of various incident. So, this is some kind of sequence of events. So, we need to tackle that at different levels with the public.

Next, I am talking about the perception of risk. Now is interesting, expert-non-expert. Expert like Prof. Dr. Ahmad Termizi Ramli and others, Prof. Madya Dr. Wan Ahmad Kamil, these are experts in of different fields. Non-experts are layman or could be, say a lawyer or an engineer. Not experts in this field. There are different ways of looking at risk. It is all according to our internal logical criteria which is very conditioned by how we brought up the images, we perceive things.

However, we live in a risk adverse society. People want zero risk. They do not want risk. They want proof; they asked us, "Show us there is no risk. Show us thorium is not dangerous". So, they want to be consulted as well in the decision making. They would not tolerate. This is where this morning a lot of people talked about, not in back of my backyard. But, this is very complex issue, still being researched. It is not just for opposition's sake. We do not quite understand why people behave that way.

An example, we have this issue with power line like in Rawang and Cheras, like the Tenaga one. But, this issue has been for years. People want electricity, who does not. But, they do not want the power line to pass their property. They do not want to live close to that. They worry about exposure to the radiation or might be affecting their property value. Also people want involvement, they want consultation on decision making.

So, a bit more about this NIMBY (not in my back yard), it is a syndrome. In a medical world syndrome, something that we do not quite understand what is this syndrome. Like AIDS is a syndrome. Quite interesting, a lot of things medical people do not quite understand. It is a very complex phenomenon. It is still being researched by people in social psychology, in risk communication. They feel that they say, "No! I do not want Lynas. I do not want this", because, they have no other way to inference issue. They are not part of the decision making issue. They have no say in that from the very beginning during the planning session. It is all just forced.

So, one solution which I would propose is effective risk communication and dialogue. So, we recognize life is between risk and benefits. We need to balance that. We cannot have the best of every things. I go back to the basic history…

Dato' Abd. Rahman Dahlan: *If I can interject at this time. That is a very important, interesting solution, risk perception. The previous slide that you have. The problem is you say that it should have an effective risk communication and dialogue. There is none now.*

I mean, even if the government is trying to do it or agencies, it seems that the other side, or the people who have concerns are not really taking up that challenge. The evidence is today. You are facing only half of the supposedly the PSC members. How you deal with that Dr.?

Prof. Ng. Kwan Hoong: *Would you allow me to finish? I think some of the solutions are there and I think the other MPs and YBs should also understand the issue. It would be very good for our government. I speak as a scientist and also the citizen of the country.*

In the 1950s, people just wanted to be informed and they are happy. In 1960s and 1970s, they wanted to be heard before a decision. This is public involvement, public hearing and testimony. Then 1980s, they want to impact and they want to feel they are part of it. So, there is consensus, there is public dialogue. So, public became a legitimate stakeholder or partner in decision making. So, let say building a chemical plant, power station. All these are public utilities affecting our health. This is the public health where it comes from.

In 1990s, they need to outreach, to inform others who might not aware. So, that everybody is informed. For example, in countries that has successful nuclear power program like in France, in Taiwan, South East countries. They get the public informed, involved in that for the very beginning. They have been bargaining for more than 10 years before they are actually setup there.

Then today, the instantaneous stakeholder involvement, you talked, the next day they will know, because of the social media. This is the world we are living in. We cannot run away from that. I am glad Yang Berhormat *mention about risk communication. Most of us have not heard about it or let alone using it. It is not PR. It is not public relation, print out some newsletter, TV shows. It is more than that. It is addressing the public and stakeholder perceptions and in this case, radiation, our health, environment risk, in a planned and integrated manner. This is very important; the best practice has to be in place, to engage the dialogue with stakeholders of different perceptions, all kinds of people in the society to resolve the concerns.*

Let me show you the old model. It has all been studied. A lot of cases examples. It is called DAD. You decide, you announce and then you defend your position. Nothing involved in it. This DAD, but it becomes DADA. The last word, "abandon". One party abandons the project or some authority gave in. This is a linear way. So, this is no longer valid.

