

**MALAYSIA  
DEWAN RAKYAT**

**LAPORAN PROSIDING**

**TAKLIMAT LYNAS MALAYSIA  
KEPADA JAWATANKUASA PILIHAN KHAS  
MENGENAI PROJEK LYNAS ADVANCED MATERIALS PLANT**

**DI BILIK MESYUARAT BANGUNAN TAPAK PENTADBIRAN  
LYNAS MALAYSIA, KUANTAN, PAHANG**

**PADA HARI KHAMIS, 10 MEI 2012**

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**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]  
YBhg. Datuk Roosme binti Hamzah - *Setiausaha*

**Tidak Hadir [*Dengan Maaf*]:**

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Encik Zulfazly bin Mohammad [Penolong Setiausaha II (Perundangan dan Prosiding)]

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**Lynas Malaysia**

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Profesor Ismail Bahari [Penasihat Keselamatan Radiologi]  
Encik Khairul Salleh Jais [Pengurus Besar Kilang]  
Dr. Mike Vaisey [Naib Presiden Pembangunan Teknikal, Lynas Corporation]

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Encik Suhaime Mahbar [Setiausaha Bahagian Perancangan dan Penyelidikan]  
Encik Ahmad Rizal Adnan [Pegawai Media Baru]  
Encik Raja Adnan bin Raja Ibrahim [Ketua Penolong Setiausaha,  
Bahagian Perancangan dan Penyelidikan]  
Encik Syed Zahiruddin bin Wan Alshagaf [Penolong Setiausaha Unit Parlimen dan Penyelarasan]

*(samb/-)*

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Bahagian Pengurusan Alam Sekitar dan Perubahan Iklim]

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Encik Abdul Aziz bin Yahya [Pengarah Bahagian Keselamatan Industri]

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**LAPORAN PROSIDING****TAKLIMAT LYNAS MALAYSIA KEPADA JAWATANKUASA PILIHAN KHAS  
MENGENAI PROJEK LYNAS ADVANCED MATERIALS PLANT****BILIK MESYUARAT BANGUNAN TAPAK PENTADBIRAN  
LYNAS MALAYSIA, KUANTAN, PAHANG****KHAMIS, 10 MEI 2012****Taklimat dimulakan pada pukul 9.20 pagi**

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

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**Tuan Pengerusi:** *Assalamualaikum warahmatullaahi wabarakaatuh.* Salam sejahtera dan selamat pagi. Ahli-ahli Yang Berhormat Jawatankuasa PSC mengenai Lynas, wakil-wakil daripada kementerian dan agensi yang turut membantu Jawatankuasa Pilihan Khas Parlimen, Yang Berbahagia Dato' Mashal Ahmad, CEO Lynas Malaysia Sdn. Bhd. dan pegawai-pegawai tinggi syarikat.

Pertamanya, bagi pihak Jawatankuasa saya mengucapkan berbanyak-banyak terima kasih di atas kerjasama menerima kunjungan dan seterusnya mendapat taklimat daripada pihak syarikat kepada Jawatankuasa Pilihan Khas Parlimen yang kita semua sedia maklum diwujudkan bagi kita menangani isu dan cabaran yang dibangkitkan mengenai projek yang diusahakan oleh pihak syarikat.

Pertemuan kita pada pagi ini adalah sebagai sebahagian daripada usaha kita untuk mendapatkan maklumat dan penerangan serta membolehkan kita untuk mencari jawapan terhadap beberapa isu, perkara yang telah dibangkitkan oleh pelbagai pihak. Kita percaya bahawa melalui pertemuan ini, kita akan dapat mencapai matlamat kita. Jadi, saya tidak akan memanjangkan melainkan selepas ini kita akan ada sesi soal jawab. So, dijemput pihak syarikat untuk membuat pembentangan.

**9.22 pg.**

**Dato' Mashal Ahmad [Pengarah Urusan Lynas Malaysia]:** Terima kasih Tuan Pengerusi. *Bismillaahir Rahmanir Rahim. Assalamualaikum warahmatullaahi wabarakaatuh,* selamat pagi dan salam sejahtera. Bagi pihak syarikat, kami sangat berbesar hati di atas kehadiran Tuan Pengerusi, Yang Berhormat Dato' dan Yang Berhormat-Yang Berhormat serta ketua-ketua jabatan kerajaan, tuan-tuan dan puan-puan sekalian.

Pertama sekali, saya ingin mengatakan bahawa saya harap pada sesi hari ini, Dato'-Dato' dan tuan-tuan, puan-puan mendapat sebanyak mungkin maklumat yang boleh sebab *Lynas practise an open concept, we have nothing to hide.*

*You can take photograph, you can ask question, you can review documents whatever you wanted, it is not an issue. Cuma the little restriction, masa lawatan ke tapak nanti, because of our limited numbers of personal protective equipment, only those who with the protective equipments are allowed to walk wherever who wanted and take whatever photograph you wanted. Those without, you have to do with taking the photographs from the bus. That is the only limitation. Otherwise we had no restriction. With regards to documents,. you can have the documents. Cuma our only restriction is document based on our research on the application of – to commercialize the waste. Other than that Tuan Pengerusi, we have nothing to hide.*

*Okay, welcome. I would just quickly explain what we are going to do Tuan Pengerusi. Look at the panel, if I may quickly introduce my team members. On my right is Profesor Ismail Bahari which is my Radiological Safety Advisor. He is a nuclear scientist about 30 over years at the university. So, he is with Lynas Malaysia. Mr. Khairul Salleh is my General Manager, has been over beberapa puluh tahun in a petrochemical industry. I have brought him back from Middle East. So, our expertise are all running and... Then, the other presenter is Dr. Mike Vaisey, Vice President of Technology. He is from the head office. His based in Perth.*

*So, I will quickly run through my presentation and then will be followed by Mr. Khairul on the matters pertaining to safety and environment. That will be the second presentation. Then Dr. Mike Vaisey will give the presentation on the research and application of the waste. So, one on safety, one is on waste and we have Professor Ismail who will answer any question on radiation matters. Over that corner, I hope we have time to demonstrate to you our raw material and our waste, even though we have not been in operations. We make the waste from the lab which is equal to what we are going to produce and Professor Ismail will compare that to the normal thing that you see around you. So that you can have a feel what is Lynas waste, how much radiation compare to what you faced everyday, I think that is the best impact. After that, we will go to question and answer followed by run tour. Is that okay with you Mr. Chairman?*

*Introduction, Lynas Malaysia is 100% owned by Lynas Australia which is listed, is a top 100 Australian company listed in the stock exchange in Sydney and New York. Lynas Malaysia is 100% manned and managed by Malaysians, except for five expatriate staffs who are expert in rare earth from China, four from China and one from India.*

*To update the Committee the project status, this project the total FDI is RM2.5 billion. Phase I, RM1.5 billion has already been spent. I can issue this document for those who are interested, it is over here. Phase II is RM1 billion and we have spent 50% of the money. So, when you walk in the plant, the completed one is phase I and the one under construction is phase II. We would have spent about RM1.2 billion in Malaysia. RM1.2 billion is spent in Malaysia of which RM513 million or half a billion went to Kuantan contractors. We have about 2,000 people during constructions.*

*The project status, phase I, Sir, we are ready to start. A bit of registry back in June 2011, IAEA, the international body confirmed that Lynas comply to all the Malaysian and international regulation and what IAEA did was, they forwarded 11 recommendations for improvement of which three were for Lynas actions and Lynas has acted on the three recommendations. From 11, three is for Lynas. I can remember one is about permanent depository of the waste in the event that we cannot commercialize. Number Two is that, when we go into operation, we have to update our data. Number three is public engagement. We do about thousand of people a month, its like a show.*

*The Malaysia Atomic Energy Licensing Board (AELB) approved our temporary operating licence in 2nd February 2011. Temporary operating license is for two years. What is it for? It is just to confirm that the actual data when we operated the plant is the same as what we submitted. So, unless we get the TOL, there is no way we can prove, we can keep talking forever and ever. I always open this thing. Then, if we cannot comply, I mean when we go into operations and if our data cannot be the same, then shut down the plant. But the fact is that, we are waiting for the chances to prove and it is costing Lynas a lot of money. So the final point I would like to raise to the committee, the license has been approved but has not been issued. So, these I have great difficulty to explain.*

*Phase II, we will expect operation very early in 2013. Our phase I, our product has all been committed. When we are in operations, Lynas will spend of our operating expenditure is about RM600 million per year. That is a big number.*

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*Employment, today I have about 300, I would eventually pick to 400 and this are all local Malaysian staff and my lowest employee, they are fresh they have diploma holders. I have 75 degree holders and range from PHD, a lot of master degree and degree holders. On top of that, for those jobs which have a difficulty in career progression, I am employed about 300 permanent contract staff. So in summary I have to put in succinctly, in Lynas everyday you see about 700 people working, of course the service provider, the contractors all were make up a total of one thousand people.*

**Tuan Pengerusi:** *Another after phase one and two completed?*

**Dato' Mashal Ahmad:** *Phase one and two. Akan tetapi kalau tidak 700 pun Tuan Pengerusi, I am talking about 300 is for phase one. So I am already about 300 today.*

*Okay, when we are in a operations, I think it is important point to note that will be taking 20% of the world market which is currently control by China, and China control 95%. Our major customers, some have already sign the document, some are waiting to sign and these are big companies. They are Siemens, BSF, BP, Rhodia and Japan.*

*What is important here is that these companies, the fact that they want to be our customer, to buy our product give their testament that Lynas comply to international health and environmental standard.*

**Tuan Pengerusi:** *Do they really looked at whether the factory...*

**Dato' Mashal Ahmad:** *They came sir, yes.*

**Tuan Pengerusi:** *They did some audit like...*

**Dato' Mashal Ahmad:** *It is a must because Siemens, their product they want to use the green labels. At the moment they get from China, they are not able to use that right. So when they came here, they wanted to do – in fact they have joint venture, Siemens 55, we are 45. Their intent is to buy our product, convert into a super magnet and make into wind turbines. So that is another estimated about a billion ringgit investment, creating eventually in stages about the thousand jobs. The intent was to make super magnet maxdor and then send the super magnet to Serbia and make wind turbine. But because of so much noise, I am sad to say that decision is no longer true and yes, it's gone.*

*So the example of another company I want to mention that the latest we got is that, you start the plant, we will sign our contract, but they all have come and do their due diligence study. These are German's company, Siemens, BSF even Shell who buy through BP, they also came and may check our due diligence study. Yes, sir.*

**Tuan Teng Boon Soon [Tebrau]:** *The end product, a part from export market...*

**Dato' Mashal Ahmad:** *Yes.*

**Tuan Teng Boon Soon:** *Is it a policy of the Lynas to also provide with a local demand, that means from market because in the new government policy of a high technology, Lynas would also provide for the requirement of the end product in the local market.*

**Dato' Mashal Ahmad:** *At the moment our phase one is a fully sold out but this rare earth customers this are the high end, is a high tech technology. So people like Siemens who make super magnet like BSF who make catalyze, this are high technical industry. At the moment they buy and they produce whatever they are in existent, but the whole model of this Lynas in Gebeng is to bring this people to come and build their factories, so bring foreign investment, FDI and bring technology to Malaysia. Example if Yang Berhormat is interested, a guy came to me I saw his sketch is John – hendak sebut pun tidak tahu di sini, Swarovski, he is a grandson of Swarovski. So I say what has my product got to do with you, so we don't know that. Apparently he seek for polishing and put into the glass for refractive and then came, Nikon, camera, I also don't know that.*

*So there are many later – Mr. Wee better can you show the application ...*

**Tuan Pengerusi:** *In our deliberation, among the things is that we take into consideration is how far this project can benefit directly into the Malaysian economy.*

**Dato' Mashal Ahmad:** *I will touch that after this.*

**Tuan Pengerusi:** *So we have to induce the FDI company that who need the product. So supposing we say that, to show that it is really benefit the country and we impose the certain percentage not to be exported, but to be used by industry within this country and industry were then, I am sure, we were ensure that industry to invest in Malaysia because they want to use that product and that product partly is not allowed to be exported. So what have you comment on that?*

**Dato' Mashal Ahmad:** *Question coming from Yang Berhormat Menteri memang susah... [Ketawa] Okey Tuan Pengerusi, after we got our license to make this plant, because was not economical, we went to China, bought the land, recruit the people, some of them are still here and the whole idea was to produce this product and send. But why we leave China because the Chinese Government change the laws which go against the World Trade Organization, WTO, whereby they told us you cannot export but you have to bring in your customer and you know, intellectual property is a big issue in China. So that was why we came out. I know I am not answering your question Tuan Pengerusi but anyway second phase we still got 50%, My second phase 50% has been taken up, 50% lagi tidak ambil lagi. Tuan Pengerusi anytime you can take it. [Ketawa]*

*But Tuan Pengerusi, the whole idea is to turn Gebeng into the hub whereby the uses of this our product will bring their investment, the technology, we want the technology. So, this is the place. But, as I mentioned to you, we have an LOI Lynas Siemens, that was a very clear business models to make super magnet and then send it to Serbia where Siemen build the wind turbine because you know Germany went off the nuclear power plant and which wind turbine is produce same megawatt, and my understanding was after two years their plant in Serbia is full, the intend was the expansion will be done here, is a logical process but when three thousand people protested with the number recorded as fifteen thousand, the vice president flew in, even we confirmed that is not true but then again, this is the sad part of the situation.*

**Tuan Teng Boon Soon:** *So it found at this stage?*

**Dato' Mashal Ahmad:** *Yes sir...*

**Tuan Teng Boon Soon:** *The Lynas has yet to incorporate to the company policy for provision to the local requirement, we have to tell the people that Lynas end product toward the end will help the local economy to the objective of achieving a high tech economy.*

**Dato' Mashal Ahmad:** *Okay, I understand what you are saying, It is not something that you can sell and people will buy. The problem is you must have the technology to use it...*

**Tuan Teng Boon Soon:** *I mean the fundamental policy.*

**Dato' Mashal Ahmad:** *The fundamental policy...*

**Tuan Teng Boon Soon:** *As a principale, as a principael.*

**Dato' Abd. Rahman Dahlan [Kota Belud]:** *Would you give – I think what he is trying to say is this. Would you give the priority for Malaysian company either foreign own or Malaysian own, when they are in Malaysia, when they need this product, are you going to give them the priority? If the prices are right I supposed.*

**Dato' Mashal Ahmad:** *I think that price is right, of course, it should be that way.*

**Dato' Abd. Rahman Dahlan:** *Would you make it a policy?*

**Dato' Mashal Ahmad:** *Okay, then I have got to go back to the board.*

**Tuan Pengerusi:** *Here in like this, by being located here...*

**Dato' Mashal Ahmad:** *Ya.*

**Tuan Pengerusi:** *Do you see any foreign company coming in and then just to be here to be in Malaysia so that in terms of viability of their project, they can get the product from it? Do you foresee any FDI coming in because you are here? Because once they are here, they are also regarded as local.*

**Dato' Mashal Ahmad:** *Okay, the whole intent is to bring these high tech companies that use this product. I am quite a bit confused to the question. The all I can say, we make this product, whoever that want to use this product is not any ordinary company, you must have the technology. So at the moment, these companies are all foreign companies. You are talking like DSF, all this big names.*

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*So, the intent is that, it is logical for them to buy our products and build the plant within Malaysia, just like what we wanted to do with Siemens and that is a very clear business model. But, because of the 'bringing coffin', tunjuk perasaan, the whole thing, so people are scared. So, I do not know how to answer your question, but that is it. Those who want to use must be high tech, those who got the technology. We want those companies to come and build their plant in Malaysia.*

**Dato' Abd. Rahman Dahlan:** *But, that is exactly the point, if you don't mind.*

**Dato' Mashal Ahmad:** *Yes, sir.*

**Dato' Abd. Rahman Dahlan:** *That is exactly the point that some of the things that we were concern about – sorry, I pushed the wrong button. You see, it is radioactive... [Ketawa]*

**Dato' Mashal Ahmad:** *Yang Berhormat, I am sorry, I got to interject that. That is not a fact. [Ketawa] I am only talk this on facts Yang Berhormat, with all due respect.*

**Dato' Abd. Rahman Dahlan:** *Anyway, I think what the public wants to know is, will you make it a policy? In China as we all know, one of the things why maybe Lynas picked Malaysia because of the export restriction, bukan? They want everybody to build the factory there in China, provide employment and what not. So, the economic spin off is there but in Malaysia, it is also conceivable that Lynas will export 100% of their products outside. Would you be then considering like quota perhaps?*

*I am convinced by your argument that eventually nanti, all these companies yang ada teknologi ini, will come to Malaysia. But, would you consider a quota as a matter of principle, as a matter of policy for Lynas to say 10%, 15% it will be available for Malaysian market? I mean, if they have their technology, then they will get it, but that would be a good PR or something positive coming from Lynas...*

**Tuan Teng Boon Soon:** *Can I?*

**Dato' Mashal Ahmad:** *Yes, please.*

**Tuan Teng Boon Soon:** *You know why I'm asking that question is because people, the general public are thinking in this way. We are paying the cost for producing either it is real or unreal. The cost of producing this rare earth material solely for the foreign market, for the foreign manufactures rather than benefiting our own local manufactures in times to come. Is there such a policy of the company to also meet the requirements or gives priority, as Yang Berhormat Kota Belud said, priority to local requirement, then they create a certain doubt to them. We will not actually benefit the growth of the local economy towards a high tech objective.*

**Dr. Mike Vaisey [Naib Presiden Pembangunan Teknikal Lynas Corporation]:** *Part of the reason why we are here in Malaysia is because of the technology priority and the other industrial infrastructure such in Gebeng area. For me, the cost of rare earth technology around this plant is part of the core strategy and the reason that we are here. So, I am not sure that we need anything as a form of policy but it is good business for Lynas to promote the use of rare earth in Malaysia.*

*Currently throughout the world today there are uses of the finished rare earths products. You could say there is a gap between the products we will produce and what is used in Malaysia. So, the challenge is for us to bridge that gap. So, the materials can travel to the whole supply chain as the end products in Malaysia. So, we are supportive of that. That is good business for Lynas. We also have a commitment to do invest in R&D. We have already committed that with Malaysian groups, universities and alike, and we will continue that. And in the rare earth transportation, so plant in Malaysia is much bigger than the plant that we build today.*

**Tuan Liang Teck Meng [Simpang Renggam]:** *How much you have invested in China or how much was the losses, the cost to you due to the change of policy?*

**Dato' Mashal Ahmad:** *Okay, in China after getting all the approvals, Lynas bought the land in Zibo. I don't know whether you are familiar with China. I am familiar because I run Desmond plant in China as well. Zibo is near the town of Chiru, Shandong province, about three hours from Qingdao.*

*So, we bought the land, we hired a general manager plus four senior managers and then we left. That's it. Okay? We left and this is where we are.*

**Tuan Pengerusi:** *Because of the export quota?*

**Dato' Mashal Ahmad:** *Yes, simple. I can find you the numbers, but of course, much is not the issue. The main issue is, here you have a string of customers waiting for your product. Whenever you shift location, you have to redo the study all over again. So, that is the problem.*

**Tuan Liang Teck Meng:** *I think to us it is very important, because we will keep asking why you choose Malaysia.*

**Dato' Mashal Ahmad:** *Ya, I will go through. Okay, quickly, Yang Berhormat semua. Suppliers – okay, this are the spin off. Immediately, there are two new chemical plants. The investment is about RM300 million. They are employee about 150 staff. You see Tuan Pengerusi, we consume a lot of chemicals, acids and we don't use tanker. We consume the entire plant production. Across the road, there is a sulfuric acid plant being built. Already almost completed, because they are also – so, when we don't start, they also don't start. So, that is a big point...*

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

**Dato' Mashal Ahmad:** *No, no, no, no. SPCI, Southern Pacific. Kalau Yang Berhormat tahu, next to Naza Motor on Federal Highway, there is a sulfuric acid plant. So, this is their second plant. So, they are also in a limbo waiting.*

**Dato' Zulkifli bin Noordin [Kulim Bandar Baharu]:** *Foreign investment or local?*

**Dato' Mashal Ahmad:** *Local investment. That is a local investment. Also in Kemaman, they also built – they expanded their hydrochloric acid plant and caustic plant.*