The best practice utilized by the many countries successfully is two-way risk communication, which is a two-way, give and take information exchange. We have a round table. We sit here to generate new ideas, talk about concerns in a round table. All equal status. Not someone high up. It will be a win-win situation. Here will be the government, the rakyat *and the industry concern. So, that would be ultimate way to do that.*

This is one of the flow formations, risk particularly. All the stakeholders, public, government agencies, scientist, expert, professional societies, also the politicion are coming in. In the past year, traditional media, news papers. But, now is a social media. Everything is like encompassed in the internet. We live in the internet world. So, there are no such things from one to another. Anyone gets information from anywhere or anytime they want. So, things have changed. So, we need to change our way of management.

Now, talk about the policy, the parliament, the build policy, and the requirement regulations. But, we also have the evidence, the risk assessment with scientific arguments. We heard a lot about that. A lot of figures, data are being presented, facts, and all those. But, what is important is the concern, the social arguments which is missing. This morning, I think Professor Jamal mentioned about economic aspect. We share a lot of things in common. It is a public opinion and concern to be considered. This is the different components of the message.

To build this effective communications, we really need to think of the content and the process. It is very important. I think most of us, we know both the content and the scientific argument and the policy and the process. How we go about that, they must inspire trust. People have confidence in us and we need to pay attention to people's concerns.

Imagine the perceptions will become reality. Their concerns, we have our own concerns as well. So, we do not neglect that. We also have media transparency. We are honest. We have open dialogue, nothing to hide. What level, we say so. What if it is dangerous, we say so. Then the process, the planning and the skills involving people who are specializing risk communications to advice authority, to government.

Also important is the investment of your time and resources and not just looking of just pure profit at the end of it. So, look at this. As you see, this model is based on WHO. They are very strong in risk communications. They deal with a lot of public health issues and radio communication. So, notice to join this three together is the communications. This is very important.

■ 1530

By the way, yesterday was the World Communication Day. The challenges faced by us is that now, it is determined if there is hazard from exposure. We talked a lot about that and this is the risk assessment which is well in place but the public most of them do not know, recognize the reason, public maybe concerned. This is where we are lacking, the government had to do some homework, to get going, to understand the perception why and then implement the policies that protect the public health. All of us here right now, we are concerned about our health and we definitely are. So, we need to respond to the concern and there will be the risk communication and the risk management aspect of it. Just something I have been doing for the last ten years with the MCMC and recently we started – about a year ago, some research addressing public concern on… there is a lot of issue with this communication tower, antenna, people protested and a lot of issues are endlessly.

So, we have an expert professor Ray come from United Kingdom who advises the United Kingdom government and Australian also with radiation waste management, rare earth issues, we run some workshop. We are doing some research to understand this, perception of people and also how we can communicate thru properly. I would like add a bit of thing about some errors, Lynas put-up an advertorial.

They also have Facebook. We talk so much, right… this morning, what is radioactive? Now, the interesting is what about radiation, it mentions this is going to refer to what? There is low level radiation from sunlight, ultraviolet, cosmic rain such as television, radio, mobile phones and computers. Is there any radiation from radio and television, anybody? What comes out..., apa yang keluar dari radio? Bunyi sahaja*, sound right, television? There is no radiation at all.*

So, they convey inaccurate scientific fact to the people. It is untruth. So, if the rakyat *would read this – this is all available, they were proving that then the trust, the credibility in them, right? How could they manage that? That is the question. This is very serious, that is how I am trying to analyze how the distrust comes about. This is just one of the angles of if. Another one, distrust is – they say many time. This is put in from The Straits Times. I think it was… in Singapore recently, rare earth is safer than watching television.*

Dato' Abd. Rahman Dahlan: *Professor, Dr.*

Prof. Ng. Kwan Hoong: Ya.

Dato' Abd. Rahman Dahlan: *Could you repeat back, what is you concern about Lynas errors* itu*? This is because all the while we thought they being that saying that mobile phones and all that do emit…*

Dato' Zulkifli bin Noordin: *Television.*

Dato' Abd. Rahman Dahlan: *Television. Do emit low level of radiations. What is wrong with that stance?*

Prof. Ng. Kwan Hoong: *Okay, here they are trying to put-up FAQ to educate the public. That is very commendable. We talk about fear the radiation and did they hear about alpha radiation? This is are out… radiation, right. Mobile phone, that is radio frequency, there is none… radiation which is different, all together. What is very… with television and radio? They…*

Prof. Dr. Ahmad Termizi Ramli: *If I can interrupt?*

Prof. Ng. Kwan Hoong: Ya.

Prof. Dr. Ahmad Termizi Ramli: …*There is radiation from soft X-ray that come from televisions. I have measured it on the way to* Pangkor. *You cut out of the environmental. You can, the meter can detect the radiation from television. Especially color television but it is a low level, correct, low level.*

Prof. Ng. Kwan Hoong: *So, this is the inaccurate information to the people, right? We talk about the radiation is X-ray. Its do not mix-up, so that will be confusing and this about telling people watching television for four hours a day can cause ten times more radiation than what you can get from the rare earth refinery plant from Lynas. They try to – it is good to assure the public and giving information, however this is flewed. On the old days, we have this old fashion television. It gives out some very low level radiation. This soft X-ray, we measure it 23 centimeters and go further, why it is negotiable.*

I have some research on that. So, no one will watch televisions 3 centimeters to the screen, right? Today, for example this screen is in front of us, right? You can measure it, there is no radiation coming out, right? Only light and also some in the computers or televisions, just some radio frequency and all this, right? That is not we consider as radiation in our context. So, we do want to assure people but people will not believe in this kind although this one comes about and similarly, recently the expert came. One says that living in cabin is safer than you cross the road.

This kind of analogy tends to minimize the peoples concern. So, that again, the distrusts come about. They are outdated and it is no longer being use. You will find this kind of analogy to be 15 to 20 years ago. That is the reason why some people does not trust who are producing this, the wrong information given. Now, this is taken from WHO, the perception life cycle. I notice the public pressure is increase, risk analysis coming. This is emerging, right? The triggering, action and the crisis like – this is something like tsunami. So, where are we now? This is interesting. The similar kind of – This is used by the…, communication people and we are unfortunately. We all pasti *we can manage the risk management where you could, which is into the crisis management.*

So, the crisis management, legal intervention and political invention, we have seen this happen today. So, all these have a many years of history in all the world, this kind of model, the life cycle has been built on. If you can understand where we are and different factors affecting that, for example this earlier period of increasing awareness, that is why all this protest group, they set-up blog and Facebook. Public concern hidden and if you could, you can arrest that and identified the issue then it would not climax. Its will be solve, calm down and be under control. So, we really do not know how this will going to be, continue escalate or come down or decline, right? If there is some damaging effects, you need to do damage control or it's just come-down until it is non issue. We do not know, but it is good to know where we are today.

Some recommendations, my personal recommendations - within to do with the complacency about perceived risk which leads to a crisis now, we have crisis in communications and in trust. We discuss lot of thing and as a public we do not know, that we do not trust the authorities or even the experts. We need to learn to communicate with diverse target audiences such as parents, elderly, concern and confused as well. A different mode of communication to address this before it's become worsens.

It is important to help and to raise public awareness. Now, the public should be helped to understand radiation and you need some measurement. We talk about how many Becquerel sievert. Public wont know, you ask, right? You talk over – we know 1 kilogram, you understand 1 kilogram, right? Temperature outside, we all know. My weight is 70 kilograms but we talk about Becquerel per gram, people do not know. So, this is a long term, a long way to go for us to educate.

The school system, the universities have to start doing that to bring this awareness. Like in Japan's society, everyone is educated and aware of that. Provide information accurate and timely.

We talk about the background radiation level. We do not have the information available to the public. You said you Google, right? Background radiation in Malaysia and can we find that, right? No doubt we have done a lot of measurement and study. It's all in laporan tahunan *or in the library but we want to know – let say near the Parliament. What is the background? People will know, right? Maybe a radiation maps surfing and also international standards and regulation talk about the Lynas has using higher standards better than local but public would not know.*

So, can we show them in a simple way that they can understand, available and today's information edge, anything is not available on the web is consider not available. This is how people want it. This situation affecting are health and environment. We need to have all this environmental factors, affecting our health, all the information should be. So that the information, the accuracy and time. So, nothing to hide, everything is available, openly to all. This to some way may alleviate your fear and may soften the situation.