**Dato' Abd. Rahman Dahlan:** *Those are the two new chemical plants?*

**Dato' Mashal Ahmad:** *Yes.*

**Dato' Abd. Rahman Dahlan:** *When you say ready, building semua, plant semua sudah siap?*

**Dato' Mashal Ahmad:** *Sudah ready, in fact, we have to pay penalty to them in millions of ringgit, because they cannot start.*

**Dato' Abd. Rahman Dahlan:** *Lynas have to pay them?*

**Dato' Mashal Ahmad:** *Lynas pay them. Millions of ringgit.*

**Dato' Zulkifli bin Noordin:** *Since when?*

**Dato' Mashal Ahmad:** *Ya, Dato'?*

**Dato' Zulkifli bin Noordin:** *Since when?*

**Dato' Mashal Ahmad:** *Sudah start dua – I think about December baru-baru inilah. A few months ago. We have to pay because it is 'take or pay'.*

**Dato' Zulkifli bin Noordin:** *How many such contract here?*

**Dato' Mashal Ahmad:** *Yang Berhormat Dato', I would get the correct information for you... [Disampuk] Yes, yes, I will get for you. Okay, that is the upstream. The downstream, I think we have discussed that just now. Of course, the service provider, the various service provider.*

*Then with regards to the technical expertise, are we competent to run this plant? I have today about 300, almost 300, 380 Malaysian staff, local, Malaysians and many are from petrochemical industries. The only expatriate I have are four rare earth experts from China and one from India and I have a technical service agreement with Rhodia. Rhodia, they operate rare earth plant in France and China since 1963. So, this is...*

**Dato' Zulkifli bin Noordin:** *This plant in France?*

**Dato' Mashal Ahmad:** *Yes.*

**Dato' Zulkifli bin Noordin:** *They are similar to Lynas?*

**Dato' Mashal Ahmad:** *Okay, not 100% similar, but the back end is similar. Ia ada from A to Z. Dia ada plant yang sama, but ia punya China plant, some are sama at the front. But we have the total A to Z. But they have in France only this half. In China this half to be transport...*

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**Dato' Zulkifli bin Noordin:** *You talking about half physically or the product?*

**Dato' Mashal Ahmad:** *No, no, the production wise process.*

**Dato' Abd. Rahman Dahlan:** *Would you consider that the technology that Lynas employed is better than France?*

**Dato' Mashal Ahmad:** *That one I will mention... [Ketawa]*

**Dato' Zulkifli bin Noordin:** *Sorry, they have any experience of environmental or have issue talk inside?*

**Dato' Mashal Ahmad:** *Yang Berhormat, the plant in France is at the place called, if Dato' remember there was a movie call Papillon. So, that was where the plant is located.*

**Dato' Zulkifli bin Noordin:** *I don't know.*

**Dato' Mashal Ahmad:** *For old people will know.*

**Dato' Zulkifli bin Noordin:** *My question is they have experienced in any health and environmental issue?*

**Dato' Mashal Ahmad:** *They do not have.*

**Dato' Zulkifli bin Noordin:** *For how many years?*

**Dato' Mashal Ahmad:** *63.*

**Dato' Zulkifli bin Noordin:** *63 years?*

**Dato' Mashal Ahmad:** *63. No, no. There operated since 1963.*

**Dato' Zulkifli bin Noordin:** *No issues?*

**Dato' Mashal Ahmad:** *No issue. In fact professor and the group they went to Perth about a month ago to a Plant IOS 'Cotai' West in Perth industrial estate, similar industry. The plant has been operating for...*

**Dr. Mike Vaisey:** *More than 20 years.*

**Dato' Mashal Ahmad:** *More than 20 years, similar industry and their radiation level is 10 to 15 times higher.*

**Dato' Abd. Rahman Dahlan:** *Where did you get? Sorry.*

**Dato' Mashal Ahmad:** *IOS 'Cotai' West.*

**Dr. Mike Vaisey:** *Dato' Mashal is referring to mineral sand of..., that was in Australia.*

**Dato' Mashal Ahmad:** *Radiation subject.*

**Dr. Mike Vaisey:** *Radiation from some mineral products from mineral sand processing, it was in Australia. Sorry.*

**Dato' Mashal Ahmad:** *Where, where? Mineral sand what industrial?*

**Dr. Mike Vaisey:** *This mineral sand area is processed in plant within 100 kilometers from Perth, but there are numerous such facilities on the West Perth of seven Western Australia.*

**Dato' Zulkifli bin Noordin:** *Any township nearby?*

**Dr. Mike Vaisey:** *Yes, there are rural areas in outskirts Perth, we got in rural areas because there are small towns, farm properties and etc.*

**Dato' Zulkifli bin Noordin:** *Have you experience any...*

**Dr. Mike Vaisey:** *There is no radiological issues at all.*

**Dato' Abd. Rahman Dahlan:** *Even there are higher doses...*

**Dato' Mashal Ahmad:** *15 to 50 times higher.*

**Dato' Abd. Rahman Dahlan:** *Then what Lynas is been using?*

**Dato' Mashal Ahmad:** *Yes. For the last 23 years.*

**Dato' Zulkifli bin Noordin:** *Can you give us the particular?*

**Dr. Mike Vaisey:** *Certainly, we can give you the...*

**Beberapa Ahli:** *[Menyampuk]*

**Dr. Mike Vaisey:** *They managing the radioactivity based on mineral is well understood and well manage to go for practice.*

**Dato' Mashal Ahmad:** *In fact Yang Berhormat, they kept their waste 100 meter from the plant. They do not send back to the desert, they just kept behind the plant. Who went? You went? Professor also went and it's been there for the last 23 years.*

**Dato' Zulkifli bin Noordin:** *No issue. It's been mostlah... [Ketawa]*

**Dr. Mike Vaisey:** *No.*

**Dato' Mashal Ahmad:** *There more – here we are talking about safety.*

**Dr. Mike Vaisey:** *No issues on environmental. Okay.*

**Dato' Mashal Ahmad:** *Next. Okay, this is very interesting question which is why Lynas is in Gebeng. I want to be very clear to Yang Berhormat semua. Lynas has obtained the license from Western Australia Government to build a similar plant in Perth, not in the desert, in the Perth Industrial Park in Meenar Industrial Park.*

**Dato' Abd. Rahman Dahlan:** *On the Meenar...*

**Dato' Mashal Ahmad:** *Ada dekat sini. Can we print?*

**Dato' Abd. Rahman Dahlan:** *M-I-N-A?*

**Tuan Pengerusi:** *M-E-E-N-A-R.*

**Dato' Abd. Rahman Dahlan:** *M-E-E-N-A-R?*

**Dato' Mashal Ahmad:** *Ya, Meenar Industrial Park. So we have obtained the license to build a similar plant in Perth. The reason it was not done is purely economics. Lynas use 500 meter cubes per hour of water. Kalau Yang Berhormat can imagine one day is about three Olympic swimming size swimming pool punya water. The water I get from the state government of Pahang is 84 cent. In Australia if you can get in this place is about RM6 per meter cube.*

**Dato' Abd. Rahman Dahlan:** *80 cent and...*

**Dato' Mashal Ahmad:** *Here 84 cent. Sana RM6.00 per meter cube or per tonne lah. So, that alone is about 25 million per year and I did mention we use a lot of chemicals. We are not using front-load but the entire plant production. I gave an example caustic soda.*

**Dato' Abd. Rahman Dahlan:** *Sekejap sahaja. I think this are good point. 84 cent per cubic meter in Malaysia and RM6 in Perth.*

**Dato' Mashal Ahmad:** *84 cent Malaysia, RM6 di sana, kalau boleh dapat air.*

**Dato' Abd. Rahman Dahlan:** *Kalau dapat air.*

**Dato' Mashal Ahmad:** *And we need 500 meter cube per hour.*

**Dato' Abd. Rahman Dahlan:** *Three Olympic size swimming pool.*

**Dato' Mashal Ahmad:** *Yes.*

**Dato' Abd. Rahman Dahlan:** *Per hour?*

**Dato' Mashal Ahmad:** *No, no, 500 meter cube per hour bersamaan dengan macam tiga swimming pool satu harilah.*

**Dato' Abd. Rahman Dahlan:** *Satu hari sahaja.*

**Dato' Mashal Ahmad:** *So, water alone I save about RM25 million per year. Caustic soda I use huge amount, I mean all this chemical but this is just an example. The figure yang I bagi kepada panel adalah in August because it was a last time I went there. Caustic soda I can buy from Kemaman at RM500 satu tan. Over there is RM1,500.*

**Dato' Abd. Rahman Dahlan:** *Perth ya?*

**Dato' Mashal Ahmad:** *Perth, I am talking about Perth. Electricity I buy from Tenaga at 23 cent per kilowatt hour.*

**Dato' Abd. Rahman Dahlan:** *Ringgit cent?*

**Dato' Mashal Ahmad:** *Malaysia semualah.*

**Tuan Teng Boon Soon:** *Can you repeat caustic soda between Malaysia and Australia?*

**Dato' Mashal Ahmad:** *RM500 Kemaman, RM1,500 di Perth.*

**Dato' Abd. Rahman Dahlan:** *Per tan?*

**Dato' Mashal Ahmad:** *Per tan.*

**Tuan Teng Boon Soon:** *RM500.*

**Dato' Abd. Rahman Dahlan:** *How much saving you do?*

**Dato' Mashal Ahmad:** *Akan tetapi sudah jawab banyak kali Yang Berhormat but the people still keep turning the story. Okay, electricity 23 cent per kilowatt hour. Di sana 96 cents per kilowatt hour. This are figures in August I have to – if this change I do not know. But this are the figures I got in August last year when I went there.*

**Tuan Pengerusi:** *We need all these for us to be able to comply and we will present in Parliament. So we are here because we want to know the truth and this only the fact that we occupied against all this misinformation and all those things. So it is beneficial if we can be supplied with all this information. All this while maybe you have to given to the press and all this things. But this one it will recorded and will be in Parliament.*

**Dato' Mashal Ahmad:** *Yes.*

**Dato' Abd. Rahman Dahlan:** *Sorry Dato', I was asking you just now about the saving for caustic soda. Are you willing to, if you haven't now, you can...*

**Dato' Mashal Ahmad:** *No, I don't have because I only giving price comparison but Dato' we are not buying one lorry or two lorry, we are talking the entire plant production.*

**Dato' Abd. Rahman Dahlan:** *But you have to give us the figures handout ya.*

**Dato' Mashal Ahmad:** *I will give Yang Berhormat. I don't have a figures handout.*

**Dato' Abd. Rahman Dahlan:** *Electricity you don't have?*

**Dato' Mashal Ahmad:** *Electricity saving belum lagilah. But I'm just giving you the comparison.*

**Dato' Abd. Rahman Dahlan:** *Sure, sure.*

**Tuan Pengerusi:** *Because people are not looking at this. People are just saying that you move to Malaysia because you don't get a license in Australia.*

**Dato' Abd. Rahman Dahlan:** *That's right.*

**Dato' Mashal Ahmad:** *Tuan Pengerusi, we have shown them over and over again but they choose not – they choose to repeat. I think they must be good golfers lah... [Ketawa]*

**Dato' Abd. Rahman Dahlan:** *Sorry, Dato'.*

**Dato' Mashal Ahmad:** *Saya, Yang Berhormat.*

**Dato' Abd. Rahman Dahlan:** *Any caveat on this? Any restriction here?*

**Dato' Mashal Ahmad:** *Tidak ada apa. So, that one mati tahun 2007 because there are no longer – we were given in 2004 and that is valid until 2007 but we are no longer interested because it's not economical. And the other one is workforce. This one the Malaysian Government or whoever was long time ago, they have the vision. In Malaysia we come here today, we have*

*technical people and we got technical people who have been in the industry all this petrochemical more complicated plant we have. But if you go to Perth, you will have the difficulty to find the technical people. If you have – just to put a simple example, chemical engineer kata berapa tahun ya, 10 years.*

**Dato' Zulkifli bin Noordin:** *Although they have 13 universities?*

**Dato' Mashal Ahmad:** *Ya, Yang Berhormat, but they take music, they take painting. Nobody wants to do – if you find technical, there are immigrants. Sorry to saylah.*

**Dato' Zulkifli bin Noordin:** *Malaysian, Dato'?*

**Datuk Mashal Ahmad:** *Could be... [Ketawa] The story is, katakanlah 10 year old chemical engineer, I mean the market in about 10,000 or like that, over there you got to pay about, I remember it was about nearly RM40,000.*

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*So the bottom line, we got the approval, we came here – we pula, padahal I am Malaysian, bukan? We came here purely economics. No, we do not come here yet. They went to China, everything was good, all the chemicals that we require were good but again...*

**Dato' Zulkifli bin Noordin:** *When you apply for the license you did not check on list?*

**Dato' Mashal Ahmad:** *Yang mana?*

**Dato' Zulkifli bin Noordin:** *In Perth. When you apply for the license. There is not feasible study on the ground that you are saying. You apply for the license, then you found out all this...*

**Dato' Mashal Ahmad:** *Mike, can you answer? Because he was longer than me.*

**Beberapa Ahli:** *[Ketawa]*

**Dr. Mike Vaisey:** *Yes, the projects in Perth were subject to feasibility study. That is done in the early 1990 when the Australian Government, ... approval to be done. The production cost was less than what we pay this, and that is because the industry has grown and you have to... So the quantity of the raw materials and water for that plant were lower because of the cost operation but the economics were very well..., to supply water, energy, chemical for the industry needs and at the end of the day, it was not economic. That is what the objective obviously...*

**Dato' Zulkifli bin Noordin:** *Did not takeoff at all?*

**Dr. Mike Vaisey:** *No, the company acquires the land within industrial site. So it is beyond feasibility study stage because the economic circumstances.*

**Tuan Pengerusi:** *Okay.*

**Tuan Liang Teck Meng:** *If you compare Malaysia and Australia regulation standard, which one is high?*

**Dato' Mashal Ahmad:** *Okay. Dato' Raja is there. I speak the truth. The international law and the Australia law, Malaysia is stricter than the international law. No offences to you Sir, but very strict. I could give you an example. When we bring our concentrate from Australia onto a ship,*

sampai Singapore, then off load in Singapore into a feeder vessel sampai Kuantan, all the way from Australia, sampai ke Singapore, we do not have to put the logo because our product is not considered as dangerous good...

**Dato' Zulkifli bin Noordin:** *What logo?*

**Dato' Mashal Ahmad:** *Radioactive logo itu.*

**Dato' Zulkifli bin Noordin:** *Yang tiga itu.*

**Dato' Mashal Ahmad:** *Yes, but in Malaysia, we have to put. So Malaysia not only complied to international standard but there are elements where they go...*

**Dato' Zulkifli bin Noordin:** *Higher.*

**Dato' Mashal Ahmad:** *Higher than international standard. But to Lynas, that is good because to invest such money, we want to go to a country where the rules and regulations are clear when the people who – the authorities are very clear and professional on their subject, kita tidak mahu nanti dia tukar-tukar, who knows their subject and that is why we come to invest. The last thing we want to invest is when the country change the goal post.*

**Tuan Pengerusi:** *So, in Australia you do not have to put that?*

**Dato' Mashal Ahmad:** *Tidak perlu.*

**Tuan Pengerusi:** *So, in a way we can say that the authorities also partly responsible for creating this phobia?*

**Beberapa Ahli:** *[Ketawa]*

**Tuan Liang Teck Meng:** *[Bercakap tanpa menggunakan pembesar suara]*

**Dato' Mashal Ahmad:** *Where is my consult? Khairul, can you explain please.*

**Encik Khairul Salleh Jais [Pengurus Besar Kilang Lynas Malaysia]:** *The environmental requirement in Malaysia we follow the Department of Environment, kenapa for the water effluent, the gas effluent. So it is comparable to the international law.*

**Dato' Zulkifli bin Noordin:** *What is in Australia?*

**Encik Khairul Salleh Jais:** *To international...*

**Dato' Zulkifli bin Noordin:** *What about in Australia?*

**Encik Khairul Salleh Jais:** *I think it is same.*

**Dato' Zulkifli bin Noordin:** *Same?*

**Encik Khairul Salleh Jais:** *Ya. It is because I do not foresee or I do not think that Malaysia would actually have a lower emission standard than the international law.*

**Tuan Pengerusi:** *Because of the nature of the magnitude of this project, although it may not be a requirement but why do you get only partial EIA, why did not you go for full EIA?*

**Dato' Mashal Ahmad:** *With regarding to EIA, when Lynas started, there were two types of EIA, one is preliminary EIA and detailed EIA. Preliminary EIA and detailed EIA, the elements are same. The elements, the requirements are identical. The only different for detailed EIA is that you*

have to put for public display where the public will give their comments for the Director General consideration.

Okay, when we came here, we wrote a letter to the DOE head office through our environ consultant which is an international company based in Malaysia. So the reply was "You do not need to do detailed EIA" The report is still the same. "You need not display". Why, because this is already an established industrial area. You do detailed EIA – you put for public display and comment if you want to built your plant in an area where there is no other, if you are the pioneer, I mean you are the first to go to that area. But nevertheless Yang Berhormat Dato' Seri, through the course of time last year, we also display all our document. Our EIA document, our RIA document, is being displayed not once but many times. So effectively it is also done.

**Tuan Liang Teck Meng:** But you allowed them to make a copy?

**Dato' Mashal Ahmad:** Copies? That document belongs to us. You can read the document, you can do what you want but nobody allowed people to photocopy the document.

**Dato' Abd. Rahman Dahlan:** To taken out lah.

**Dato' Mashal Ahmad:** To be taken out.

**Tuan Teng Boon Soon:** I come back to question of why Malaysia not Australia.

**Dato' Mashal Ahmad:** Yes, sir.

**Tuan Teng Boon Soon:** I come back to that.

**Dato' Mashal Ahmad:** Yes, sir.

**Tuan Teng Boon Soon:** You know that China has imposed restriction on...

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

**Tuan Teng Boon Soon:** Export on end product of rare earth.

**Dato' Mashal Ahmad:** Yes.

**Tuan Teng Boon Soon:** So, my question is, does the Australia Government at the moment, do they have any regulation to control or to regulate the export of the rare earth ore? Is there such regulation? Seems it is, product in the eyes of people.

**Dr. Mike Vaisey:** The Australia government does not have an export restriction policy on rare earth material than any others strategic type materials that I am aware of. Some minerals contain natural occurring radioactive materials. Some material might fall under the site gas interest.

That is why we improve to site gas 3G. So they are interest in the international ... radioactive material. For that all, we try to..., as a commitment to the UN.

**Tuan Teng Boon Soon:** Because people start comparing between China and Australia. Why China control such an export of the strategic products whereas Australia is maintaining, adapting open policy when export any amount of the ore.

**Dato' Mashal Ahmad:** Okay Yang Berhormat. I think you can read in the press that what China has done has offended the international market and you find that when the Chinese fishing

boat encroach into Japanese water and the Japanese Government hold back the fishing boat and what the China Government reacted was no rare earth for you. So all this acts are what they said go against the international practice. You want to comment?

**Encik Khairul Salleh Jais:** Yang Berhormat, on the similar subject but not really specifically the same. During the financial crisis in 2008 and 2009, there was increased from a Chinese company...