■ 1540

And also the best practices which communications in polling day it is onus is on Lynas *and rival industries to apply this effectives risk communications not international best practices. One way like is to find a trusted third party mediator. Now, we have the villagers, the people protest and the idea of scientist regulators and other. So, you need possibility trusted third party to mediate, to come together, to come to a happy solution.*

In important thing, we should learn from the past mistake and also resource modern public stakeholder engagement awareness programme. It is very important investment in that. We have Lynas *issue now; we have other issues affecting society, affecting our health environment. We need to address that from now onwards, we may have to do some damage control or whatever but still – because risk communication has not been given that much attention before.*

It is more than just public relation talking to people. Finally and so interesting, maybe in someway we have preparing our society, so we have preparing for nuclear age acceptance and even this motorbike, right, suppose to be telling people we are going nuclear, nuclear power motorbike. So the more we farmiliar we what about so will accept radiation nuclear is part and parcel of live. But most important is still that the perception of people, we need to address the issue, we need to manage this risk perception properly. It is very delicate balances. Thank you very much.

Tuan Pengerusi: *Thank you Professor. Have any questions?*

Dato' Abd. Rahman Dahlan*: I assume you, much of your presentation on communication rather than on the biomedical imagery, but that is fine. One of the problems with this issue Professor is, there is element of current events going on, politics as well.*

But, it also happened after much of this controversy happen after the Fukushima explosion or rather what explosion because of the tsunami incident. So, I do not know how that will fit in your graphs too because all the while, it is alright until the 2011 when Fukushima happen last year…

Prof. Ng Kwan Hoong: *[Bercakap tanpa menggunakan pembesar suara]*

Dato' Abd. Rahman Dahlan: Ya*, the nuclear reactor leakage. So, we are really trapped in the middle of it, in a way. But I do agree what you have saying, I think the government should learn especially the agencies, the* kementerian. *The same thing with SPRlah, I mean this is on issue would like* Suruhanjaya Pilihan Raya. *The people just could not get the information on time, they are some incidences or example brought up by individuals and it is not answered immediately. I agree with you and that build up ditrust. But anyway is very insightful.*

Prof. Ng Kwan Hoong: *Thank you. Can I comment of a few things? In my job, I work in the radiologist department. I do a lot risk communication with the patients. Sometimes they come into X-ray, CT scan and found their pregnant or some go for dental and can they go for X-ray if they're pregnant. So, I need to council, to explain to the patient. Sometimes are they so worried, they found out their – can they go if their pregnant. Some may one to go for abortion which is unnecessary. So I develop that skill, that interest risk communication.*

In fact this is a very important with communicate the risk, not only about radiation for use of contras in radiation, others. This is important. I would suggest that we can learn a lot from Malaysian Communications and Multimedia Commission (MCMC), *because of this issue with the mobile antenna and all that. For the last ten years they have been the working with the using risk communication method to create public awareness engaging the public.*

So, even though there were always be issues, this no ends but it is under control. Otherwise we find every where they want this tower to be 'runtuh' *and that. It is still a lot issue. I'm sure we know about that. They have conceivable practical experience how to do with this kind of issues.*

Tuan Pengerusi: *We are not too late for* Lynas*?*

Prof. Ng Kwan Hoong: *I am not so sure but you can…*

Dato' Abd. Rahman Dahlan: *You look, that is we are up on the graph right on top.*

Prof. Ng Kwan Hoong: *But we can change it. We are also recommend, I means I'll be willing to give some suggestions. I am not the real expert. There are some of these guru, you can get them. The one I work with is Ray Cann, who has been advising the UK Government, the Dounreay, those somewhere may know the reactor and winscale the issue and the waste disposal management. He would be an imposition to advise the government and to assess the situation where we are.*

We do not know whether they keep on going up the peak and explode all, whether we can control it to a level. They always rise. It is all about communication. Remember right, how we find solutions are important. People want to know the solution. I go back to the model which I showed you with the principal of that. It is all backed up by a lot of example in the world, win-win situation. How they come in as partner or stakeholder. Those people protest or living there that are very concern so, there are ways we can get them engaged and so on. So that would be one of the ways to do. Anyway this is the international best practice.

We so far we are talk about science, evidence. We know and there were always controversy. But the public won't know about that information, whom they can trust and so on. So, we need to look into the reason. This is beside the political element and others as well.

Tuan Pengerusi: *Okay, thank you.*

Tuan Teng Boon Soon: *Professor, I would like to ask you question, because you talk so much about risk management and even crisis management. At this stage as the Minister had asked, the Chairman can I ask, it is too late to come in for managing the risk or managing the damage. So, on your part with your experience and knowledge, can you suggest some short term; because it takes time the risk management and all this. Some short term approach including, to meet the demand of the public half way, things like that to annihilate the situation, to reduce the resistance towards the Lynas project.*

Prof. Ng Kwan Hoong: Yang Berhormat, *I think the last part probably we are more appropriate reduce the resistance but not to eliminate totally to leave this situation. I may suggest – most we deal it with risk communication but now is bordering to crisis management which I do not have the kind of expertise.*

If I may suggest to Yang Berhormat Menteri, that could recommended is Professor Ray Cann who is quite experienced with. He deals with UK and Australian radiation risk management and issues like this. So he will be a good person to consult. I could give you the contact and government could contact his and ask him opinion and expertise, it would be good. To some extent I believe that we could come out with win-win situation to some extent. It may not be satisfactory to all the parties concern. Otherwise this issue will get worse and it will damage the reputation of our country and there many lost of consequences that we may not imagine.

Tuan Pengerusi: *Thank you, thank you very much. We take note. Some other university, they have particular institution to look into this entire thing.*

■ 1550

I think Harvard and in fact UTM today, they are inviting a professor from Harvard to give a talk on the new democratic tools in looking into all this things. So, I think for projects such as this which has a very high impact on the public, I think there's a need now to look into risk communication. So, we will take note of that and then see how.

Prof. Ng. Kwan Hoong: *Please contact if you need any of my assistance.*

Tuan Pengerusi: *Yes, okay.*

Prof. Ng. Kwan Hoong: *Thank you.*

Tuan Pengerusi: *On the Lynas part, we will see how, where, which part I think whether we still have time, whether it is necessary or something like that. We will make our recommendation to the governments and the government will decide. Thank you.*

Prof. Ng. Kwan Hoong: *Okay, thank you.*

Tuan Pengerusi: *So, I now called upon* Prof. Dr. Wan daripada USM.

3.51 ptg.

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: Ya.

Tuan Pengerusi: Daripada USM?

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: Ya, okey. Terima kasih Yang Berhormat Tuan Pengerusi, Yang Berhormat-Yang Berhormat dan tuan-tuan dan puan-puan yang dihormati sekalian. Kalau boleh saya ingin menjurus terus kepada perkara yang saya ingin bincangkan iaitu Lynas ini sebenarnya dikategorikan sebagai aktiviti *low dose* – dos rendah. Kita tidak boleh langsung membandingkan dengan isu*....[Disampuk]*

Tuan Pengerusi: Prof, perkenalkan diri dahulu siapa.

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: Oh, ya. Okey.

Tuan Pengerusi: Kalau tidak dia ingat *layman* yang cakap. Jadi hendak melihat itu. Apa kepakaran dan sebagainya.

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: Saya Wan Ahmad Kamil dari Jabatan Radiologi Hospital USM di Kelantan dan saya juga Presiden Persatuan Fizik Perubatan Malaysia. Di samping itu, ada juga saya sebagai *Class 'H' Consultant* Kementerian Kesihatan Malaysia yang memeriksa peralatan *X-rays radiation*. Saya memperoleh PhD. daripada Universiti London. Lama dah, sudah lama. Selama 25 tahun berkhidmat dengan USM. Sudah dapat jam Tuan Pengerusi. 25 tahun berkhidmat dan sekarang mengajar pelajar-pelajar *Post-Grad Masters in Medicine Radiology* dan juga keselamatan sinaran – *radiation protection* di USM.

Jadi, saya ingin perjelaskan sekali lagi bahawa sebenarnya Lynas ini dikategorikan sebagai aktiviti yang *very very low dose*. Dos yang sangat-sangat rendah dan tidak boleh sekali-kali kita bandingkan. Saya rasa *it is illegal* saya rasa. Kita hendak bandingkan dengan *accidents* Fukushimakah ataupun *Chernobyl accidents*, semuanya itu *high dose* dan Prof. Fuad pagi tadi pun ada sebut sebenarnya ia dikategorikan sebagai aktiviti *stochastic* ataupun *probability* sahaja yang boleh kita kategorikan Lynas punya *business* ini sebagai aktiviti kebarangkalian. Ada satu lagi aktiviti disebut sebagai *deterministic*. Kalau *deterministic* itu adalah dos yang tinggi macam nuklear, *accidents, Chernobyl*, *Hiroshima, Nagasaki* itu yang sangat tinggi, itu lain dan untuk membunuh sel kanser dos yang tinggi, untuk membunuh.