**Tuan Pengerusi:** *Chip micro?*

**Encik Khairul Salleh Jais:** *To purchase or to take over Lynas 51 percent interest. That was...*

**Dato' Abd. Rahman Dahlan:** *In Australia or here?*

**Encik Khairul Salleh Jais:** *In Australia. During the financial crisis. During that time, it was subjected to do due diligent and the Foreign Investment Review Board of Australia rejected the purchase. So, it might answer your question in a different way. They consider that to be a strategic asset,...of Australia. It was in 2008 and 2009.*

**Dato' Mashal Ahmad:** *Okay, then we came...*

**Dato' Zulkifli bin Noordin:** *Are you saying that China use this product as economic weapon?*

**Dato' Mashal Ahmad:** *Ya, it is true Dato'. In fact...*

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

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**Dato' Mashal Ahmad:** *Dato', later if we have time, it is not only use – it is used almost for everything even in weapons. So, later I think I will go through the application and Yang Berhormat will know that it's affects the everyday life. I think America is not happy, they taking China into the...*

**Dato' Zulkifli bin Noordin:** *Tidak, tidak, apart from Malaysia, where else you do – the location? Apart from Malaysia.*

**Dato' Mashal Ahmad:** *Siapa?*

**Dato' Zulkifli bin Noordin:** *Lynas. The other location...*

**Dato' Mashal Ahmad:** *This is the problem. Lynas is – ini yang I have to tell. Lynas ini ia bukan under company yang ada banyak syarikat. This is the one and only company. So what we have here, they have lombong, the mine in the desert in Western Australia. The specialty of this lombong was that, there is exists of a significant amount of rare earth but minus the radioactive materials which have been leached or wash away. That is why our raw material has very low radioactive level. So with that mine we found, ada lombong itu, then they make the refinery and then they were sell. Selain daripada itu, we do not have. We do not have any other plant. It is crucial that we have to start.*

**Tuan Pengerusi:** *The question was apart from Malaysia, did Lynas consider any other location?*

**Dato' Mashal Ahmad:** *Oh! Okey. Answer that. Quickly answer that.*

**Dr. Mike Vaisey:** *Yes. I was involved in the original country selection fills up for this project. We consider another number of countries in Southeast Asia like Malaysia, Indonesia. We even went to Abu Dhabi who in fact the other concluding country with Malaysian as far... So we did a good look at all region options.*

**Tuan Pengerusi:** *The choice of Malaysia because of those..?*

**Dr. Mike Vaisey:** *Yes sir, good practice, established technological advice, regulatory framework which is understood and very comfortable to work within industrial expertise and general chemical industry relations. There are more relations and does more material..., the mass balance... So having that supports us...*

**Dato' Mashal Ahmad:** *So then why came to Kemaman. Why we went to Kemaman, was because there Huntsman Tioxide. Huntsman Tioxide, the industry is about 70% similar to our process. Therefore, the raw material is a same.*

**Dato' Zulkifli bin Noordin:** *Di mana?*

**Dato' Mashal Ahmad:** *Kemaman. Telok Kalong. It was ICI Tioxide but now it is Huntsman. So because 70% the raw material, hydrochloric acid, caustic, sulfuric, they already have there. So we went there. That was the reason we went to Kemaman. Now the opposition said that was in Kemaman. That is not true. We have obtained the approval from AELB. We have obtained the approval from DOE. We have obtained the approval from Majlis Bandaran Kemaman, cukai whatever it is.*

*Now, after you obtained all this approval, then only you submit this document to the State Government and say, okay, now we got all the documents that the land that we mark that is what we apply for the land. But the State Government took a longer time to make a decision. So, that was why we move to – we cannot wait because our customers are waiting. So we came, we were told by MIDA...*

**Dato' Zulkifli bin Noordin:** *When was that?*

**Dato' Mashal Ahmad:** *Pardon?*

**Dato' Zulkifli bin Noordin:** *When was that?*

**Dato' Mashal Ahmad:** *Year 2007. So because of that, we came here. Do we like to come here? The answer is no because we got to do the study all over again. The DOE, AELB and RIA, everything we got through and we lost another six months.*

**Tuan Pengerusi:** *The question here, land approval delay. Is it going to be approved or it is going to be rejected?*

**Dato' Mashal Ahmad:** *Tuan Pengerusi, we applied, we do not know. Okey.*

**Dato' Zulkifli bin Noordin:** *There was a report that Terengganu Government receives advice from Sahabat Alam Malaysia and that is why you rejected. Is that true?*

**Dato' Mashal Ahmad:** *I can't comment on that Yang Berhormat because I do not know.*

**Dato' Zulkifli bin Noordin:** *Not considering there.*

**Dato' Mashal Ahmad:** *Pardon?*

**Dato' Zulkifli bin Noordin:** *You not consider. You do not know.*

**Dato' Mashal Ahmad:** *I do not know what is the decision. All I can see here, the decision to approve the land, we have applied with all the necessary documents. In other word, all necessary documents, all we need is the land, but the approval took longer than required, we cannot wait.*

**Tuan Pengerusi:** *Was there an answer for the land application? Is there rejection or there is just no answer until today? They did not answer because you already moved? You put...*

**Dato' Zulkifli bin Noordin:** *You decided to abandon or they decided to reject you?*

**Dato' Mashal Ahmad:** *Sir, they did not reject. That is very clear thing.*

**Dato' Zulkifli bin Noordin:** *There is no answer at all?*

**Dato' Mashal Ahmad:** *No answer, we left.*

**Dato' Abd. Rahman Dahlan:** *So it is hanging thing.*

**Dato' Mashal Ahmad:** *Yes, it was a hanging thing which no good.*

**Dato' Abd. Rahman Dahlan:** *Dato', I think this is, although it is seem to be small issue, but the opposition or – when I say opposition, I do not want to categorically talking about pembangkanglah. It is not fair. It is very important because one of the thing that they mentioned adalah Lynas tidak jadi di Kemaman because you could not adhere to safety standard. My question is, Kerajaan Negeri Terengganu ada atau tidak bertanyakan soalan then you all unable to answer in anywhere and then you move to another side?*

**Dato' Mashal Ahmad:** *Okey Yang Berhormat. The subject of safety, the only people who have the authority to speak on safety and environment are, when it come to radiological matter is the Atomic Energy Licensing Board, on an environmental matter is the DOE.*

*On the safety matter the other one is DOSH. When all this federal authority has given the approval, I think that answers your question.*

**Dato' Abd. Rahman Dahlan:** *Even in Kemaman?*

**Dato' Mashal Ahmad:** *Ya. I am talking Yang Berhormat...*

**Tuan Pengerusi:** *Raja Dato', ada kerajaan Terengganu tanya AELB?*

**Raja Dato' Abdul Aziz bin Raja Adnan [Ketua Pengarah Lembaga Perlesenan Tenaga Atom]:** *Yes. We were consultant and we inform them that we have done, ... survey because they have submitted the radiological impact assessment and we said that if carefully regulated, it is safe because there have very similar industry which we are regulating type..*

**Tuan Pengerusi:** *Did they say anything comment...*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *That point, they just keep quiet and say thank you and then we went off.*

**Dato' Zulkifli bin Noordin:** *Are you saying that the Terengganu government prefers to accept Sahabat Alam Malaysia compared to AELB? [Ketawa]*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *I have no idea what their consideration were but I suppose...*

**Dato' Abd. Rahman Dahlan:** *What year was it? Sorry Dato'.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Is it about year 2008 or 2007.*

**Dato' Mashal Ahmad:** 2007.

**Tuan Pengerusi:** *You joined the company...*

**Dato' Mashal Ahmad:** *I join 2008 tetapi I got to run through all the documents. When you look at the sheet, you should take everything. So Yang Berhormat, the subject matters is, here when we come to safety environment, the DOE, the AELB, the federal authorities are the people who make the decision. The fact that they have given the approval, that means we are safe. That is how we proceed for the land application. But how Sahabat Alam Malaysia came in which is I do not know, I cannot speak because I do not have the fact. So it is up to the State Government which one they want to listen.*

**Dato' Abd. Rahman Dahlan:** *Okay Dato', very quick question. The State Government of Terengganu dia tidak pernah beritahu mengapa, why is it that they are delaying? Did they tell you or any reason?*

**Dato' Mashal Ahmad:** *Tidak ada. As far as I understand Dato', kita tidak dapat, we did not get any responds, but the fact is we did not receive the reply and the time as late and we cannot wait.*

**Dato' Abd. Rahman Dahlan:** *Okay, they were ignore. Okay. Alright.*

**Dato' Mashal Ahmad:** *Yes. We came here and the land we bought was already – bukan pioneer, it is already been prepared for – that is why we came to a land which even though expensive tetapi ready for construction just to show you the urgency.*

**Dato' Zulkifli bin Noordin:** *Meaning you left the Kemaman...*

**Dato' Mashal Ahmad:** *Yes sir, we left.*

**Tuan Pengerusi:** *Okay. I think now we go into the real core question which is safety. We haven't started yet.*

**Dato' Mashal Ahmad:** *It is okay but I just want to stress when their in Malaysia, this one I have to stress to Tuan Pengerusi, one of course economic and the other one, because the government and authorities set clear rules and requirement that attracted us to come here. I have*

every confidence that the government, the people will also respects the rules that make us to come here.

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**Tuan Pengerusi:** *Even though the standard is very high?*

**Dato' Mashal Ahmad:** *If the standard is very high, to us, if you look on the other side of the side of the coin, it is good. The authorities know the subject matter they are talking about. Even though it is create difficulties but you are dealing with people who know what they are talking about. So, that is okay with us.*

**Tuan Pengerusi:** *Standard kita tinggi selepas itu...*

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

**Tuan Pengerusi:** ARE. Kita memang...

**Raja Dato' Abd Aziz bin Raja Adnan:** *In fact Atomic Energy Licensing Board and Akta 304 was established after the case ARE.*

**Dato' Abd. Rahman Dahlan:** *I have to ask this Dato'. I know you want to go safety standard Tuan Pengerusi but I think on the economic issue ini, I have another question that I like to pose to Lynas. You may not be the right person to answer this but maybe you have some experience, some knowledge about this. One of the things that yang jadi masalah ini ialah tanggapan bahawa Lynas adalah syarikat luar negara dan keuntungannya itu tidak akan di labur di Malaysia dan akan dibawa balik ke Australia, which is fine.*

*So, my next question is are you prepared to have policy that some money, some profits of Lynas di Kuantan to be reinvested or – at what percentage if that policy exist that you would like to invest back in Malaysia economy? A part from the R&D, I know that there is some money that you put aside for R&D, that is fine, thank you but a big chunk of your profits, retain profit, are you going to push it back?*

**Tuan Pengerusi:** *Audience, before you answer.*

**Dato' Mashal Ahmad:** *Tidak boleh jawab pun...[Ketawa]*

**Tuan Pengerusi:** *No, we were told that there is allocation of USD100 million per year...*

**Raja Dato' Abd Aziz bin Raja Adnan:** *Percentage is about 1% to R&D, 50% of that 1% will be of the gross sales..*

**Dato' Mashal Ahmad:** *Sales revenue.*

**Raja Dato' Abd Aziz bin Raja Adnan:** *Sales revenue.*

**Tuan Pengerusi:** *So, that will come to – That is yearly?*

**Dato' Mashal Ahmad:** *Annual.*

**Tuan Pengerusi:** *Annual to 1% of R&D and...*

**Raja Dato' Abd Aziz bin Raja Adnan:** *Approximately about 50 millions.*

**Tuan Pengerusi:** *USD or...*

**Dato' Mashal Ahmad:** Ringgit. Okay, the thing is depend on sales revenue, depend on the price of the rare earth. At one time, the projection semasa about one and a half year ago, it is about RM8 billion which is 1% of the national GDP. So, RM8 billion then you calculate 1% of that but now the price of the rare earth has come down. So, it is depend on sales revenue.

**Tuan Pengerusi:** Gross sale.

**Dato' Mashal Ahmad:** Gross sales revenue. That will be use for – from that 1%, half of it will be use for R&D.

**Raja Dato' Abd Aziz bin Raja Adnan:** On waste management.

**Dato' Mashal Ahmad:** Waste management but we are also committed to set-up R&D centre here for other application.

**Dato' Abd. Rahman Dahlan:** The other 50% is for training is it? For what is the other 50%?

**Tuan Pengerusi:** I think that...

**Dato' Mashal Ahmad:** That is the condition of license.

**Tuan Pengerusi:** Let's be clear. That 1% I think to be given, to be transferred to the government whether you want to set up another R&D that should be from your – not to touch on the...

**Raja Dato' Abd Aziz bin Raja Adnan:** If I may, 1% of the gross sales is for R&D, half of that specifically R&D on waste management.

**Dato' Abd. Rahman Dahlan:** Oh! I see.

**Tuan Pengerusi:** You say that 1%, is that allocation that to be transferred to the government or to the agency. Maknanya, then it is up to the government to use that for R&D and then 50% for waste management. Dato' was also talking about they are setting an R&D centre. We do not want...

**Dato' Mashal Ahmad:** That one is separate already. I know what you are talking about.

**Tuan Pengerusi:** That one is separate.

**Dato' Mashal Ahmad:** It is separate. That 1% is for the government. That 1% is for the government, yang kita punya separate fund.

**Tuan Pengerusi:** Jangan ambil yang itu juga.

**Dato' Mashal Ahmad:** Tidak, tidak.

**Dato' Zulkifli bin Noordin:** That is statutory and then...

**Dato' Mashal Ahmad:** That is the condition of license.

**Tuan Pengerusi:** Condition of license.

**Dato' Mashal Ahmad:** Condition of license.

**Dato' Zulkifli bin Noordin:** That 50% of that 1% goes to his kementerian.

**Tuan Pengerusi:** [Bercakap tanpa menggunakan pembesar suara]

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

**Dato' Mashal Ahmad:** *License. That our condition of license.*

**Tuan Pengerusi:** *Our license, 1% is...*

**Dato' Abd. Rahman Dahlan:** *Oh! Ya. Okay, it will be in that. So, my question tadi Dato' macam mana? I know it is gonna be difficult for you to answer.*

**Dato' Mashal Ahmad:** *Yang Berhormat Menteri sudah cakap do not answer, or do not answer yet... [Ketawa]*

**Dato' Mashal Ahmad:** *Anyway Yang Berhormat Dato', I have to go back to the board.*

**Dato' Abd. Rahman Dahlan:** *I think that will be a good... The reason I am saying that is that, that is one of the reason that with all 'huha-huha' ini, I know it is based on rumors and misinformation tetapi kalau kita... the deal. But that obviously has to go back to the...*

**Dato' Mashal Ahmad:** *Listed company. Okay, next, quick one.*

**Tuan Liang Teck Meng:** *Sorry*

**Dato' Mashal Ahmad:** *Yes Yang Berhormat.*

**Tuan Liang Teck Meng:** *Why Malaysia, I think short of another one, 12 years tax exemption. Is it very attractive to you?*

**Tuan Teng Boon Soon:** *Tax holiday.*

**Dato' Mashal Ahmad:** *That tax holiday, every company has a private deal with MIDA. In other word, when MIDA wants you to come in, it depend on what you can generate for the company. So, every company gets different number of years. There are many 100% foreign owned companies here. I run one of them for the last seven years. I got ten years. There are some people got 12 years, some people got 16 years. So...*

**Tuan Teng Boon Soon:** *Even 60? [Bercakap tanpa menggunakan pembesar suara]*

**Dato' Mashal Ahmad:** *You go and check with MIDA but all I know this one is 12 years. My previous company, we talk on facts. I owned 12 years and my previous company was on 10 years.*

*So, this numbers Yang Berhormat, is nothing abnormal. I remember when I wanted to built another Eastman plant in Gebeng, the Singapore Government, when they say "what did Malaysia offer you?" They say, "Okay, we will offer you 10% of your capital investment." So, it is depend on...*

**Tuan Pengerusi:** *Strategy. Government strategy...*

**Dato' Mashal Ahmad:** *Anyway we went to Vietnam to build the plants in Vietnam. So, 12 years, Yang Berhormat go and check with MIDA. Sebab, it is nothing unusual. It is depend on what you got to bring to – the attraction to come in.*

**Dato' Abd. Rahman Dahlan:** *Let me re-phrase that question. Were you asking for more in initially? I was told that you were asking like 15 years.*

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

**Dato' Abd. Rahman Dahlan:** *No, no. 15 tahun.*

**Tuan Teng Boon Soon:** 15 years.

**Dato' Abd. Rahman Dahlan:** Lima belas tahun *tax exemption or tax holiday*.

**Dato' Mashal Ahmad:** Yang Berhormat, *I cannot answer that. All that I can say is that...*

**Dato' Abd. Rahman Dahlan:** *You got 12.*

**Dato' Mashal Ahmad:** *Yes, I got 12 years.*

**Dato' Abd. Rahman Dahlan:** Bukan 15 tahun?

**Dato' Mashal Ahmad:** *Yes, sir. But I am saying it is nothing abnormal.*

**Dato' Abd. Rahman Dahlan:** Ya, ya. *We understand that.*

**Dato' Mashal Ahmad:** *But Yang Berhormat can get from MIDA because this is confidential between company to company.*

**Dato' Abd. Rahman Dahlan:** Memang kita dapat daripada MIDA pun yang *information* ini. *We have no problem with it, we just trying to understand how it came about.* Dato' kata tadi *your previous plant* dapat 10 tahun.

**Dato' Mashal Ahmad:** 10 tahun.

**Dato' Abd. Rahman Dahlan:** Tak, Eastman...

**Dato' Mashal Ahmad:** *If I can remember, I am sure it was 10 years.*

**Dato' Abd. Rahman Dahlan:** *But your ROI will be almost the same as Lynas?*

**Dato' Mashal Ahmad:** *No, no, smaller.*

**Dato' Abd. Rahman Dahlan:** *No, in terms of duration because I was told that Lynas would be hitting the ground running meaning in terms of profits it will be almost immediate after one years or two years I think, recover your...*

**Dato' Mashal Ahmad:** *No, its take longer because selagi kita tidak start, we are dreaming, we are dry.*

**Dato' Abd. Rahman Dahlan:** *But from the moment...*

**Dato' Mashal Ahmad:** *That is a clear message.*

**Dato' Abd. Rahman Dahlan:** *From the moment you started.*

**Tuan Pengerusi:** *When you do the submission, when you got the... you are suppose to...*

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

**Tuan Pengerusi:** *Based on your projection, you are suppose to make profits first year, second year.*

**Dato' Abd. Rahman Dahlan:** *If it is, ya.*

**Dr. Mike Vaisey:** *Look, when Lynas first came to Malaysia, we were across, we knew I were new... a headline for the last four months. The price was less in USD20 per kilogram. Recently, in the past four months they raise it to 150. Their debt and the other coming back to more sustainable levels which – 150... [Bercakap tanpa menggunakan pembesar suara]*

**Dato' Abd. Rahman Dahlan:** *You started over what the price again sir?*

**Dr. Mike Vaisey:** *The price of the rare earth baskets that we called when we were looking for the location for this project was less than USD20 per kilograms.*

**Dato' Abd. Rahman Dahlan:** *USD20.*

**Dr. Mike Vaisey:** *Yes and it has drop to USD8 during the time that one is being working on this project.*

**Dato' Abd. Rahman Dahlan:** *Drop to?*

**Dr. Mike Vaisey:** *USD8 per kilogram okay. So, the price run on rare earth is a very risk phenomenon in the last two years in particular initiated by the actions of the Chinese Government to restricted export and obviously the grown technological application particularly green technology, so that could be... on etc. So...*

**Dato' Abd. Rahman Dahlan:** *What is it now?*

**Dr. Mike Vaisey:** *It is a, we will get the numbers for you. We record this weekly.*

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

**Dr. Mike Vaisey:** *Approximately USD60 per kilogram. We had data on this. We tracked it every week. We can get that for you.*

**Raja Dato' Abd Aziz bin Raja Adnan:** *Tuan Pengerusi, if I may. Actually all the authorities including MIDA, the one on the 1% of the gross sales, it is not all suppose to be given to government. Only half of that is going to be given to the Atomic Energy Licensing Board specifically for pengurusan waste and waste management.*

#### ■1030

**Tuan Pengerusi:** *My ministry I think has to receive that R&D.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Yes. [Ketawa] But we also heard...*

**Tuan Pengerusi:** *Record it to Parliament.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *It all to be clear.*

**Dato' Abd. Rahman Dahlan:** *The 50% will go to KPT?*

**Tuan Pengerusi:** *KPT. That's why they appointed me as chairman... [Ketawa]*

**Dato' Mashal Ahmad:** *Tuan Pengerusi, today we are doing a lot of research with IPT. You know you're talking about UKM, Universiti Petronas and of course Universiti Malaysia Pahang. We already started. We have started. Can we move on? Okay.*

*This one, with regard to safety and standards, this is I have to tell the panel, Lynas plant is the safest and most advanced rare earth plant in the world. Bukan I kata tetapi the experts who are in this industry, even this was mentioned at the Rare Earth Conference recently and this was stated to the press those who in this industry. We are the most advanced rare earth plant in the world and our safety monitoring system is also the state of the art.*

**Tuan Liang Teck Meng:** *Sorry.*

**Dato' Mashal Ahmad:** *Yes sir.*

**Tuan Liang Teck Meng:** *You say is the safest, that mean their plant is not safe. So, not safe in what concept?*

**Dato' Mashal Ahmad:** *Okay. When you talk about safe, you're talking things with regard to – the whole issue of the rare earth industry, you're talking about radiation, and you're talking about environment. So that is the key...*

**Tuan Liang Teck Meng:** *And health.*

**Dato' Mashal Ahmad:** *Yes, of course radiation impact health, safety and health.*

**Tuan Liang Teck Meng:** *Sure.*

**Dato' Mashal Ahmad:** *So, we are the safest and then we have the latest state of the art technology and in terms of process, we are the most advanced plant in the world when we start – hopefully we can operate, ensure that.*

*Okay, the other thing, I like the second sentence, I must say this. There are people who go around saying that Lynas is a nuclear plant. I always asked them, "Have you seen a nuclear plant?" They say no. If you have not seen, how can you say it is a nuclear plant. But anyway, put that side. Lynas is just a simple and a very safe chemical plant.*

*Tuan Pengerusi, I'm not – bukanlah takbur. I grew up in petrochemical plant. Tak lari sahaja. I've been in for the last 31 years. Kerja I buat chemical plant, refinery gas, semua all the chemical plant. This is the simplest and very safe chemical plant. Kalau kata dia hendak meletup, this plant – apart from the two small boiler for utility, I'm talking about the process persay, everything is at atmospheric pressure. So there is no reason to explode. At the front end, we have the 'rotary'. The moment dia keluar itu, everything is at ambient room temperature. So there is no heat to cause, to initiate the fire. And the products that go through, this is sulfonated kerosene, it is not easily flammable. It has a very high pressure point. It takes very hot before it can catch a fire. So bottom line, a simple and very safe chemical plant compare to all other plants that I have worked.*

**Tuan Pengerusi:** *Siapa verify?*

**Dato' Mashal Ahmad:** *Pardon?*

**Tuan Pengerusi:** *Who can verify what you said?*

**Dato' Mashal Ahmad:** *Bring in the expert, let them see for themselves. You can bring the expert because I can say that...*

**Dato' Zulkifli bin Noordin:** *When you make that statement, it is your assessmentlah? Not from any third party punya assessment?*

**Dato' Mashal Ahmad:** *Dato'...*

**Dato' Zulkifli bin Noordin:** *From your own experiencelah.*

**Dato' Mashal Ahmad:** *I have build and run ammonia urea plant, it is a chemical plant...*

**Dato' Zulkifli bin Noordin:** *No. My question, is that your assessment?*

**Dato' Mashal Ahmad:** *That is my statement.*

**Dato' Zulkifli bin Noordin:** *Not third party assessment?*

**Dato' Mashal Ahmad:** *Termasuk siapa? CIMAH, CIMAH.*

**Dato' Zulkifli bin Noordin:** *It took some reference lah.*

**Dato' Mashal Ahmad:** *Ada, ada. Kejap, kejap.*

**Encik Khairul Salleh Jais:** *Normally CIMAH. We do a CIMAH study – inventory of hydrocarbon, inventory in the facility. If you have a lot of hydrocarbon, flammable for example in the refinery or petrochemical, then it is CIMAH regulation. For us we are not considered as CIMAH regulation.*

**Dato' Mashal Ahmad:** *Tak termasuk dalam CIMAH.*

**Tuan Pengerusi:** *Who conducted that study?*

**Dato' Zulkifli bin Noordin:** *You conducted that study?*

**Encik Khairul Salleh Jais:** *Bukan, bukan, bukan.*

**Dato' Mashal Ahmad:** *DOSH.*

**Encik Khairul Salleh Jais:** *DOSH.*

**Dato' Zulkifli bin Noordin:** *DOSH.*

**Encik Khairul Salleh Jais:** *And then even before the project started, first thing we have to do is a QRA (qualitative risk analysis).*

**Tuan Pengerusi:** *It's not that we don't trust but as general public, once to know, at least there is somebody to clarify it, let's say yes this is it.*

**Dato' Mashal Ahmad:** *Okay.*

**Tuan Pengerusi:** *Is there anybody that we can...*

**Encik Khairul Salleh Jais:** *People like P&D.*

**Dato' Mashal Ahmad:** *DOSH.*

**Encik Khairul Salleh Jais:** *P&D is our QRA. DOSH with CIMAH and then of course....*

**Tuan Pengerusi:** *That should be given to us so that...*

**Dato' Mashal Ahmad:** *Okay. A chemical plant, if you have certain element, then the DOSH will put you under this category. CIMAH itu apa?*

**Profesor Ismail Bahari [Penasihat Keselamatan Radiologi Lynas Malaysia]:** *Control of Industrial Major Accident Hazards.*

**Dato' Mashal Ahmad:** *So, we don't fall into that category.*

**Dato' Abd. Rahman Dahlan:** *That would be DOSH punya inilah...*

**Dato' Mashal Ahmad:** *Yes.*

**Profesor Ismail Bahari:** *Dia memang ada regulations specific. So we are not considered under CIMAH regulation.*

**Dato' Abd. Rahman Dahlan:** *Are subjected to any international, besides AELB and DOSH and what knot, are subjected to any international requirements?*

**Dato' Mashal Ahmad:** *No. When you build the plant in Malaysia, you are subjected to Malaysia law.*

**Dato' Abd. Rahman Dahlan:** *Malaysin law.*

**Dato' Mashal Ahmad:** *Malaysia laws are equal or at times lebih strict daripada international law. So there are no international parties.*

**Dato' Abd. Rahman Dahlan:** *Oh, tak adalah. I understand that we are very much stringent than the rest but there is no...*

**Dato' Mashal Ahmad:** *We are restricted to Malaysia laws with regard to our operation but our transportation, yes, it is subjected to international law.*

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

**Dato' Mashal Ahmad:** *Yes, the maritime law.*

**Dato' Zulkifli bin Noordin:** *How many RE plant in the world?*

**Encik Khairul Salleh Jais:** *Dato', 95% to 96% of the plant or the production facility are in...*

**Dato' Zulkifli bin Noordin:** *Not the percentage. I'm talking about the numbers.*

**Encik Khairul Salleh Jais:** *Okay. I'm trying to explain that in China there are lots of small cottage industries. For example...*

**Dato' Zulkifli bin Noordin:** *Cottage industries?*

**Encik Khairul Salleh Jais:** *Kecil-kecil ini.*

**Tuan Teng Boon Soon:** *Illegal. That is illegal.*

**Encik Khairul Salleh Jais:** *Yes, correct. That constitutes of an overall number of 95% of the world production. I was in China being trained for these industries because I come from hydrocarbon industry and I can see there is a lot plant that are small and not in line with whatever that we are trying to do here in Lynas in terms of environmental and safety aspects.*

*The way they handle acid, the way that they handle their protection of personnel is not even comparable with what we have in Lynas because Lynas follows also whatever there is subjected to us by the law like any other chemical industry like BASF, Petronas, Eastman. We follow...*

**Dato' Zulkifli bin Noordin:** *But it China they also have this Lynas type of plant?*

**Encik Khairul Salleh Jais:** *Yes.*

**Dato' Zulkifli bin Noordin:** *Duly commission, comply with regulations?*

**Encik Khairul Salleh Jais:** *Whole, whole plant.*

**Dato' Zulkifli bin Noordin:** *So when you talk about being safest and most advanced, kalau tak safe dengan tak advanced tu apa dia?*

**Encik Khairul Salleh Jais:** *Okay. Because what we know, what we have, are the facilities that we have install in Lynas, what we have design in Lynas in terms of the process itself, in terms of the environmental care and design that we have done in this facility and when we compare that during my visit for example when I visited China, I know that we are not...*

**Dato' Zulkifli bin Noordin:** *What I mean is bila you kata safest and most advanced, bila dia lower than yours, apa dia punya risk itu, what's the hazard?*

**Encik Khairul Salleh Jais:** *Environmental.*

**Dato' Zulkifli bin Noordin:** *Betullah itu.*

**Encik Khairul Salleh Jais:** *Environmental.*

**Dato' Zulkifli bin Noordin:** *Maknanya ada. Like what?*

**Encik Khairul Salleh Jais:** *Contohnya dia tak create dia punya by product properly. For example disposal, storage like what we are doing now.*

**Dato' Zulkifli bin Noordin:** *That will cause what?*

**Encik Khairul Salleh Jais:** *Environmental hazards to their...*

**Dato' Zulkifli bin Noordin:** *Like? Cancer?*

**Encik Khairul Salleh Jais:** *Water...*

**Dato' Zulkifli bin Noordin:** *Water pollution.*

**Encik Khairul Salleh Jais:** *Yes, correct.*

**Profesor Ismail Bahari:** *Akan tetapi yesterday there was a policy..., sampai sekarang we do not have any record to indicate dia punya current practices has actually elevated or increase the cancer prevalence di China. There was one question yesterday in one of this International Rare Earth Intellectual Discourse. There was one question whether or not there is increase....*

**Dato' Zulkifli bin Noordin:** *China never experience that?*

**Profesor Ismail Bahari:** *They do not have record to indicate that there is an increase.*

**Dato' Zulkifli bin Noordin:** *Record and experience is nothing...*

**Profesor Ismail Bahari:** *Yes...*

**Dato' Zulkifli bin Noordin:** *Record is nothing but..*

**Profesor Ismail Bahari:** *Okay.*

**Dato' Zulkifli bin Noordin:** *They may not record it at all.*

**Profesor Ismail Bahari:** *What I means, that is what he said. I'm just quoting what he said.*

**Tuan Teng Boon Soon:** *No record of mishaps?*

**Dato' Zulkifli bin Noordin:** *But your experience, your own experience, is there any environmental or health issue?*

**Dato' Abd. Rahman Dahlan:** *When you were there. You were working there, bukan? Berapa lama?*

**Encik Khairul Salleh Jais:** *No, no. I was there being trained for about a month and a half.*

**Dato' Zulkifli bin Noordin:** *Any serious of water pollution atau cancer?*

**Encik Khairul Salleh Jais:** *What can I see is a visual perception and I don't have access to their records because I've been trained in their facility and visiting other facilities. So from my visual observation, I know that what we are doing here is far more advanced because of the amount of money and amount of technology put in.*

**Dato' Zulkifli bin Noordin:** *I'm not talking about you are what you are doing here. Their experience.*

**Encik Khairul Salleh Jais:** *Yes.*

**Dato' Mashal Ahmad:** *Okay. I answer lah.*

**Tuan Pengerusi:** *Maybe dari universiti, Prof Badrul, ada tak any incidents rare earth...*

**Profesor Dr. Badrulhisham bin Abdul Aziz [Timbalan Naib Canselor (Akademik dan Antarabangsa) Universiti Malaysia Pahang]:** *Saya rasa rare earth ...*

**Dato' Zulkifli bin Noordin:** *Ada Prof. Badrul...*

**Profesor Dr. Badrulhisham bin Abdul Aziz:** *Tak, macam ini. Yang Berhormat, satu yang boleh saya testifiedlah sebab saya pernah buat kilang, saya pernah kerja di kilang beberapa tahun dan saya pernah jadi safety health...*

**Dato' Zulkifli bin Noordin:** *Di Malaysiakah atau di China?*

**Profesor Dr. Badrulhisham bin Abdul Aziz:** *Asia Pasifik. Saya jaga juga Asia Pasifik, dekat China saya pergi buat audit semua. I can say that even in Malaysia, there's a level of safety and environmental report problem depending on the plant, depending on the company punya policy. Ada sesetengah kilang kita takut hendak masuk Tuan Pengerusi, di Malaysia ini. The chemical of the environment plant.*

#### ■1040

*So, apa yang dikatakan tadi on the standards, safest, apa benda itu semua, it is all the something yang memang dekat international standard, saya buat kilang American pun kita tengok yang universal standard and these compare dengan semua regulationslah.*

*China, saya pernah buat safety audit dekat China, safety environmental auditor, two years I work in China, sama juga, I think the standard kalau you tengok, dekat India, saya pernah buat dekat Mumbai, it's the same thing. There's a lot of regulation tidak macam dekat Malaysia.*

**Tuan Pengerusi:** *But, going specifically, is there any incidents or case yang soalan tadi?*

**Dato' Zulkifli bin Noordin:** *It's a bit rare earth...*

**Profesor Dr. Badrulhisham bin Abdul Aziz:** *Yang rare earth itu kita baru dapat tahu, I think also the CD yang YB dapat semalam daripada Dato' Lee is about dekat Baotou punya area, because of the river pollution. That one it might be not from the radioactive, it might be from other things. Because dekat dengan mining areas. That's why the experts was saying yesterday mining is the worst, because of the exposure.*

**Tuan Pengerusi:** *But specifically directly from rare earth tidak ada?*

**Profesor Dr. Badrulhisham bin Abdul Aziz:** Tidak ada.

**Tuan Pengerusi:** *No, incidents in the world, even in China? Anywhere?*

**Dato' Zulkifli bin Noordin:** *In any part of the world.*

**Profesor Dr. Badrulhisham bin Abdul Aziz:** Kita tidak ada dapat yang itu.

**Dato' Zulkifli bin Noordin:** *Not even in France? Yang tadi itu, yang France.*

**Profesor Dr. Badrulhisham bin Abdul Aziz:** Yang France saya tidak tahu. Saya tidak dapat apa pun.

**Tuan Pengerusi:** *There's is no incidents or case at all until today? Can you verify that?*

**Profesor Dr. Badrulhisham bin Abdul Aziz:** Ya.

**Dr. Mike Vaisey:** *From my experience abroad, we have done due diligence on a number of rare earth processing plants and there are about 20 that are branches of serious scale, industrial scale in China. The issues that you observed which the stakeup in China is very much about is not so much radioactivity, but there are other potential pollute such as sulphur oxide, sulphur trioxide, fluoride from the waste processes and the treatment or non-treatment as often the case has been of the acidic waste waters from the process. So, you are getting contaminates in the environments such as acid also ammonia and some organic compounds from the extraction process as well. So, most of the environmental issues that they raised got to do with the materials I have just mentioned. The gas pollutes and the organic chemicals from the operations. The state government is very serious about lifting the industry to an international standard which they are doing practically closing many operations in China. The operators today are now subjected to very tight orderly body by the state government authority. So, the industry is changing in China.*

**Tuan Pengerusi:** *If there is no radioactive pollution or environment, what about health issues? Because it has been raised that there are uncertainty that it may cause some health hazard in a later years or something like that. Can you comment on that?*

**Dato' Mashal Ahmad:** Okey, Yang Berhormat Menteri, *I will now pass to Profesor Ismail because that is his subject matter and I cannot speak on things which I do not know unlike some opposition group. Okey?*

**Tuan Pengerusi:** *[Bercakap tanpa menggunakan pembesar suara]*

**Dato' Mashal Ahmad:** Ya, ya, *you can give your.....*

**Profesor Ismail Bahari:** *[Bercakap tanpa menggunakan pembesar suara]*

**Dato' Mashal Ahmad:** Okey, *if I may just complete mine Yang Berhormat, I am coming there, then we can get back to the specifics. I am just a generalist. Okay, these Lynas rare earth process, what Lynas is having is based on well established and proven technologies. It is already existence for 30 over years. It's not trial and error....*

**Seorang Ahli:** Dari mana teknologi?

**Dato' Mashal Ahmad:** *It is China, France. It is the same technology all over the world. Nothing new.*

*Okay, next. Just as safety standard, we ensure that there is no harm to people and environment. Air and water release meet Malaysian rules and international standard. In fact, I wanted to put no discharge, but because there are scientists here, 0.00, there is still a discharge. So, I got to put very low discharge of radioactive material to air and water. Water in contact with radioactive material is fully recycled, Tuan Pengerusi. Water in contact with radioactive material is fully recycled and we have comprehensive monitoring system in place. The punch line, the worst case scenario, in other words, if all the plant system go caput or break down, the radiation to public is only 0.002 millisievert per year. This is based on our radiological impact assessment and this is 500 times below the international and Malaysia Limit of 1 millisievert per year. So, we are in the worst case scenario, when all equipment failed, yes we will create a radiation, but it is 500 times below the standards.*

**Tuan Pengerusi:** *Ini semua enforcement by AELBlah?*

**Dato' Mashal Ahmad:** *Correct, correct.*

**Tuan Pengerusi:** *You will be the one.*

**Dato' Mashal Ahmad:** *Next, I have to touch on this, because normally ...*

**Tuan Liang Teck Meng:** *Throughout the whole process from the raw material until the disposal of the waste, which part is all standard, old standard?*

**Dato' Mashal Ahmad:** *Okay, we will come to the details. We will come to that. I am just covering some salient point which is a must say. There other one, they talk about Asian Rare Earth. We always put us like the cousin of Asian Rare Earth. We are not the same as Asian Rare Earth, because Asian Rare Earth use 'amang' and we took our raw material from the mine where the radioactive material has already been washed away over billion of years, okay? So, the Asian Rare Earth's raw material is 43 times in the context of radioactivity, higher than Lynas.*

*Asian Rare Earth's waste is 40 times higher than Lynas. So, we are not the same. I do not want to comment anymore.*

**Dato' Zulkifli bin Noordin:** *Different product?*

**Dato' Mashal Ahmad:** *Different...*

**Dato' Zulkifli bin Noordin:** *Raw material, different?*

**Dato' Mashal Ahmad:** *Different raw material. Asian Rare Earth took from amang. When they took from amang, they have high concentration of uranium and whatever...*

**Dato' Zulkifli bin Noordin:** *Local amang?*

**Dato' Mashal Ahmad:** *Local, local. Dekat Bijih.*

**Dato' Zulkifli bin Noordin:** *Bijih punya itu, bukan?*

**Dato' Mashal Ahmad:** Ya. Akan tetapi kita, *if we go to the old part of the earth* macam *Western Australia, South Africa, China, Nevada, these are the old parts of the earth where all these things* sudah dilarut, *leached*. So, *that is why this project is feasible. You extract the material that you wanted.*

*Okay, I can rest now, because the next presentation Tuan Pengerusi, Khairul my general manager will talk about Lynas safety. It would cover all your questions and then I also have – tuan Pengerusi, he would like to demonstrate later on. Our raw material and our waste, even though we have not – the raw material we already have, the waste even though we have not yet in operation, we already produced it in the laboratory, equivalent. He will compare this dengan pasir dekat Langkawi, pasir dekat India. You can see for yourself the reading and you can compare, because seeing is believinglah. I do not know the legal terms, but that's... [Disampuk]*

**Dato' Zulkifli bin Noordin:** *Worst case scenario? Kalau worst case scenario...*

**Dato' Mashal Ahmad:** Saya.

**Dato' Zulkifli bin Noordin:** Katalah kalau kilang ini meletupkah?

**Dato' Mashal Ahmad:** *No, no. I have already mentioned, it will not meletup. I...*

**Dato' Zulkifli bin Noordin:** *No, no. It's not for you to say it's not going meletup. Nobody ever imagine...*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Cannot meletup.*

**Tuan Pengerusi:** *AELB, do you have the knowledge about apa they say just now?*

**Dato' Zulkifli bin Noordin:** *Tidak apalah, assumelah.*

**Dato' Mashal Ahmad:** *Tidak boleh Dato', because proses pun ia tidak boleh. I mentioned that. Kalau hendak meletup, kalau I buka botol air ini....*

**Dato' Zulkifli bin Noordin:** *This is the perception now with the public. What happen kalau... [Disampuk]*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Sorry, I have to correct here. The boiler...*

**Dato' Mashal Ahmad:** *The boiler yes. I am talking of...*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *The boiler is on the dodge.*

**Dato' Mashal Ahmad:** Ya, ya.

**Raja Dato' Abdul Aziz bin Raja Adnan:** *But, that is not a radioactive part of the process. That one can meletup. I think ...*

**Dato' Mashal Ahmad:** *I mentioned that, ya.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Under worst case scenario punya...*