Jadi, Lynas ini jauh beza sebagaimana Prof. Wan sebut tadi ukurannya *100 nano Gray* sejam, *nano Gray* atau *sievert unit* macam-macam Prof. Wan kata kena di *educate the myth*.

Jadi, umpamanya sebagai contoh X-ray. X-ray itu kecil sangat, 0.04 *mili sievert* (mSv) iaitu terlalu rendahlah. Umpamanya kalau pramugara atau pramugari Malaysia *Airlines flying from* KL to Los Angeles lapan kali, baru dapat separuh dos cas X-ray. X-ray dada itukan. Untuk *worse* untuk kerosakan umpamanya *testis damage* untuk orang laki-laki, lapan *sievert*. *Sievert* ukurannya iaitu maksudnya 200,000 kali cas X-ray. *So,* jauh-jauh, Lynas terlalu jauh. Itu yang saya ingin tekankan di sini.

Jadi, isunya sekarang ialah saya rasa sudah mencukupi, *it is sufficient for IAEA to recognize that Lynas is safe*. Bagi saya sudah mencukupi kerana kita kena ada badan-badan yang kita percayai dan dia mengiktiraf bahawa aktiviti itu selamat. Kita juga kena mengiktiraf Agensi Nuklear, AELB menjalankan kerja-kerja yang standard, alat-alat dia sebab saya *Class 'H' consultant* juga. Alat-alat dia kena *check* setiap tahun. Itu kita kena percayai betul.

Sebenarnya, AELB dan Agensi Nuklear telah memainkan peranan yang sangat baik. Tidak sesuai kalau kita mengatakan alat dia tidak diperiksa dengan baik dan sebagainya. *It is unfair* saya rasa dan isu sinaran ini sebenarnya saya kira *is an overdose of safety*. Terlalu melebihi dah sangat sebenarnya dibandingkan dengan isu-isu lain seperti bukit runtuh dan sebagainya. Akan tetapi kalau *radiation it is* memang melebihi aspek keselamatan yang setiap hari.

Jadi Tuan Pengerusi dan Yang Berhormat-Yang Berhormat, saya ingin menekankan sekali lagi bahawa Lynas *Processing Plant* untuk nadir bumi itu sebenarnya terlalu rendah dosnya dan Prof. Tarmizi ada sebut tadi masa seolah-olah kita hendak banding sebiji debu dengan Gunung Kinabalu. Jadi, kalau pihak yang tidak memahaminya saya rasa itu tidak betullah. Minta maaf kepada mereka yang protes tetapi pada pandangan saya, ia langsung tidak perlu kita bincang mengenai isu dos tetapi isu *sulfuric acid* dan sebagainya untuk *waste management* itu lain. Ia bukan *radiation*. Terima kasih Tuan Pengerusi.

Tuan Teng Boon Soon: *You have Prof, just now you mentioned sulfuric acid in all this. So, people are worried of the process of breaking and extracting products from the ore, they might be doing some damage to the environment. So, what is your comment on this?*

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: *I am not an extraction chemist but in my humble opinion I think, the enforcement is important, enforcement of waste management. It is not radioactive but it is something else. It's a chemical waste.* Isu radioaktif tidak ada di sini saya rasa. Terima kasih Yang Berhormat.

Tuan Teng Boon Soon: *It's just they believe that the sulfuric acid is highly toxic. So,* kemungkinan pencemaran alam sekitar itu mungkin akan menghasilkan bahaya kepada kesihatan manusia.

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: Betul, cuma kerajaan ada *enforcement* dan kita mengharapkan bahawa *enforcement agency* boleh bertindak sewajarnya. Mereka perlu mengikut peraturan.