**Dato' Zulkifli bin Noordin:** *Kalau ada tsunamikah, terrorist attackkah.*

**Dato' Abd. Rahman Dahlan:** *I think terrorist attacklah.*

**Dato' Zulkifli bin Noordin:** *One year's back, the worst.*

**Dato' Abd. Rahman Dahlan:** *What will happen?*

**Dato' Zulkifli bin Noordin:** Semua orang lari, jatuh jarikah?... [Ketawa]

**Dato' Abd. Rahman Dahlan:** *But yesterday, one of the professor was saying that if I were a terrorist I wouldn't target the Lynas, I would go for the chemical plant.*

**Profesor Ismail Bahari:** *Yes, exactly. It's the answer against you.*

**Dato' Zulkifli bin Noordin:** *No, no.*

**Dato' Mashal Ahmad:** *Tidak apa, tidak apa. Biar dia jawab.*

**Dato' Zulkifli bin Noordin:** *If I decide...*

**Dato' Mashal Ahmad:** *Tidak apa, tidak apa. Okey, okey, tidak apa.*

**Dato' Zulkifli bin Noordin:** *... I being a stupid terrorist, I attack the... [Ketawa]*

**Dr. Mike Vaisey:** *I think the simple answer is, in the event the damage is consistent, whatever the explosive...*

**Dato' Zulkifli bin Noordin:** *Any environmental effect? No?*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *No.*

**Dato' Zulkifli bin Noordin:** *Nothing at all?*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Nothing.*

**Dato' Mashal Ahmad:** *Dato', I will get Profesor Ismail to answer your question now. What happen kalau explosionlah, for whatever reason dan apa jadi kepada bahan-bahan itu with regard to radiation and impact on the...*

**Dato' Zulkifli bin Noordin:** *Macam inilah. Kalau ada mangkuk curilah raw material ini, dia bawa lari pergi ke...*

**Dato' Mashal Ahmad:** *Lari, larilah.*

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

**Profesor Ismail Bahari:** *Nothing.*

**Dato' Zulkifli bin Noordin:** *Nothing?*

**Profesor Ismail Bahari:** *We have already covered – katalah...*

**Dato' Zulkifli bin Noordin:** *Boleh bubuh dalam akuarium?*

**Profesor Ismail Bahari:** *Hah?*

**Dato' Zulkifli bin Noordin:** *Batu itu boleh bubuh dalam akuarium?*

**Dato' Abd. Rahman Dahlan:** *Buat jalan pun boleh.*

#### ■1050

**Profesor Ismail Bahari:** *In fact we can use it as a road waste. Sebab itu nanti I think what I am about to show you is the perspective sebab we got big sand at the beach, and we got amang yang dekat Malaysia yang sekarang ini about 20 years, 30 years I think.*

**Dato' Marshal Ahmad:** *Should we show that first, so that will cool down... [Ketawa]*

**Tuan Liang Teck Meng:** *Just now you mention that even the worse case scenario is only 0.002 millisievert per year. So if all the WLP is leaking of – are you saying that?*

**Profesor Ismail Bahari:** *We are talking about even discharge from the stack. If you like to talk about this case, nothing works. The covers system fail, I mean, you look at our estimation, our risk assessment on the WLP, it is not measurable. Now we are showing you the highest possible is 0.002 millisievert at the gate from so called stack discharge if the stack failed.*

**Tuan Liang Teck Meng:** *300,000. All exposes.*

**Profesor Ismail Bahari:** *Yes, yes.*

**Dato' Marshal Ahmad:** *Radiological impact assessment is based on nothing works, everything goes wrong. That is what radiological impact assessment is all about. Now my favourite word when I talked on TV, when I talk 0.002 millisievert per year people cannot understand, so I always like to take you watch old television you get ten times more radiation, you sleep with your wife, but then again it's non issues. But some people are good at making issues. Dato', would you like to see a quick demonstration or...*

**Tuan Pengerusi:** *[Bercakap tanpa menggunakan pembesar suara]*

**Dato' Marshal Ahmad:** *Okey. Khairul can you...*

**Encik Khairul Salleh Jais:** *Okay, can I start? Assalamualaikum warahmatullah, selamat datang kepada Yang Berbahagia Dato' Seri Mohd Khalid Nordin, Yang Berbahagia Datuk-datuk YB semua. My name is Khairul Salleh Jais, I am General Manager in charge of operation for the Lynas plant. I have a very short presentation on process and also some safety aspect that might attract your attention and concern and please ask question and stop me anytime you wish to. This is where the Lynas plant is situated, it is in the industrial area of Gebeng...*

**Dato' Abd. Rahman Dahlan:** *Sorry, do we have that handout note?*

**Encik Khairul Salleh Jais:** *Not this one but I can give it to you after this. So this is Gebeng Industrial Estate. This is where the site location. The equating is about 250 acre and it is very close to the Kuantan Port which is one of major attraction why Lynas was built here.*

**Dato' Abd. Rahman Dahlan:** *It is part of the Gebeng industrial park right..., within that?*

**Encik Khairul Salleh Jais:** *Yes correct. It is within. Our closes neighbor is Polyplastic and also BSF.*

**Tuan Pengerusi:** *The nearest residential area is six kilometers.*

**Encik Khairul Salleh Jais:** *About five to six kilometers.*

**Dato' Abd. Rahman Dahlan:** *Can you go back to the map. Okay, where would be the residential area?*

**Encik Khairul Salleh Jais:** *The residential areas are here and the other one is also dekat sebelah Terengganu sana, Sungai Ular, but this one over here. These are all industrial.*

**Dato' Abd. Rahman Dahlan:** *So from that orange box down south to the residential area, how far is that?*

**Encik Khairul Salleh Jais:** *It is about five to six kilometers. Okay, very briefly, this is what Lynas does as business entity. We believe that our business promotes a greener society for the world. For example, our product like lanthanum is being used in the hybrid cars, batteries production and when we use more of this hybrid car, we produce less pollution, less greenhouse gases. We also use our product for the making of efficient lighting bulbs. These will save energy and save electricity.*

*Our product is also used in the auto catalytic converter in your cars. As we speak, everybody now has got catalytic converter in your car..., with catalytic converter. These catalytic converters would treating the emission gas before it been release to the environment. One of the major components of our product goes into the production of a strong magnet. Strong magnet make the car lighter, it can be also used in wind turbine that will decrease the use of fossil fuel and also inturn create less pollution to environment. So in the nutshell, we would like to say that our business actually promotes the green society for the world.*

*This is the info for the production of the plant. We have a mine in Laverton and then we import the concentrate into Malaysia as Lanthanide concentrate. Within the Malaysia site, we will do cracking, we do leaching, we do separation to extract the raw rare earth material that we want to extract and turning into our product. And in the process of doing that we use a lot of chemical such as sulfuric, HCL, sodium hydroxide, soda ash, magnesium oxide and hydrated lime.*

*So in the process of extracting the rare earth, we will be producing three kinds of solid co-product and one of that, that is being made into subject of scrutiny is called the WLP, we have got a thorium level of 1,650 ppm ThO<sub>2</sub>. The other one is the FGD which is coming from the waste gas treatment plant that is basically calcium sulphate or gypsum and third one is from waste water treatment which is called NUF.*

*This is same presentation in a graphical form. Basically the raw material is just like soil, like tanah biasa sahaja, so dia tidak boleh terbakar, it is not flammable.*

*This is the cracking facility, then this is the leaching facility, this is solvent extraction, we go to product finishing and then we get all these products.*

**Tuan Pengerusi:** *All these are in Gebeng?*

**Encik Khairul Salleh Jais:** *All these are in Gebeng. So in term of numbers, we are going to process about 33,000 tonne of concentrate in a year. Out of this 33,000 tonne, we are trying to extract...*

**Dato' Zulkifli bin Noordin:** *24 hours operations?*

**Encik Khairul Salleh Jais:** *24 hours operations. Out of this 33,000 tonne, we are going to extract what we called rare earth oxide equivalent of 11,500 tonne of product. These are the production rate. This basically what we call heavy rare earth, lanthanum cerium and lanthanum*

cerium and neodymium oxide. This last one is actually the one that has been used in production of strong magnets, Dd Oxide.

As I said just now, in the process we are also producing co-product residues which is 32,000 tonne per year WLP, about 88,000 ton of NUF and about 27,000 ton per year of FGD. As you can see, what come in is at 33,000 but what we produce is much more than that. That just shows that the bulk of what we produce are actually coming from the chemical that we use ourselves.

Okay, some very important information for the plant as a general info for the basis of discussion is that Lynas will process lanthanide concentrate. It contains about 6 becquerel per gram of activity concentration which is combination of thorium and uranium. As you can see here the thorium is at 5.71 becquerel per gram and the uranium is very negligible, it is less than one becquerel per gram. Lynas lanthanide concentrate is about 37 to 43 times lower in activity concentration compared to the tin tailings that was processed by Asian Rare Earth.

**Tuan Pengerusi:** Ingat kita jangan *compare*. Kita tadi tidak mahu *compare* dengan Asian Rare Earth sebab itu yang menyebabkan banyak tentangan terhadap *research*. Kita juga tidak mahu *compare* Lynas dengan *any of the nuclear reactor*. So ada dua perkara yang kita jangan bandingkan Lynas. Satu, ia bukan *nuclear reactor* because dia adalah *chemical plant* dan yang kedua ia bukan Asian Rare Earth, berbeza. So ada cadangan supaya bagi setengah-setengah negara dia *one Becquerel*, ada tidak proses nak cuba kurangkan *that 5.71 to lower?*

**Encik Khairul Salleh Jais:** 5.71 itu adalah dalam keadaan *what we call naturally occurring radioactive material*. Dia berada dalam keadaan semula jadi di mana *just now Dato' was trying to explain the reason that make this plant feasible in term of economic, this 5.71 is actually* sudah berada dalam kandungan yang rendah.

#### ■1100

**Tuan Pengerusi:** Ini saya patut tanya kepada AELB. *What is our standard? And then why did we – because* banyak negara berbeza-beza bukan? *So, what is the standard that we put because – who will decide that? You,* bukan?

**Raja Dato' Abd. Aziz bin Raja Adnan:** *For Lynas, we have targeted one becquerel for thorium* punya concentration tetapi *for the amang industry, it is slightly higher and we have exempted*. So, walaupun *international law usually target one becquerel per gram for thorium* tetapi ia ada *some to go until for 20 becquerel per gram depending on the usage and how it contain can be disposed*.

**Tuan Pengerusi:** Yang ini *you have to...* Then we have to tell the public what actually and then what is the basis for you to put it.

**Dato' Zulkifli bin Noordin:** *What is the base* lah.

**Tuan Pengerusi:** *What is the basis when you put it.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *The baseline will be similar to the environment. Environment memang betul, you can go to certain X lombong punya area, it can go more than one becquerel.*

**Tuan Pengerusi:** *Then, saya difahamkan kalau ia melebihi enam, have this PDF.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** Bukan.

**Encik Khairul Salleh Jais:** *Saya minta untuk cuba menerangkan di sini apa the intent of this presentation atau slide ini. Actually one becquerel per gram adalah limit yang di mana di bawah itu tidak di consider kan sebagai radioactive material. Itu adalah satu becquerel per gram yang ada note di bawahnya. Aktiviti concentration lower than one becquerel is exempted as non-radioactive by Malaysia and international standards. Our raw material which is lanthanide concentrate mengandungi lebih kurang enam becquerel per gram. Maknanya ia adalah bahan yang mengandungi radioactive material dalam keadaan yang kecil. Walaupun ia kecil dan disebabkan ia berada di atas satu becquerel per gram, maka ia tertakluk di dalam bidang kuasa AELB. Disebabkan itu kita berada dalam bidang kuasa AELB.*

Jadi, *the second point* di sini mengapa saya letakkan di sini adalah sebenarnya untuk membandingkan apa perbezaannya supaya *committee* boleh faham yang mana kita punya *raw material* adalah datangnya dari lombong. Manakala *raw material* yang digunakan oleh *company* yang satu lagi itu adalah *waste* daripada *another industry which is tin tailing* ataupun amang. Disebabkan itu, ia punya aktiviti *concentration* untuk bahan yang digunakan oleh *company* yang satu lagi itu adalah 37 kali hingga 43 kali lebih tinggi aktiviti *concentration* nya daripada bahan mentah yang digunakan oleh Lynas. Tujuan saya mengatakan di sini adalah sebagai untuk perbezaan supaya kita dapat memahami di mana senario atau di mana Lynas berada sekarang ini *in terms of activity concentration*.

Akan tetapi kedua-duanya melebihi daripada satu *becquerel per gram which is* disebabkan itu *regulated* oleh AELB.

*Another point that I want to share is that there is no enhancement of activity in the Lynas process.* Maknanya semasa *soil* tadi masuk, *concentrate* itu masuk, ia pergi ke dalam proses sampai ke penghabisan proses tidak ada *enhancement of activity* yang dilakukan di dalam Lynas. Bermakna kita tidak ekstrak torium itu ataupun kita tidak ekstrak uranium itu sebagai produk. Apa yang datang akan keluar sebagaimana ia masuk sebelum itu.

*The force point that is very important for us to be able to impress on the committee is that* daripada tiga *residue* yang kita *produce*, dan disebabkan kita menggunakan banyak *chemicals* maka *residue* ini terhasil, dua daripada *residue* itu adalah *non-radioactive* disebabkan kandungannya adalah kurang daripada satu *becquerel*. Akan tetapi disebabkan Kerajaan Malaysia mengambil perspektif yang konservatif, yang amat mengambil kira tentang kepentingan awam, maka buat masa ini ketiga-tiga bahan *residue* ini masih tertakluk di dalam *jurisdiction* AELB. Jadi

perancangan akan datang adalah untuk kami membuktikan bahawa untuk NUF dan FGD ini semasa kita dalam *operations* kemudian bahawa ia memang kurang daripada satu *becquerel*. Untuk masa ini walaupun data yang kita tunjukkan daripada *experimental* dan '*pipeline*' data menunjukkan bahawa ia kurang daripada satu *becquerel per gram*, kita masih lagi tertakluk di bawah AELB.

Sedikit fakta tentang *radiological*. Disebabkan *Lynas fit material contains only small level of radioactivity, there is negligible impact associated from this operations to workers, public and environment. Based on the Radiological Impact Assessment, the maximum exposure to our worker is only about 5.61 millisievert per year* di mana *limitnya* untuk pekerja adalah *20 millisievert per year*. Ini adalah *additional exposure* daripada *background*. *Additional exposure* untuk *public* which *is above background* adalah hanya *0.002 millisievert per year*, dan mengikut akta di Malaysia dan juga akta di luar negara membenarkan *public* menerima *additional* satu *millisievert per year*. Jadi daripada segi impak yang diadakan oleh Lynas dengan operasi Lynas adalah *negligible* daripada segi *radiological aspect*.

**Tuan Teng Boon Soon:** *One question. Does it also related to the quantity of the material, the magnitude of the material, for example, how many tonnes you produced the waste per year?*

**Encik Khairul Salleh Jais:** *Okey. Daripada segi Matematik ya, from the Maths point of view, if in this case for our residue we have 1.655 parts per millions of thorium oxide, that mean it contain 0.165% weight percent of thorium oxide. Kalau kita ada one kilogram of mass, then bermakna 0.15% adalah torium. Kalau kita ada seribu, maka kita kali 0.165% dengan seribu. Jadi daripada segi mass nya, memang lebih banyak yang kita produce maka ada lebih banyak bahan tersebut. Akan tetapi seperti yang saya katakan tadi, yang pentingnya adalah activity concentration, bukannya the absolute quantity yang berada dalam sistem kerana...*

**Tuan Teng Boon Soon:** *Tidak kira berapa banyak kuantiti?*

**Encik Khairul Salleh:** *Ya.*

**Dato' Mashal Ahmad:** *Yang Berhormat, I like your question sebab ditulis di dalam Malaysian Medical Journal, doktor punya kumpulan ya, dia kata Lynas will produce 84,000 metric tonne of WLP waste yang contain 0.165% of Thorium. So what they did was – that fakta is correct. So, dia kata 0.165% mutiply by 84,000 tonne, maka Lynas memproduce 100 tonne of thorium, 100 tan kemudian ditambah pula this is equivalent to 100 lori kecil, 1 tan lori bawa torium, and that is very frightening to the people when this is comes in from doctors.*

*I have difficulty to explain but in the end after doing this job for so long, I manage to explain to a group of Chinese reporters because they want clear explanations. So, what I did was I take a bottle of water, I bubuh satu spoon full of sugar, I cakap "Okey. Manis tidak?" Dia kata "Manis". Now, I do the same for next ten bottles "Adakah setiap botol ia punya kemanisannya sama?" Dia kata sama. Now I empty all the ten bottles in a pail and asked, "Adakah kemanisannya sama*

*macam tadi atau sepuluh kali ganda lebih manis?” So, the reporter say no, kemanisannya sama juga. So the volume is not the issue, bukan?*

**Tuan Teng Boon Soon:** *In terms of radiasi...*

**Dato' Mashal Ahmad:** *No, no. Radiasi itu macam kemanisanlah. I put the analogy. I am trying – the word radiasi but in this case I am using kemanisan, the sweetness. So when I put in the pail, I asked the reporter now, I put them altogether, the volume now is ten times. “Adakah kemanisannya sepuluh kali ganda lebih manis ataupun manisnya sama?” Dia kata manisnya sama. So, that explain even though we have 64 – katalah kita ada one tonne 0.165%, we have 84,000 tonne, the radiation is still the same. Not like what the Medical Association, the way they described it frightened the people. That is call enrichment, you extracted. Kalau I bawa keluar gula sini, I bawa keluar gula sini, I put together, that is ten times. So that is how – but it took many months to find how to explain to...*

■1110

**Dato' Abd. Rahman Dahlan:** *How to doctor's that mis...*

**Dato' Mashal Ahmad:** *Yang Berhormat, I quickly answer to you, I don't not answer – their statement, Yang Berhormat kena tanya mereka lah. [Ketawa]*

**Tuan Teng Boon Soon:** *Layman punya logic, layman punya calculation memang begitu.*

**Encik Khairul Salleh Jais:** *Yang Berhormat...*

**Tuan Teng Boon Soon:** *That is relative to the quantity of the ...*

**Encik Khairul Salleh Jais:** *Let me try explain like this. If you have swimming pools, let say salt water in the sea, let say one particle of salt water can bite you for example – lets say you take water from the sea you put in the swimming pools and you swim in the swimming pools.*

*So what is a different when you swimming in the swimming pools containing salt water and when you swimming in the sea containing the same salt water? In the sea, there is thousand of tonne of salt. In the swimming pools that you are using the same salt water, it is the same concentration of salt ...*

**Tuan Teng Boon Soon:** *This a better analogy...*

**Dato' Mashal Ahmad:** *You like his analogy, it is okay... [Ketawa]*

**Encik Khairul Salleh Jais:** *So if you imagine one pinch of salt can bite your skin, can bite you, you take the water from the sea and put in the swimming pool, you swim there or you terminum air itu ataupun you pergi kepada the sea in the South China Sea, you do the swimming, the same impact.*

**Tuan Teng Boon Soon:** *Ini lebih mudah difahami... [Ketawa]*

**Dato' Mashal Ahmad:** *Dia lebih pandai daripada saya... [Ketawa]*

**Dato' Zulkifli bin Noordin:** *Gaji dia lebih tidak?... [Ketawa]*

**Dato' Mashal Ahmad:** *Baru balik dari Qatar ini.*

**Tuan Teng Boon Soon:** *Sometimes you see the analogy you used, you have to convinced the public why it is the same, because the normal logic thinking is difference. Of course the volume larger, you produce more radiation.*

**Encik Khairul Salleh Jais:** *Then I would like to go into the safety aspect, the question of how does Lynas make sure that Lynas does not pollute the water stream or the ecology system. As mentioned just now, the lanthanide concentrate or ore that we got from our mine, the content of thorium is little and the content or rare earth is high. Part of the reasons for that being so is that because thorium is insoluble in water. So in the mines, within the process of million of years, the rare earth was leached by the water, get carry over by the water and because thorium is not soluble in water, thorium is left behind and because of that, the the ore body contain less thorium and more rare earth. Similarly, in our process, whatever thorium that we have in our lanthanide concentrate which is 0.16% tadi itu, it would not go into the water stream because thorium when it exist in compound such as phosphate, hydroxide are not soluble in water. When it is not soluble in water, we have in our process in the leaching section where thorium gets precipitated out from the system.*

*So this is a lanthanide concentrate that comes in and this is the acid that we used to crack the concentrate. It goes in to the cracking section and then it goes into the leaching section. In the leaching section, whatever thorium or uranium, and in this case I would like not to talk about the uranium because I showed you just now that the uranium content is very low, this thorium will precipitated into a solid form which is called WLP. This is the waste that we are talking about just now, 32,000 metric tonne per years, 64,000 metric tonne per years.*

*What goes out, because in this world there is only three phase of material which is gas, water and solid, so whatever goes in the solid stream takes within thorium, whatever goes in gas will go in our waste gas treatment plant and then we also have waste water but for this portion of how to explain how the Lynas process will not pollute the water stream is that all the thorium that come in with this concentrate gets precipitated out in the solid stream which is the WLP. So it doesn't go in to the water stream. Because of the chemistry. So when we talk about chemistry, that is actually the creation of god how things precipitate out or not precipitate out. At high Ph, thorium will precipitate out.*

*And then after we have actually produced this WLP, the next question is how do we actually content this WLP because this WLP now contain the thorium that we did not want. So how do we contain that? We contain the WLP in a residue storage facility and we say that it is actually safe and environmentally friendly design facility that will be able to actually contain this material safely. Eventhough the material contain very little amount of activity concentration but it is still under regulation and it is still need to be contained.*

*The way that we contain, we don't excavate, we don't dig a hole in the ground but we do it like a dam and embankment. So this is how it is going to look like when you go outside. This is the place that we called the RSF, residue storages facility, for the tailing or the residue. This is where the material is going to be, and this material has been protected by dual liner system at the bottom and also at the site here. Dual liner system comprised of two materials which is a clay liner and also the HDPE liner. Why do we actually choose HDPE and clay is because of its impermeability. Impermeability is actually the measure of how water can penetrate through and the specification is at least we have to have one to 10 minus eight meter per second. Meaning to say that when we put water on top of this layer of clay and HDPE, water cannot seek through. This is very important because we have this material here and we did not want any rain water that comes in and get into contact with the material be able to go into the ground. So, that is how we protect the environment.*

*But that is not the end of the story. Before we even do this, we did good ground preparation before we construct the residue storage facility, and how we do that? In the first place when we got the land, let say this is the ground level, we knew that the water table is about two meters from the ground level, but when we got the land, the contractor actually replace top layer of the vegetation and they fill up the top layer of the ground with local fill, it is about 1.4 meters. On top of this, they put another layer of ...*

**Seorang Ahli:** *This is the local..., earth?*

**Encik Khairul Salleh Jais:** *Earth. So on top of that we put in-situ soil... [Gangguan sistem rakaman] Any airilah, water table.*

**Dato' Mashal Ahmad:** *One of the addition Yang Berhormat, but the opposition group, whoever. They say that it is wrong to build the plant there because that is the swampy area and the water table is only two meter below the ground and then when you build you storage, you dig into the ground. So the explanation is very simple, what they say is wrong. We are 4.2 meter above the water table and then we put all sort of protection to prevent...*

**Datuk Abd. Rahman Dahlan:** *Dia tidak galilah.*

**Dato' Mashal Ahmad:** *Kita tidak gali and then we are on top, 4.2 meter plus all what Khairul has mentioned just now. But they are very good at saying.*

**Encik Khairul Salleh Jais:** *On top of that as another precaution, in between the bottom part after the clay and also the HDPE, we put in what we called geotextile, which is actually a leak detection system. This line here is what we call the leak detection system, flownet geotextile. In case of even if we have put in... [Gangguan sistem rakaman] ...Details of clay and HDPE, when I said it is impermeable, one to 10 minus eight meter per second. In case there is seepage of water, underneath this, we have put in this geotextile to actually behave like a sponge. Any seepage will be absorb and will be collected in this layer and will be pump out from the system, I will explain again after this but I would like to go back to this slide.*

**Tuan Liang Teck Meng:** *Sorry, sorry question. This WLP where is kept in storage, it will be not be disappear or it will be kept forever?*

**Encik Khairul Salleh Jais:** *No, no. The technical designs for this facility enable us to actually to keep it forever if we wanted to. But our condition of license does not allow for us to actually store it forever. Our condition of license says that we must have at least six years of capacity within the site and in addition to that, we need to conduct a research and development such that this material will be recycled and reused. So in term of the engineering construction and design, we can store it permanently but it is not allowed by our license condition.*

**Dato' Zulkifli bin Noordin:** *How do you detect if there is any seepage or leakage?*

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**Encik Khairul Salleh Jais:** *Okey saya tunjukkan di sini ya. Ini tadi yang the layer leak detection system, katakan di atas ini ada seepage of water through the clay and also the HDPE, dia ini semacam span. Air yang akan turun akan diserap dan this level is actually a bit inclined ataupun sloping kepada satu saf, satu correction system di sini dan kita ada satu...*

**Dato' Zulkifli bin Noordin:** *Ada takungan?*

**Encik Khairul Salleh:** *Ada takungan. Kemudian kita ada instrumentation, conductivity meter untuk...*

**Dato' Zulkifli bin Noordin:** *Takungan itu is to trap the... [Disampuk]*

**Encik Khairul Salleh Jais:** *In case kalau ada.*

**Dato' Zulkifli bin Noordin:** *Kalau ada.*

**Encik Khairul Salleh Jais:** *Akan tetapi sebenarnya...*

**Dato' Zulkifli bin Noordin:** *Kalau berlaku itu, how do you know?*

**Encik Khairul Salleh Jais:** *Dekat instrumentation yang ini...*

**Dato' Zulkifli bin Noordin:** *Di mana?*

**Encik Khairul Salleh Jais:** *Benda 'alah' ini.*

**Dato' Zulkifli bin Noordin:** *Who control it?*

**Encik Khairul Salleh Jais:** *Ini ada dalam kita punya control system. So, maknanya katakan di sini ada air, diserap air, the water will be collected here, this will be detected by the instrumentation...*

**Dato' Zulkifli bin Noordin:** *Ada detector lah.*

**Encik Khairul Salleh:** *Ada detector, kemudian kita akan tahu dan kita akan pump out the water. So, air yang saya hendak...*

**Tuan Teng Boon Soon:** *Memang ada mekanisme untuk memantaukah?*

**Encik Khairul Salleh Jais:** *Ada, ada.*

**Tuan Pengerusi:** *Semua...*

**Dato' Zulkifli bin Noordin:** *Monitored by AELB?*

**Encik Khairul Salleh Jais:** Yes.

**Tuan Pengerusi:** Semua ini...

**Dato' Zulkifli bin Noordin:** *You are statutorily bound to inform AELB?*

**Beberapa Ahli:** Yes.

**Tuan Pengerusi:** AELB lah yang enforce.

**Encik Khairul Salleh Jais:** *They can come anytime and we are statutorily reportable to them.*

**Tuan Pengerusi:** Ini soal pihak yang *object*, dia tidak terdedah atau tidak dimaklumkan mengenai soal ini? Adakah usaha dilakukan untuk... *[Disampuk]* Ada atau tidak MP protes?

**Dato' Mashal Ahmad:** Okey, saya jawab. *One of the penambahbaikan oleh IAEA, dia mengatakan bahawa Lynas tidak buat public engagement. So, we go all out. We make public engagement and report to MITI. We make about 1,000 people monthly. Every Saturday and Sunday buat kerja itu sahaja, cakap benda sama. Now, I am stated in the press all the time we invited, we invite any groups who are interested to come here review our document, meet the professor and what knot, go and check in the plant and then make your own decision. We also invite them to bring their expert to do whatever analysis they want, joint monitoring with us. All group responded except two groups. One group is the Badar, which is PAS punya splinter group. I send my people, I have said this in the press. They said they want to come, it's only a year they didn't come.*

*Now, the other group is the Save Malaysia Stop Lynas group. Dia menyahut seruan atau jemputan kita but they replied with lapan syarat, we will distribute the email. They said they want – "Yes, we will come to your plant dengan lapan syarat. We will bring the lawyers. We will take video anywhere we want to take, we walk anywhere we want to walk." Adalah lapan syarat tetapi satu syarat which I find it very funny, "No reporters". We will distribute. These are in black and white. I talk based on fact Yang Berhormat. They did not come, because of that I said no because I find that lapan syarat – first, you want to come to my house. When you run chemical plant, first thing you do not allow people to bring video or camera because your intellectual property but we said go ahead, if you want go anywhere, go ahead. Normally, you don't allow because of the safety reason. Do what you want but when I saw or you want to bring lawyers, lawyers kan, bawa. But they say no reporters and I got to send another... I made a decision no because I find that something is not right. Anyway, full stop at that one.*

*And then in October they went to see MITI, bukan? Can I say that? They went to MITI, they complaint that they were not allowed to come in and Datuk Rebecca, the KSU said "Look, I am making an official visit 30th November." So, when Datuk was here, di tempat Tuan Pengerusi duduk, they did not come. Yang Berhormat Kuantan, all these yang Save Malaysia itu.*

**Dato' Abd. Rahman Dahlan:** Tadi yang you kata lapan *demand* atau syarat itu, you agreeable except for the reporter part ataupun macam mana?

**Dato' Mashal Ahmad:** No, when I baca itu, I got no problem, nothing to hide but I made the decision because I find there is an ill intend. That was my decision. I can say you cannot come because you cannot take video. Why? Kalau Yang Berhormat pergi *Kentucky Fried Chicken*, you hendak video dia punya dapur pun dia tidak bagi but I got nothing to hide, you go. But the fact that when I start reading all this thing, I find no, it's going to create more trouble than necessary.

**Tuan Liang Teck Meng:** [Bercakap tanpa menggunakan pembesar suara]

**Dato' Mashal Ahmad:** I tidak ingatlah Yang Berhormat.

**Dato' Abd. Rahman Dahlan:** This one is on October 2011.

**Dato' Mashal Ahmad:** Yes, and then they complained to MITI kita tidak bagi dia masuk and then MITI kata, Datuk Rebecca kata, follow me. That appointment was made one month before that and they didn't come.

**Dato' Zulkifli bin Noordin:** Yang Berhormat Kuantan never came?

**Dato' Mashal Ahmad:** Dia tidak pernah datang.

**Dato' Abd. Rahman Dahlan:** Tidak pernah datang ke sini?

**Dato' Mashal Ahmad:** Tidak pernah datang and this group never...

**Dato' Zulkifli bin Noordin:** Yang Berhormat Dr. Che Rosli?

**Dato' Mashal Ahmad:** Apa?

**Dato' Zulkifli bin Noordin:** Yang Berhormat Dr. Che Rosli?

**Dato' Mashal Ahmad:** Yang Berhormat Dr. Che Rosli, dia tidak datang sini but we have a number of – kita show document. We show our document, all this Radiological Impact Assessment (RIA). He has seen the document. Kita tunjuk sampel macam kita hendak tunjuk pada Yang Berhormat jugalah, same thing. He didn't come but he has seen all the document and the material.

**Dato' Zulkifli bin Noordin:** That is why he came out with that statement?

**Dato' Mashal Ahmad:** Yes, yes.

**Dato' Zulkifli bin Noordin:** After he has seen all that?

**Dato' Mashal Ahmad:** Yes, after he has seen all that.

**Dato' Abd. Rahman Dahlan:** So, Yang Berhormat Fuziah tidak pernah datang ke sini but has she ever engage with you all? Yang Berhormat Fuziah talk directly to Lynas, none?

**Dato' Mashal Ahmad:** As far as – I cannot remember, I think none but through the Save Malaysia group, I tidak tahulah but she didn't.

**Dato' Abd. Rahman Dahlan:** So, maknanya Tan Bun Teet ini, nama pun...

**Dato' Mashal Ahmad:** Itu Chairman.

**Dato' Abd. Rahman Dahlan:** Ya, Tan Bun Teet ini. Sejak daripada ini dia sudah tidak ada komunikasi dengan Lynas langsung?

**Dato' Mashal Ahmad:** Sekarang tidak adalah sebab *it's a court case. If he want to talk to me also I tidak hendaklah sebab that is a court case pending.*

**Dato' Abd. Rahman Dahlan:** *Judicial review?*

**Dato' Mashal Ahmad:** *No, no, no. Kita saman dia.*

**Tuan Teng Boon Soon:** Baru-baru ini.

**Tuan Pengerusi:** Panjang lagikah ini?

**Encik Khairul Salleh Jais:** Panjang sedikit tetapi penting.

**Tuan Pengerusi:** Okey. *[Ketawa]*

**Tuan Teng Boon Soon:** Boleh saya satu soalan tadi tentang *layer, so many layers?*

**Encik Khairul Salleh Jais:** *Yes, yes.*

**Tuan Teng Boon Soon:** *What is the life span of this layer?*

**Encik Khairul Salleh Jais:** *Okay, the reason why we choose clay. Clay is the naturally...*

**Tuan Pengerusi:** Saya suruh *press* masuk untuk ambil gambar sahaja. *So, you continue lah.* Kita buat *acting* sedikit.

**Encik Khairul Salleh Jais:** *Clay* ini adalah barang yang natural. Jadi bila barang natural, dia tidak suka di konkrit. Kalau kita letak konkrit di bawa, konkrit mungkin akan *crack. Naturally clay, dia tidak akan crack. So, disebabkan itu kita rasa adalah lebih baik kita letak clay daripada konkrit. That is my answer.*

**Dato' Zulkifli bin Noordin:** Dia punya *life span?*

**Encik Khairul Salleh Jais:** *Clay forever. Clay biasa, tanah.*

**Dato' Mashal Ahmad:** Yang Berhormat, *this radioactive thorium*, dia semula jadi suka pada *clay*. Kalau dia lalu dia mesti lekat.

**Encik Khairul Salleh Jais:** Dia *affinity...*

**Dato' Mashal Ahmad:** *Affinity is to clay.*

**Encik Khairul Salleh Jais:** *It doesn't like water.*

**Dato' Zulkifli bin Noordin:** *Thorium* dengan apa?

**Dato' Mashal Ahmad:** *Pardon?*

**Encik Khairul Salleh Jais:** *Thorium, thorium.*

**Dato' Mashal Ahmad:** Torium ini, bahan *radioactive* yang saya cakap ini, Allah buat dia semula jadi apabila dia jumpa *clay*, dia lekat pada *clay*.

**Encik Khairul Salleh Jais:** Dia ada dua sifat, dia tidak suka air...

**Tuan Pengerusi:** Sifat dia macam itu.

**Dato' Mashal Ahmad:** Ya, sifat dia macam itu.

**Encik Khairul Salleh Jais:** Dia tidak suka air dan dia *affinity to clay*.

**Tuan Teng Boon Soon:** Saya gunakan *layer* macam span, benda macam span, plastik kah. Jadi, *what is the life span of this material?*

**Encik Khairul Salleh Jais:** *I think maybe 40 years or whatever but then the sponge, the leak detecting system is not actually the barrier, it is actually to detect the leak. The barrier is the clay.*

**Tuan Teng Boon Soon:** *Is the clay.*

**Encik Khairul Salleh Jais:** *Yes.*

**Dato' Zulkifli bin Noordin:** *That is forever?*

**Encik Khairul Salleh Jais:** *Forever. Tanah yang kita ambil daripada kuari-kuari ini, di mana sebelum kita pakai, kita buat testing untuk dia punya permeability,  $1 \times 10^{-8}$  meter per second.*

**Tuan Teng Boon Soon:** *How thick is the clay?*

**Encik Khairul Salleh Jais:** *300 mm.*

**Tuan Teng Boon Soon:** *300 mm. Which is this one?*

**Tuan Liang Teck Meng:** *So, WLP, dia punya property ataupun characteristic change as time goes by?*

**Encik Khairul Salleh Jais:** *Tidak. Kalau dia mengandungi 0.165% torium, maka that is going to be forever like that because there is no reaction that's going on. There is no chemical being put in the storage facility, it will be there like that. Unless if the pH changes or whatever, but there is nothing going to influence the change in pH. In fact, air hujan pun akan membantu supaya pH itu akan maintain neutral.*

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Jadi, yang satu lagi perkara yang penting yang saya ingin share adalah apabila ditanya kalau hujan yang lebat apa akan jadi, akankah material ini akan melimpah keluar? Jadi semasa kita design, kita ikut MASMA, JKR punya standard dan juga Australia punya standard di mana kita design supaya air yang di dalam takungan...

**Dato' Zulkifli bin Noordin:** *Just before saya lupa. Kalau ada leakage just in case the worst scenario ada leakage, ada seepaganya, apa dia punya – your emergency respond?*

**Dato' Mashal Ahmad:** *Yang Berhormat, dalam Radiological Impact Assessment, dia mengambil kira the worst case scenario bagaimana kita tidak meletak yang lapisan-lapisan itu. Kita letak begitu biar dia masuk kepada air ya. Anybody remember the impact over hundred year's yang ikan apa itu.*

**Profesor Ismail Bahari:** *There is actually inmeasurable.*

**Dato' Mashal Ahmad:** *Unmeasurable.*

**Profesor Ismail Bahari:** *It is actually zero point zero, zero – empat kali zero. So that is based on our calculation. Memang...*

**Dato' Zulkifli bin Noordin:** *Kalau ada leakage pun?*

**Profesor Ismail Bahari:** *Walaupun ada leakage.*

**Encik Khairul Salleh Jais:** *Ya, tanpa ada barrier.*

**Profesor Ismail Bahari:** Tanpa ada *barrier*.

**Dato' Mashal Ahmad:** Yang Berhormat, *Radiological Impact Assessment* adalah diambil *worst case*. Dalam kes ini, *the worst case* adalah bagaimana benda itu letak sahaja di atas tanah tanpa ada lapisan tiga, empat kali – letak begitu sahaja *and then* dia akan masuk dalam air punya itu, *and then* akhirnya dia pergi kepada ikan dan orang akan makan ikan *and then* dia kata...  
[Disampuk] Oh, itu kerja dia.

**Dato' Abd. Rahman Dahlan:** *Who did RIA again?*

**Dato' Mashal Ahmad:** *The radiological impact assessment has to be approved by AELB but it's done by Nuclear Malaysia...*

**Dato' Abd. Rahman Dahlan:** *Commission by you all ya?*

**Dato' Mashal Ahmad:** *Yes, yes.*

**Dato' Zulkifli bin Noordin:** *You are saying the water waste is safe? Are you saying that?*

**Dato' Mashal Ahmad:** *When we do the Radiological Impact Assessment, they study all the water waste macam mana orang makan melalui ikan, melalui air and the impact is...*

**Dato' Zulkifli bin Noordin:** *Can I say that I can use the water waste in the aquarium? Can I say that? The water waste...*

**Encik Khairul Salleh Jais:** Boleh, boleh. Kita memang *plan* untuk letak ikan.

**Dato' Mashal Ahmad:** Oh! Hendak guna air bubuh dalam akuarium.

**Dato' Zulkifli bin Noordin:** Ha! Bubuh ikan dalam itu.

**Encik Khairul Salleh Jais:** Boleh. Okey, macam saya kata tadi, torium ini dia tidak *soluble* dalam *water*. Jadi dalam *Radiological Impact Assessment (RIA)* yang dilakukan oleh *Nuclear Malaysia* dan kemudian *by Bangi Ray*, menggunakan kaedah yang menggunakan *software* yang dinamakan *ResRad*. *ResRad* ini digunakan oleh *Argonne National Laboratory from the US*. *It is being used by everybody*. Disebabkan torium ini tidak *soluble*, maka perkiraan yang dilakukan menunjukkan bahawa jika tidak ada *this dual protection layer* pun, maka air tidak akan *affected* oleh torium itu sebab torium itu tidak akan *leach out*...

**Dato' Mashal Ahmad:** Tidak larut.

**Encik Khairul Salleh Jais:** Tidak larut ke dalam air. Makanya, boleh air itu digunakan dalam akuarium dan pelan saya juga kemudian hari adalah saya akan membela ikan seperti mana industri lain yang telah mereka lakukan...