Dato' Abd. Rahman Dahlan: Profesor, *just a quick one*. Di Gebeng itu memang banyak syarikat-syarikat lain, kilang-kilang *chemicals* yang lain termasuk juga Lynas inilah. Dalam pandangan Profesor, syarikat-syarikat lain itu mempunyai risiko yang lebih kurang sama, *may not the radiation*, *but in term of health impact or environmental impact*, setujukah Profesor kalau saya katakan kilang-kilang lain di kawasan Taman Perindustrian Gebeng itu pun mempunyai risiko kesihatan, risiko *environment* yang lebih kurang sama?

■ 1600

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: Terima kasih Yang Berhormat, pada pandangan saya, Lynas punya *Standard Operating Procedure* (SOP) lagi *strict* daripada orang lain, itu pandangan saya. Sebab dia *involve* nadir bumi, *extraction chemistry* serta *radiation*, jadi saya rasa yang lain-lain itu kemungkinan SOP dia lemah sikit kalau hendak dibandingkan dengan Lynas. Saya rasa Lynas dia kena panggil IAEA datang, kena tengok lebih *strict*. Jadi saya rasa dia tidak sama, dia lebih baik saya rasa.

Tuan Pengerusi: Terima kasih kepada semua, *thank you very much*. Prof balik ke Kubang Kerian?

Prof. Madya Dr. Wan Ahmad Kamil bin Wan Abdullah: Ya Dato' Seri.

Tuan Pengerusi: Kita ada lagi? Ya Prof., terima kasih**.**

[Saksi-saksi keluar daripada bilik mesyuarat]

4.03 ptg.

Tuan Pengerusi: Yang Berhormat-Yang Berhormat, tuan-tuan dan puan-puan. Itulah sahaja pendengaran awam yang telah kita sama-sama lalui.

Selepas ini tidak ada lagi kumpulan walaupun ada yang maklumkan ingin datang bersama menjayakan pendengaran awam ini tetapi nampaknya itu sahaja yang terakhir yang telah datang kepada kita hari ini. Kita telah mendengar daripada pihak awam serta pakar-pakar dan sebagainya. Maka seterusnya Jawatankuasa ini perlu untuk membuat kajian, rumusan terhadap pandangan-pandangan yang telah diberi itu, menelitinya dan sebagainya sebelum kita bentangkan. Dijangkakan kita akan bentangkan ke Parlimen pada 14 Jun 2012 iaitu kita akan bentangkan laporan Jawatankuasa. Pada 19 Jun 2012 pula perbahasan usul menerima laporan jawatankuasa tersebut.

Ini bermakna kita perlu mengadakan mesyuarat pada dan seperti yang telah kita putuskan dahulu, kita akan bermesyuarat untuk menyediakan laporan jawatankuasa pada 4 dan 5 Jun dan pada 7 Jun kita akan memuktamadkan laporan tersebut.

Dato' Zulkifli bin Noordin: *Whole day?*

Tuan Pengerusi: Kita tengoklah, kalau 4 dan 5 hari bulan itu – kita perlu mendapatkan bukan sahaja kementerian dan agensi kerajaan tetapi bantuan daripada pakar-pakar untuk kita kemukakan pandangan kita ataupun jika ada apa-apa persoalan yang kita rasa ingin kita bangkitkan. Satu perkara yang kita ingat mungkin perlu kita lihat ialah ada banyak rujukan dibuat kepada profesor daripada *University United Nations Health, maybe we should call him because he has different views*, *he has his own views on this issue*. Seorang lagi ialah Yang Berhormat Ahli Parlimen Hulu Langat, *so* dua orang lagi kita akan panggil *on the 4th and after that* kita akan bermesyuarat untuk menyediakan laporan.

Dalam konteks ini, Profesor Badrul perlu bantu kita dari segi mungkin membawa pakar-pakar bagi membuat laporan kita dan sebagainya. Selain daripada itu, sebab kalau kita gagal untuk siap dan sebagainya, kita kena minta usul *extension*, dan saya tidak fikir sebab *I think the issue is just around that thing.* Soalnya, ialah bagaimana kita *manage that perception actually*. Actually *we are trying to see between fact, knowledge* lawan dengan *perception*, siapa yang sebenarnya diyakini dalam konteks negara kita yang sedang menuju untuk menjadi negara maju pada akan datang.

Dato' Zulkifli bin Noordin: *Whole day*?

Tuan Pengerusi: Kita tengok bagaimana, *because* saya tidak berani hendak cakap itu.