**Dato' Zulkifli bin Noordin:** *Why you use that? Alih kepada pond, bolehkah?*

**Encik Khairul Salleh Jais:** Boleh. Memang kita akan buat.

**Dato' Mashal Ahmad:** Yang Berhormat, *we are going to put fish*, kita akan *monitor* semua benda ini.

**Raja Dato' Abd Aziz bin Raja Adnan:** Dan bagi *regulatory body*, *we will collect this fishes and then we will monitor whether there is any thorium...*

**Dato' Abd. Rahman Dahlan:** *What was your frequency? What was the schedule? Is it scheduled...*

**Dato' Mashal Ahmad:** Skala.

**Raja Dato' Abd Aziz bin Raja Adnan:** *In fact by design and because of the recommendation by the IAEA, we will send up an officer and we have a temporary office now. In terms of frequency, it will be scheduled as well.*

**Dato' Mashal Ahmad:** *Consult.*

**Encik Khairul Salleh Jais:** *Normally the authorities will also do spot check unannounced by the DOE.*

**Dato' Zulkifli bin Noordin:** *So, basically the protective all this precautions semua is to comply with the law rather than...*

**Encik Khairul Salleh Jais:** *We have to comply with the law and also we want to be sure ourselves that we will be complying with the law at all times.*

**Tuan Liang Teck Meng:** *This is a new design or is conventional design?*

**Dato' Mashal Ahmad:** *It's an international design.*

**Tuan Liang Teck Meng:** *And it is also design for the other plant in the international standard?*

**Dato' Mashal Ahmad:** *International design.*

**Encik Khairul Salleh Jais:** *The design that we follow, we follow some design that was done in America, Nevada and Australia, whereby they are more experience and more knowledgeable in uranium mining, for example in thorium uranium tailing and in also experience in building big dams.*

**Dato' Zulkifli bin Noordin:** *Is there any other working plant in the other part of the world that showed this waste water treatment? Is there any other comparable plant?*

**Encik Khairul Salleh Jais:** *Maksud Yang Berhormat yang rare earth industry?*

**Dato' Zulkifli bin Noordin:** *Ya. Macam di France itu, what did they do with the water waste?*

**Encik Khairul Salleh Jais:** *In France, kilang dia adalah separuh daripada kilang kita, which is a down stream. Bermaknanya yang up stream tadi itu – sebab the waste in digeneratedkan up stream. Jadi yang up stream ini banyak di negara China.*

**Dato' Zulkifli bin Noordin:** *Ada tidak yang tunjuk...*

**Encik Khairul Salleh Jais:** *Saya tidak hendak quote, tetapi kebanyakannya dia tidak buat macam kitalah.*

**Dato' Zulkifli bin Noordin:** *Dia buang?*

**Encik Khairul Salleh Jais:** *Saya rasalah.*

**Dato' Zulkifli bin Noordin:** *And there is no experience of environmental or health issue?*

**Encik Khairul Salleh Jais:** Macam tadi Profesor Badrul cakap *in Baotou* ada isulah.

**Dato' Zulkifli bin Noordin:** *But that is regard to the mining.*

**Encik Khairul Salleh Jais:** *Which is actually yang katanya mining itu tadi itu starting from point A to point Z. Point A di mana dia main...*

**Dato' Zulkifli bin Noordin:** *So, that is no comparable. I am talking about comparable facilities yang ada water waste.*

**Encik Khairul Salleh Jais:** Tidak ada, sebabnya Yang Berhormat, yang ini bila kita cakap tentang *water* adalah *water* yang mungkin tercemar kerana bahan *residue* kita, tetapi di China, bahan *residue* itu ia tidak memberi perhatian seperti mana yang kita bagikan, kemungkinan *residue* yang di *produce* itu memang terdedah dengan air atau tidak dilindungi dengan *barrier-barrier* tersebut. Jadi saya mungkin tidak boleh komen banyak sangatlah dengan *practice* yang dilakukan oleh mereka.

**Profesor Ismail Bahari:** Mungkin saya boleh bagi satu contoh Yang Berhormat. Di lombong-lombong, bekas lombong-lombong timah ini, dia ada ikan dan sebagainya. *They are exposed with the same thorium and uranium content within the lombong* tetapi orang masih *fishing*.

**Dato' Zulkifli bin Noordin:** Macam jalan hendak pergi Batu Gajah semua itu?

**Dato' Mashal Ahmad:** Ya.

**Profesor Ismail Bahari:** *It is in the mines. The mines are huge in mining area...*

**Dato' Zulkifli bin Noordin:** *The same type of...*

**Profesor Ismail Bahari:** *The same water.*

**Tuan Liang Teck Meng:** *A few expert have visited this one, nak banding ya. So, what was their remark or comment?*

**Encik Khairul Salleh Jais:** *I had a German expert, I had some American and Chinese expert and I think the comments are actually in some reports of the symposium that they are attended too. Those comments were very positive in like of what they have seen in our facility.*

**Profesor Ismail Bahari:** *May I? Mr. Christoph Wilhem, head of the Analytical body, the German guy, he said, I quote "Lynas in radiological monitoring system is a state of the art technology". That's what he said in the last trip during the intellectual discourse, I think Professor Badrul was there.*

**Dato' Abd. Rahman Dahlan:** *Yes, we went there*

**Profesor Ismail Bahari:** *Okay. So that...*

**Dato' Mashal Ahmad:** *And then yang satu lagi itu dia cakap this – in fact I punya statement when dia cakap the safest and the most advance rare earth plant, that is what he said and is displayed in Bernama news on...*

**Tuan Pengerusi:** *We are running short time.*

**Encik Khairul Salleh Jais:** Boleh saya ambil lagi tiga minit? Ini kerana yang ini sangat penting. Cara kita *manage water* adalah juga – semasa kita membina *storage facility* ini, kita ambil *into account what we called the 100 ARI, annual recurrence incident of an event 72 hours non stop rain*. Bermaknanya, kalau ada *the worst case scenario over 72 hour non stop rain, data is been collected, what is actually the* taburan hujan yang terjadilah. Dalam kes ini, data itu menunjukkan 850 milimeter. Jadi kita ambil 850 milimeter takungan hujan itu, *which is actually a 100 ARI 72 hour rain event*, kita tambah 500 milimeter sebagai kita punya *safety factor* dan kita jadikan ia sebagai *free board*. Bermaknanya *at any one time*, bila benda ini sudah maksimum pun, kita akan ada 800 campur 500 milimeter *which is 1.35 millimeter distance from the top to the surface of the material*.

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Bermakna, jika katakan dalam dua bulan daripada sekarang, *event 72 hours of non stop rain* terjadi tetapi kebarangkaliannya adalah *very remote, because it is 100 annual recurrent incident (ARI)*. Katakanlah terjadi, maka kita akan dapat taburan hujan sebanyak 850 milimeter di atas ini tetapi *still* ia tidak akan melimpah keluar kerana kita letak lagi 500 milimeter. *So, meaning to say, in the worst case scenario* kalau ada hujan yang berpanjangan, air yang *collected* di sini tidak akan keluar dan bermaknanya *material* yang disimpan di sini tidak akan *become something* yang *uncontained*. Itu adalah *the worst case scenario*. Akan tetapi di dalam *normal operation*, apa yang kita buat, *that water in the WLP cell and it surrounding area is segregated and reprocessed in the unit*.

*This is very important for me to impress on the committee because* apabila hari-hari yang biasa di mana hujan sedikit ataupun bukan hujan yang banyak, kita akan ada satu, *what we called a decant tower*. Di sini kita ada *pumping facility*, kita akan pam semua air itu keluar. Air tersebut akan dimasukkan ke dalam satu lagi takungan dan takungan itu akan balik kepada proses. Proses yang ia akan pergi itu adalah proses di sini, *leaching section*. Air yang kita *collect* pergi semula ke sini supaya jikalau ada kebarangkalian air hujan tersebut mengambil *material* ini bersamanya, ia akan dihantar balik ke proses ini supaya *any chances of thorium* akan pergi kepada air hujan tersebut akan pergi semula kepada *solid*.

**Dato' Mashal Ahmad:** *So, water in contact with radioactive material is fully recycled.*

**Encik Khairul Salleh Jais:** Ia tidak wujud kerana ia *fully recycled*.

**Dato' Mashal Ahmad:** *Fully recycled*. Ia tidak keluar.

**Dato' Abd. Rahman Dahlan:** *Must it be open air containment?*

**Encik Khairul Salleh Jais:** *It is open* disebabkan kerana apabila kita *run the operation 24 hours a day*, kita akan *produce this material, then material* ini akan dibawa masuk ke dalam ini.

**Dato' Abd. Rahman Dahlan:** Ya, *but isn't there...*

**Dato' Mashal Ahmad:** Ia basahlah. Ia tidak ada *air borne* sebab ia sudah basah.

**Encik Khairul Salleh Jais:** Akan tetapi ia mengandungi 40% *moisture*.

**Dato' Mashal Ahmad:** Lembap.

**Encik Khairul Salleh Jais:** Ia lembap seperti...

**Dato' Abd. Rahman Dahlan:** Maksud saya dari segi hujan tadi itu, *if you put a bumbung on top, I mean, is that just the design or...*

**Encik Khairul Salleh Jais:** *It is the way that we design with no bumbung, because we also wanted maybe in the dry weather, the rain can actually help maintained the moisture level. The moisture level yang ada sediakala adalah 40% tetapi kalau dalam kes-kes di mana mungkin hari yang panas, kita mungkin boleh mendapat bantuan daripada hujan dan kita pun ada wetting facility di sini.*

**Dato' Abd. Rahman Dahlan:** *You really also actually want to maintain it moist?*

**Encik Khairul Salleh Jais:** Yes.

**Dato' Mashal Ahmad:** Yes, sir. No air borne.

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

**Encik Khairul Salleh Jais:** Ya.

**Dato' Abd. Rahman Dahlan:** *I see.*

**Dato' Mashal Ahmad:** Basahlah, basah.

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

**Tuan Teng Boon Soon:** *What happen if due to the nature of unpredictable climate change, if the water flow out?*

**Dato' Zulkifli bin Noordin:** *That is why I asked just now.*

**Encik Khairul Salleh Jais:** Okay. Sebentar, before I answer that, I also would like to mention juga. This embankment here, this dam atau embankment, it is going to be nine meters high. Say for example, there is unlikely case of tsunami that affects Kuantan, this is six kilometers away from the sea and then the sea will have to go above that nine meters to actually 'scourage' the material and push it out. So, walaupun ia terjadi seperti yang saya kata, torium itu tidak soluble dalam water. Ia akan keluar dari situ selepas tsunami yang tinggi lebih daripada sembilan meter, ia pergi kepada tanah-tanah biasa, ia akan disperse. Jadi, bila concept of dispersion, ia semula jadi adalah kandungan yang rendah which is enam Becquerel tadi ataupun 0.165%. Apabila ia disperse kepada satu permukaan yang lebih tinggi, maka ia jadi lebih tidak bahaya.

**Dato' Mashal Ahmad:** Yang Berhormat, apabila duduk dalam sel itu, kita control sebab ia enam Becquerel pergram. Kalaulah malapetaka jadi, ia ini di tebar. Air datang dengan tsunamikah, jadi ia di tebar. So, ia sudah dillutelah. Instead of six Becquerel pergram, ia jadi below than one Becquerel pergram. Jadi, ia outside the – bukan radioaktif lagilah, seperti tanah di belakang rumah kitalah.

**Dato' Abd. Rahman Dahlan:** *But, you mention tadi, you kata whether or not satu botol air dengan 10 botol air kemanisan yang sama, it is not about the quantity but the radioactivity, bukan?*

**Encik Khairul Salleh Jais:** *Concentration.*

**Dato' Mashal Ahmad:** *Concentration, ya.*

**Dato' Abd. Rahman Dahlan:** *So, when you are saying right now, in that residual of storage is about six Becquerel, if you tebarkan ke semua sudut merata tempat, it will go lower?*

**Encik Khairul Salleh Jais:** *Lower.*

**Dato' Mashal Ahmad:** *Yes, ia dillutelah. Seperti tadi I kata, isi satu gula dalam ni, sebanyak ini, bukan? Akan tetapi kalau I isi ini dalam baldi, selepas itu tambah air biasa, ia dillutelah. Tadi I cakap semua ada gula, bukan?*

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

**Dato' Mashal Ahmad:** *So, when I put, it is all the same. But now I get another ten bottles, but no sugar. No sugar, bukan? Then, ia dillutelah.*

**Profesor Ismail Bahari:** *Akan tetapi Dato' I would like to add.*

**Dato' Mashal Ahmad:** *Ya, cerita.*

**Profesor Ismail Bahari:** *I would like to stress on very important point. The way that we are discussing here, it appears that we are working within radioactive waste. I think I like to put the record straight.*

**Dato' Abd. Rahman Dahlan:** *No, we understand that.*

**Profesor Ismail Bahari:** *Ya. Because it is what I have been hearing from what people have been saying. The bottom line is, what is this six Becquerel pergram?*

**Dato' Abd. Rahman Dahlan:** *Profesor, profesor...*

**Profesor Ismail Bahari:** *It is really...*

**Dato' Abd. Rahman Dahlan:** *Sorry profesor. I just want to like you know. Most of the thing that we mentioned here are basically the complaints from the public.*

**Profesor Ismail Bahari:** *That is why I am sharing you. No, what I am trying to say is this. I would like to share with you, to give you a perspective that six Becquerel pergram in certain parts of the world is actually background.*

**Dato' Mashal Ahamd:** *Normal.*

**Profesor Ismail Bahari:** *It is normal soil. Meaning to say, what you are looking here, in some countries, are actually in the beach, on the beach. Actually I just got one sample from Kerala, India this morning. Just to give the Members of the PSC, that what we are dealing with is not an elevated amount to an extent that will create scare and fears, but actually we are working with environmental sample. That one I think you need to put emphasize on. So that if we can agree to that...*

**Dato' Zulkifli bin Noordin:** *Any local sample?*

**Dato' Mashal Ahmad:** *Langkawi.*

**Profesor Ismail Bahari:** *We do have. In fact, I have got one from the amang plant.*

**Dato' Zulkifli bin Noordin:** Amang?

**Prof Ismail Bahari:** *I can show you.*

**Dato' Zulkifli bin Noordin:** *From where?*

**Profesor Ismail Bahari:** *From Perak. I will show to you afterwards, demonstrate to you what we actually have in the amang industries which is not licensed and what we have normal which is...*

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

**Profesor Ismail Bahari:** *Exempted, sorry.*

**Beberapa Ahli:** *[Ketawa]*

**Profesor Ismail Bahari:** *Thank you Dato'.*

**Raja Dato' Abd Aziz bin Raja Adnan:** *And we are still regulate.*

**Profesor Ismail Bahari:** *Yes, that is right. And the beach sand of Kerala, India, I will show you what actually the WLP is, you will be very surprise.*

**Dato' Abd. Rahman Dahlan:** *Mereka ini pandai, profesor. When you say like this, then they will say with you, "Why don't you do it on your own backyard?"*

**Profesor Ismail Bahari:** *Ya, we have answered them.*

**Dato' Abd. Rahman Dahlan:** *No. Kalau I cakap seperti itu, dia kata, "Yang Berhormat duduk in Kota Belud bukan..."*

**Beberapa Ahli:** *[Ketawa]*

**Dato' Abd. Rahman Dahlan:** *I said boleh, but together with the chemical plants and everythinglah. You can't just give this to Kota Belud, because the reason why you are in Gebeng because of all the plants.*

**Profesor Ismail Bahari:** *That is why I think it is very important to have this perspective rather than – although I share the concern, but we must not forget it is background radioactivity concentration. Nothing more, nothing less. So, this is very important.*

**Dato' Mashal Ahmad:** *And that one higher is exempted.*

**Dato' Zulkifli bin Noordin:** *Why exempted?*

**Profesor Ismail Bahari:** *This is the rational of my discretion.*

**Dato' Mashal Ahmad:** *Dato', the higher is exempted, bukan? Because they have been living for 100 of years nothing happen and we the lower one get all the exaction.*

**Dato' Zulkifli bin Noordin:** *Saya masa kecil, saya berenang dekat lombong itu.*

**Beberapa Ahli:** *[Ketawa]*

**Encik Khairul Salleh Jais:** *Tuan Pengerusi, saya ada satu lagi yang penting. Kita telah cover air, kita telah cover bagaimana kita jaga barang tersebut dan saya hendak cover sekarang udara. So, udara kita ada five stage cover system. This is first stage, second stage, third stage, fourth stage, and fifth stage. Sistem ini diguna pakai secara menyeluruh di seluruh dalam coal*

*industry. Coal industry pun ia ada produce fly ash and all these things yang mengandungi juga traces of radioactivity. So, kita pakai konsep yang sama. Akan tetapi apa yang dilaksanakan oleh sistem ini adalah kita akan treat from acid mist, SO<sub>3</sub>, SO<sub>2</sub>, dan dust. Ini adalah limit DOE, okey, saya tidak ada masa sekarang. Akan tetapi apa yang saya hendak katakan di sini, dekat kita punya cerobong yang keluar itu, kita mengikuti peraturan DOE di mana kita perlu pasang Continuous Emission Monitoring System (CEMS).*

Katakanlah ini kilang Lynas, ini BASF dan ini Petronas, *so, we are just one of them.* Ia akan pergi hantar dari kita punya stack pergi kepada DOE *online, straight,* untuk DOE mendapatkan segala data yang diperlukan untuk memastikan kami *comply* kepada *the clean air regulation. In addition to that,* kita juga telah beli dan pasang dua unit of *air borne monitoring system* di mana ini adalah *specifically* untuk monitor *the exposure level from radioactivity.*

**Raja Dato' Abd Aziz bin Raja Adnan:** *Air borne.*

**Encik Khairul Salleh Jais:** *Air borne.* Satunya di IPD Kuantan. Satunya di Lynas Malaysia. Ini kita punya – *Mr. Wee* tunjuk gambar ini, *current readings* semasa sebelum kita beroperasi. Jadi, *public will be able to always come to us or go to IPD Kuantan to see what is actually the exposure level from our air borne monitoring system.*

**Raja Dato' Abd Aziz bin Raja Adnan:** *That is the* pejabat sementara AELB.

**Encik Khairul Salleh Jais:** Ya, ini adalah pejabat sementara AELB.

*[Gangguan sistem rakaman]*

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**Tuan Pengerusi:** Ada dua perkara *I just want to know ask. Are you still open for the public to come and engage with you for all this questioning?*

**Dato' Mashal Ahmad:** Yang Berhormat Menteri, *the offers still stand. Any group – yang court case* saya tidak mahulah *because court case let the court handle there. We are still open to any group who are interested to come and see our document, visit the plant and ask question. That is number one. I also open to all the groups bringing your relevant expert to do joint sampling and monitoring because it is done by Lynas and the authorities. If we give them the result, then they say konspirasikah apa. You come but you must bring your relevant expert, do the joint sampling and analysis. So it is simple Dato'.*

**Tuan Pengerusi:** *What is the basis of your suit against that group?*

**Dato' Mashal Ahmad:** *Okay. The basis of the suit is because of defamation, using all wrong information. So that is the suit.*

**Tuan Pengerusi:** *So which means you are very confident of what you say is factual and then what they are trying to do is defame?*

**Dato' Mashal Ahmad:** Tuan Pengerusi, *we only talking on fact. That is the basis of our existence.*

**Tuan Pengerusi:** *Can we do an independent baseline measurement? What we have is your baseline measurement.*

**Dato' Mashal Ahmad:** *Okey. Kita – Dato' Raja, you want to speak on this?*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *In the condition of the license for temporary operating licenses, we put on that the authority will have independent body that who were verify or top of the authorities. Ini kerana one of the argument is that there is no one authority which does environment, that does radiological safety, that does DOSH. So there is no one. We are looking at what registered, very well known audit punya – and also the DNP. But they are mainly on petrochemical and chemical. So they were be doing there and we will have this auditors.*

**Dato' Mashal Ahmad:** *That one Tuan Pengerusi, is when we allowed to operate. But..., over and above the requirement to fulfill, kita buat cancer research for Gebeng and Kuantan...*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Cancer prevalence.*

**Dato' Mashal Ahmad:** *Cancer prevalence research. It cost me about more than half a million ringgit.*

**Tuan Pengerusi:** *Under phrases it come to us. We only just want to know Lynas punya because it is public punya...*

**Dato' Mashal Ahmad:** *No. The want we did is commissioned by the authorities. They choose the consultant, but we bear the cost.*