Dato' Abdul Rahman Dahlan: Saya bersetuju Tuan Pengerusi, untuk kita memanggil Profesor Jamal yang telah memberi pandangan yang berbeza dari segi kerisauan beliau mengenai Lynas supaya jawatankuasa ini mempunyai pandangan yang *balance*. Ini sebab sekarang ini *overwhelmingly community scientist* yang datang, kebanyakannya itu kita dengar yang mengatakan tidak ada masalah, tetapi *to be fair* kepada jawatankuasa, saya setuju dengan pandangan Yang Berhormat Tuan Pengerusi, kita panggil seorang atau dua orang yang mempunyai pandangan, *we can actually hear what they have to say*. Terima kasih.

Tuan Pengerusi: *So*, dari segi rekod pun saya ingin ucapkan terima kasih kepada semua yang telah datang ke pendengaran awam, sama ada orang ramai ataupun pakar-pakar yang telah kita jemput.

Datuk Roosme binti Hamzah: Laporan prosiding kita dah edarkan kepada semua, kita minta mereka semaklah, selepas itu perkara yang berkaitan dengan pihak-pihak berkaitan, mereka boleh isikan dalam jadual yang telah kita edarkan.

Tuan Pengerusi: Ada daripada jawatankuasa hendak bangkitkan apa-apa? *To be fair to you all, is there anything that you want to raise or give your views or input?* Kalau tidak ada apa, itu jadual pelaksanaan kerja kita, pihak sekretariat akan mula untuk menyediakan laporan.

Kalau kita masih ingat dahulu, kita pecahkan untuk pembentangan repot itu kepada dua, satu proses dan prosedur, kedua dari segi – yang diketuai oleh Yang Berhormat Simpang Renggam dengan seorang lagi Yang Berhormat. *Thank your for your patience, I think we came out* semata *about Lynas, about Thorium, about radiation*. Okey, terima kasih banyak.

[Ahli-ahli berbincang sesama sendiri]

Datuk Roosme binti Hamzah: Pada 4 Jun kita mesyuarat. Sekejap ya. Oh, Yang Berhormat semua ada Pesta Keamatan tetapi kementerian-kementerian tidak adakan? Ada Pesta Keamatan jugakah? Kalau tidak, kita kalau boleh..., tetapi yang itu Hari Gawai ya?... Hari Gawai terlibat jugakah, 1 Jun?...

Tuan Pengerusi: Kita sudah *decide* itu *the date*?

Datuk Roosme binti Hamzah: *Sorry*.

Tuan Pengerusi: *We...*

Datuk Roosme binti Hamzah: Tidak maksud saya dengan kementerian kerana kita perlu prepare draf dahulu sebelum jumpa Dato' Seri. Pada 4 dan 5 Jun sepatutnya kida sudah *come out draft but the draft should be with us, with the ministry first*. Jadi kalau kementerian yang *available on 1 Jun then* kita buat di sinilah, *we come out with draft proposal* dan kita minta bantuan daripada Prof. Badrul sebab dia kata hendak dapatkan input-input daripada pakar Dato' Seri.

Tuan Pengerusi: *So* boleh ya kementerian?

Datuk Roosme binti Hamzah: kita punya bentuk lebih kurang jawatankuasa-jawatankuasa yang lain ya Dato' Seri.

Tuan Pengerusi: *I don't think...,* saya ingat *on the on of the day* kita *present to the parliament*, apakah yang sebenarnya yang menjadi asas kepada bantahan ataupun tentangan pihak awam dan apakah jawapan dari segi saintifik yang ada dan berasas daripada itu, kita akan buat beberapa *recommendation* dari segi penguat kuasa, undang-undang dan sebagainya, dan *what next* bergantung kepada kerajaan dari segi mana dia hendak ambil. Bukan seperti Jawatankuasa Pilihan Khas Mengenai Pilihan Raya yang keputusannya '*A' or 'B' or something like that, we are like a fact finding mission.*

Datuk Roosme binti Hamzah: Dia punya bentuk laporan lebih kurang sama dengan pendahuluan dan syor itu.

Tuan Pengerusi: *We see how* semasa pembentangan. Okey, kalau tidak apa, saya ucapkan terima kasih, kita akan berjumpa dalam mesyuarat yang akan datang.

Mesyuarat ditangguhkan pada pukul 4.12 petang