*Then the other one, the authorities dia buat – tadi cancer prevalence on people, the other one is what are the naturally occurring radiation di Gebeng, di Kuantan, the background radiation, also we pay. So they choose, we pay.*

**Tuan Pengerusi:** *So it is not being done by...*

**Dato' Mashal Ahmad:** *No, no. It is done by expert consultant chosen and approve by them, we pay. That is all.*

**Tuan Teng Boon Soon:** *It must be an independent team.*

**Dato' Mashal Ahmad:** *No. Nothing to do with me. That is authority.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *It is not from them.*

**Dato' Abd. Rahman Dahlan:** *They only pay money.*

**Tuan Teng Boon Soon:** *They pay the money.*

**Dato' Mashal Ahmad:** *We pay but we have not get our license yet. [Ketawa]*

**Tuan Pengerusi:** *We must be careful in saying that Lynas doing investment management. It is because of the baseline, Lynas is only paying.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *On top of it, they also do baseline.*

**Tuan Pengerusi:** *We don't want to mention about the baseline they do, because currently we know how the public looking at.*

**Dato' Mashal Ahmad:** *We pay. Everything we pay.*

**Tuan Pengerusi:** *You can continue to pay everything.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Belum lagi. Belum buat tetapi we have buat down to satu sudah.*

**Dato' Mashal Ahmad:** *Apa dia? Akan datang. Jadi dia choose.*

**Dato' Zulkifli bin Noordin:** *You have no hand on it. You just pay.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *Nothing.*

**Dato' Mashal Ahmad:** *Dato', I got hand, I only pay... [Ketawa]*

**Tuan Teng Boon Soon:** *That's only consolidates your position.*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *The Jawatankuasa which is made up of DOE, MMA, Malaysian Institute of Engineers, they have decided.*

**Tuan Teng Boon Soon:** *Academy of Science.*

**Dato' Zulkifli bin Noordin:** *Baseline data gathering ini is on what area?*

**Dato' Mashal Ahmad:** *Okey. Baseline, satu yang kanser, satu lagi radiation semula jadi, background radiation. That is what yang the authorities are had choosen. Satu lagi focus on the authority. Sekarang kita buat background monitoring of the water, air dalam underground water, ana then kita perlu submit ini kepada DOE. Kualiti udara pun kita perlu buat. Semualah kita perlu ini...*

**Tuan Teng Boon Soon:** *Bila hendak start...*

**Dato' Mashal Ahmad:** *Sudah start dah. Sudah completed. Sudah habis.*

**Tuan Teng Boon Soon:** *Already start? Completed.*

**Dato' Mashal Ahmad:** *Already.*

*[Ahli-ahli berbincang sesama sendiri]*

**Raja Dato' Abdul Aziz bin Raja Adnan:** *In fact university also involved. If not, UMP particular, UPM, USM...*

**Dato' Zulkifli bin Noordin:** *Semua data itu sudah ada sudah?*

**Dato' Mashal Ahmad:** *Ada sudah. Ada Dato'.*

**Tuan Pengerusi:** *What are the circumstances we have to export the residues?*

**Dato' Mashal Ahmad:** *Are we talking about residues now?*

**Tuan Pengerusi:** *Sudah masuk waste.*

**Dato' Mashal Ahmad:** *Kita ada one more presentation. [Disampuk] Sudah habis. We got one more presentation. Tadi on safety, now we got one more presentation on waste. What we want to tell the committee, Yang Berhormat semua, is what we are going to do with the waste. Ini kerana we have 250 acres. By right we can make all this temporary storage facility that can last as many years. Apabila Yang Berhormat semua pergi lihat, our facilities is only about one year or one and the half sahaja. It is because we spent a lot of money on research. Even though the kilang does not produce the waste, we produce the waste form the laboratory from the lab, fire plant, very*

*expensive. So kita sudah buat research semua. Because we are very confident in our research for commercial application, that is why kita kata kita cuma buat small storage area sebab – and then only we can go to authorities. The authorities do not want to know our submission selagi kita tidak guna the actual waste.*

*So when you go the refund, kenapa sedikit sangat for one because we had spent million of ringgit doing research with Australia lab, England lab and also the universities, UMP, IKRAM dan sebagainya. So, is all done and I will get Mike Vaisey to tell where we are. So when the permanent depository come about Dato', was because I told IAEA this is what we are done. But IAEA kata, one of the recommendation, I know you done a good job but tell me if you cannot commercialize. So they go to the worst case scenario. That was how permanent depository facility came about. Ini kerana we did not consider that because we were very confident of our approach. But IAEA kata worst case scenario, so that was what we came and do it.*

*Now kita dengar pula, worst of the worst, what if we cannot get PDF, will you take it outside the country? So benda ini, I am not surprise kalau tomorrow pula, what if the ship sink in the sea. But if it can sink it will dilute lah kan. [Ketawa] So it is worst of the worst of the worst. So this is where we are – very tired.*

**Dato' Abd. Rahman Dahlan:** *I know. We also know about it. I mean Parliament pun begitu juga kita.*

**Dato' Mashal Ahmad:** *Oh, really? That is why. [Ketawa] Okay Mike. This is the last one Tuan Pengerusi and then that is a demonstration.*

**Dr. Mike Vaisey:** *Thank you chairman. Please give some guidance on how much time I have for the presentation.*

**Tuan Pengerusi:** *I'll give you give 10 minutes.*

**Dr. Mike Vaisey:** *Okay. That will be great. Thank you. Dato' Mashal Ahmad asked me to make presentation on synthetic mineral product which is our byproduct. As mentioned before, Mike Vaisey is my name. I am the Vice President Research Technology with Lynas which is a corporate position. I am working in mining and chemical industry for last 26, 27 years. I am join Lynas since..., on this rare earth project for the full time..*

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*The presentations really talk through the solid material that coming out of the plant. What I am about to describe is not unusual for progressive industrial companies where they working to utilize all the material that they produce in one form or another. That is what we called the synthetic materials, the gypsum materials as they describe it.*

*Khairul presents in processes information describe why we generate this material, synthetic gypsum and magnesium gypsum and water leach purification are the main material we are talking about. The numbers you see in that table are for the fully expanded operations after*

phase II. The numbers in Khairul's presentation are referred to our first phase. This is what we will be producing at full scale production.

As I mentioned early, we have a goal to find uses for this materials. This is not unusual. This is what all responsible companies are doing. They want to extract value from the material that they produced. There are some bit principles to go with that. As to be safe to the environment and to people, the principle of applications that you must actually deliver benefits to the applications. That also under principle of economic sustainability of the applications.

I am quickly skip through the materials. Synthetics gypsum not an unusual material in the industrial context where also produced in gas stations and smell..., roasting metal sulphide materials for example, and finding used in plasterboard and cement manufacture, they are for most steps an applications. We have been collaborating with ARE to produce plasterboard back in Malaysia and regionally and also cement for receiving very strong interest because of the plasterboard market is tightening. Sorry, the gypsum supply Chinese..., natural sources of gypsum coming out under more pressure. We believe this excellent potential for soils and synthetics gypsum material into plasterboard and also cement.

Our applications for the synthetics gypsum include agricultural applications. This is well developed in Australia where gypsum is used on sodic soils where they make sodium in the soil or whether the soil pH is low, the pH of your material is high then it will be used the...

Second product which is the..., volume of raw materials that we produce what we called magnesium-rich gypsum. The real value in this material is magnesium which is an important micronutrient to many agricultural crops. Palm oils is an outstanding example where magnesium is actually imported into Malaysia, Indonesia and big palm oil countries to boost the yields from the plantations. Quarter material market in Australia will apply the materials on this type of the soils. This has high pH and magnesium, so it will perform a..., in terms of soil.

We quite well advance with the commercial discussions applied in Australia. The market is quite mature in Australia and quite receptive to this sort of materials. Malaysia recently has a very good understanding of the chemistry. But we find that the market here not so easy to understand and developing. So, we continue with the discussion. We had received actually interest today and let it come across my desk where Malaysian party is very interested in this material and would like to cooperate with us in terms of plantation trials for this material.

This is just applied in the basic industry scale, you can spread it by a typical..., spreader or just spreader. The height take in of the point material..., this is the granulator. You actually put in the ground above the sea, germinate and the nutrient survival locally. That is where that the higher product development will be focused. This is in term of those product that the market interest is strong and we have very high confident that we will place all that material according product qualification process will meets up before we start up.

*The water leach purification material which is that which has the radioactivity that comes in with the rare earth concentrate. We have been working on applications for this material since 2009 here in Malaysia. We did some work product that in Australia. The application construction... Some materials such as concrete and road base aggregate. That is complementary of the characteristic of this WLP material. We have used it. We take examples from their product plant which operates in Australia back in 2005 and put back the material..., formulation and successful in achieving some mechanical strength requirements to concrete and it passed the environmental testing as well. Subsequently we produce more material in the laboratory special exercise to generate more material for our... We used that in road base formulation in conjunction with IKRAM and other research group here in Malaysia.*

**Dato' Mashal Ahmad:** *UMP.*

**Dr. Mike Vaisey:** *The group we work with, the major parties are listed here. So IKRAM, you know the names, UMP and the other organization either consultants or the laboratory specializing in analysis or product development of this product.*

*Some of the key points has being formulated with the concrete and road base materials where the end product has a radioactivity less than 1 Bq/g. The important thing about 1 Bq/g is that if you watch the international standard where IAEA recommended material deregulated..*

**Dato' Abd. Rahman Dahlan:** *Has it been used for road uses?*

**Dr. Mike Vaisey:** *End material?*

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

**Dr. Mike Vaisey:** *We had not produced this in commercial quantities to demonstrate...*

**Dato' Mashal Ahmad:** *You mean similar kah Yang Berhormat? In England they used it for road base and we are talking about 5Bq/g. Makna kita punya ini boleh pakai direct. But yang penting Tuan Pengerusi tanya about one hour ago can we find technology to bring it to below 1 Bq/g? Sekarang saya hendak jawab Tuan Pengerusi. Yes, our research after spending so much money, we have found a technology to bring from 6 Bq/g to below 1 Bq/g. Maknanya outside Dato' Raja punya control, outside regulatory control. So we have found a technology to bring it below 1 Bq/g and we found a way to make sure that if pass all this toxicology, apa benda leaching semua ini, and to be used for road base. So if you want to use in Malaysia and what knot, to be below 1 Bq/g. But if in England, they can use it as it is...*

**Tuan Teng Boon Soon:** *Have been used?*

**Dato' Mashal Ahmad:** *Ya. In England yes.*

**Tuan Liang Teck Meng:** *Akan tetapi whether it is economical viable you have to..., for this plant ....*

**Dato' Mashal Ahmad:** *Okay, now the story is, once we – at the moment because we used laboratory produce, I mean pilot plant, later when the real waste is produced, then we go to the*

*authorities to get, this is what we want to use, get their approval. Once it is approved, we can use in Malaysia or we can send abroad, does not matter. It is a product. If it is below 1 Bq/g, it is just like, if you say cannot use here, then the soil at the back of your house is also below 1 Bq/g.*

**Dato' Abd. Rahman Dahlan:** *It is using macam sand lah.*

**Dato' Mashal Ahmad:** *Yes.*

**Dr. Mike Vaisey:** *So what I was describe is what has been achieved today. We have a summary document that we would like to which is... Other markets that we are working on, similar to..., application and using the synthetics aggregates.*

**Dato' Abd. Rahman Dahlan:** *What is the photo at the bottom there? What is that?*

■1210

**Dr. Mike Vaisey:** *The photo at the bottom is the synthetic aggregates. Let's look at the slag material. It could be a steal slag for example from..., material such as WLP which is the synthetic aggregate. This is where we focus and we having discussion with suppliers who are in recycle industrial material business. It is quite an established market. In Australia, there is companies totally focused on this in the east coast of Australia where they taking slag and other building rubble out of waste and actually transform them into road base material..., the natural conventional alternative. So, this is where we continue into work and commence the also the commercial discussion as well.*

**Tuan Pengerusi:** *Okay.*

**Dr. Mike Vaisey:** *We have actually quite a detailed program or work plan with UKM to be commits once the production producing large quantity of WLP and as I mention before this, the focus will be on synthetic aggregate application and also working with other industrial material which has complementary chemistry to the WLP. So, we know that material like fly ash, slag from steel mill, stockpile in South East Asia which have chemistry that actually complements what we're working with and we believe that we are enable to improve and outperform the properties of material such as road base.*

*Just with their material that being described, they are under the jurisdiction of the regulators and these three groups or agencies that we need to work with, MIDA, the AELB and DOE. We got a good understand with framework to work within for each of those key points highlighted today. At the moment, the waste, the residue synthetic mineral products are under the jurisdiction of the AELB. Very shortly after start up within months, we expect to demonstrate the FGD and NUF have background level of radioactivity and can be declassified and pass from the AELB jurisdiction and DOE jurisdiction, and then there is process that we need to work with to get into the market by good product and also the DOE.*

So WLP, once we finalize as target application, we will do a radiological impact assessment to demonstrate to the AELB the application itself and then we also consult the DOE and MIDA and work towards getting that material into applications as well.

The point to summarize here is regulatory requirement. The major opportunity for us is, and this is not unusually either is that we have the opportunity to work without the industrial materials such as fly ash, steel slag where really produce products that is noble within hands of properties for construction application...

**Tuan Pengerusi:** Are we finished?

**Dato' Mashal Ahmad:** So bottom line Tuan Pengerusi, to us it's not a waste. To us it's a synthetic material product. We want to convert it to money. We want to make money. Okay. Sekarang ini Tuan Pengerusi, just five minutes sahaja for professor to demonstrate and we are done, sir.

**Dato' Zulkifli bin Noordin:** Satu sahaja.

**Dato' Mashal Ahmad:** Saya Dato'.

**Dato' Zulkifli bin Noordin:** Saya nak reconfirm balik.

**Dato' Mashal Ahmad:** Sure.

**Dato' Zulkifli bin Noordin:** So the water waste from Lynas ini, you can channel it straight away to public water waste?

**Encik Khairul Salleh Jais:** Dato', in the first instance in the process that I mentioned just now, we recycle.

After we have recycle, we go through a neutralization step in the waste water treatment plant and then after that we discharge into an internal stream within our site. After that, it goes into our detention pond which 72,000 meter cube detention pond. Then after that only it gets out from Lynas but it goes into another stream outside about two or three kilometers and then it goes into a river, Balok River, another three kilometers and after that it goes to the sea. Then the discharge point itu pula is not a discharge point di mana ada sumber untuk minuman. Jadi, dalam kilang itu dah ada a few barriers, ada a few kolam, lepas itu baru dia keluar ke sungai kecil, pergi ke sungai besar, kemudian pergi ke laut.

**Dato' Zulkifli bin Noordin:** At the detention pond punya level itu, you can drink this?

**Dato' Mashal Ahmad:** Ya, ya.

**Encik Khairul Salleh Jais:** Memang itu plan kita. Macam Petronas punya kilang dulu pun saya buat ikan dekat situ. BP, BASF, semua buat macam itu. Bela ikan sebagai indication.

**Dato' Mashal Ahmad:** YB Dato, just to clarify. Water in contact with radioactive material is fully recycled, dia tidak ada keluar. Akan tetapi ada water-water lain macam water from process yang tidak ada kena mengena dengan radioaktif, air hujan yang turun, it will have to go through water treatment plant. Lepas itu dia akan diproses sampai ke detention pond, kemudian – DOE dia

ada dia punya syarat. Memenuhi 32 syarat, baru boleh lepas air keluar daripada kilang. So, air yang bahagian radioaktif berpusing dan yang bukan kena proses seperti kilang kimia biasalah. Seperti kilang kimia biasa, kena proses...

**Dato' Zulkifli bin Noordin:** So, air yang ada *contact* dengan radioaktif dia *recycle*.

**Dato' Mashal Ahmad:** Dia akan berputar, dia tak akan keluar. Air yang bukan, yang tak ada kena dengan radioaktif tetapi disebabkan oleh kimia-kimia lain, bukan radioaktif tetapi...

**Dato' Zulkifli bin Noordin:** Tak akan keluar itu, tak mungkin ada *leakage*, tak mungkin ada...

**Dato' Mashal Ahmad:** Tak mungkin, seperti yang kita cerita tadi kan. Tak mungkin ya. So, yang bukan radioaktif dia akan diproses ke *waste water treatment plant*. DOE ada 32 syarat dia, baru dia boleh lepas.

**Encik Khairul Salleh Jais:** Yang *radioactively*...

**Dato' Zulkifli bin Noordin:** Pekerja yang *exposed* kepada *water* yang *in contact* dengan radioaktif ini, *are they*...

**Dato' Mashal Ahmad:** *Okay. The radiological impact assessment* dah buat. Dia kata dalam *worst case scenario*, saya punya pekerja akan dapat *radiation* kata 5.6 mSv *per year exposure*, tetapi undang-undang dunia, undang-undang Malaysia adalah 20 mSv *per year*. Undang-undang untuk pekerja, kita semua pakai *badge*. Pakai *badge* ya. *All staff* pakai *badge*. Dato' pakai *badge*, tidak ada *radiation*. So, undang-undang dunia kata 20 mSv. Jadi kita *under* undang-undang Malaysia ini, kita kena pakai *badge*.

So dia akan *monitor* setiap pekerja kita. *The limit is 20 mSv. Our worst case scenario is 5.6 mSv*. Akan tetapi, apabila dia baca 2 mSV, kita suruh dia jangan kerja di kawasan itulah. Bacaan itu akan turun balik....

**Encik Khairul Salleh Jais:** Jadi Dato', ia tak ada kena mengena langsung dengan air tadi itu.

**Dato' Mashal Ahmad:** Tak ada.

**Encik Khairul Salleh Jais:** Tidak, bukan. Sebab yang saya cerita tadi, torium itu semua dah keluar dekat bahagian depan.

**Dato' Zulkifli bin Noordin:** So maknanya kalau pekerja itu *exposed* dengan air yang ada *contact* dengan radioaktif tak ada apa-apa?

**Encik Khairul Salleh Jais:** Tak ada apa-apa. *Exposure* ini bukan sebab air.

**Dato' Zulkifli bin Noordin:** *Nothing to do with the water?*

**Encik Khairul Salleh Jais:** *Nothing to do with the water.*

**Tuan Liang Teck Meng** *Can you answer my question?*

**Dato' Mashal Ahmad:** *Please. Let me answer because last time the reporter said I don't answer the question.*

**Tuan Liang Teck Meng:** *So the whole process maknanya bahagian...*

**Dato' Zulkifli bin Noordin:** *Soalan bodoh dia, kalau dia terminum air itu pun tidak mati?*

*[Ketawa]*

**Tuan Liang Teck Meng:** *Which part is the most dangerous throughout the whole process?*

**Dato' Mashal Ahmad:** *Okay. Which part...*

**Tuan Liang Teck Meng:** *All of the process.*

**Encik Khairul Salleh Jais:** *Okay. The most dangerous part in the process is the handling of the acid.*

**Tuan Liang Teck Meng :** *Acid?*

**Encik Khairul Salleh Jais:** *Acid, because we have about five to seven trucks coming in.*

**Tuan Liang Teck Meng:** *[Bercakap tanpa menggunakan pembesar suara]*

**Dato' Mashal Ahmad:** *Yes, yes.*

**Encik Khairul Salleh Jais:** *It's not the radioactivity. It's the acid handling.*

**Tuan Liang Teck Meng:** *[Bercakap tanpa menggunakan pembesar suara]*

**Encik Khairul Salleh Jais:** *The HCl...*

**Dato' Mashal Ahmad:** *It is like any other chemical plant.*

**Tuan Liang Teck Meng:** *[Bercakap tanpa menggunakan pembesar suara]*

**Dato' Mashal Ahmad:** *Correct, correct. So the danger is similar like chemical plant yang you tengok dekat-dekat sini.*

**Tuan Liang Teck Meng:** *Okay.*

**Dato' Mashal Ahmad:** *Okay Prof. It's all yours. Kesian dia hendak bercakap... [Ketawa]*

*[Sesi demonstrasi oleh Profesor Ismail Bahari]*

**Taklimat berakhir pada pukul 12.24 tengah hari.**

**[Ahli Jawatankuasa melawat tapak]**