COMMONWEALTH OF AUSTRALIA

JOINT PARLIAMENTARY COMMITTEE

on

PUBLIC WORKS

Reference: Proposed CSIRO development of the Queensland Centre for Advanced Technologies Stage II

BRISBANE

Monday, 15 June 1998

OFFICIAL HANSARD REPORT

CANBERRA

JOINT COMMITTEE ON PUBLIC WORKS

Members:

Mr Tuckey (Chair)

Senator Calvert	Mr Richard Evans
Senator Ferguson	Mr Forrest
Senator Murphy	Mr Ted Grace
	Mr Hatton
	Mr Hollis

WITNESSES

JOINT COMMITTEE ON PUBLIC WORKS

Proposed CSIRO development of the Queensland Centre for Advanced Technologies
Stage II

BRISBANE

Monday, 15 June 1998

Present

Mr Tuckey (Chair)

Senator Calvert

Mr Hollis

Mr Richard Evans

Committee met at 12.59 p.m.

Mr Hollis took the chair.

CHAIR—I declare open this public hearing into the proposed CSIRO Queensland Centre for Advanced Technologies Stage II development at Pinjarra Hills in Queensland. This project was referred to the Public Works Committee for consideration and report to the parliament by the House of Representatives on 8 April 1998, at an estimated out-turn cost of $22.3 million. In accordance with subsection 17(3) of the Public Works Committee Act 1969:

> (3) In considering and reporting on a public work, the Committee shall have regard to—
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> (a) the stated purpose of the work and its suitability for that purpose;
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> (b) the necessity for, or the advisability of, carrying out the work;
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> (c) the most effective use that can be made, in the carrying out of the work, of the moneys to be expended on the work;
>
> (d) where the work purports to be of a revenue-producing character, the amount of revenue that it may reasonably be expected to produce; and
>
> (e) the present and prospective public value of the work.

This morning, the committee inspected the CSIRO complex at Pinjarra Hills and was briefed on the project by representatives of the CSIRO and the project team. The inspection included an examination of existing facilities on the site, as well as the proposed location of a number of the main elements of the proposed work. This afternoon the committee will hear evidence from the CSIRO, BHP Coal and the Queensland government.

[1.00 p.m.]

CARPENTER, Mr Warwick James, Sites Operations Manager, Division of Energy Technology, Commonwealth Scientific and Industrial Research Organisation, Delhi Road, North Ryde, New South Wales 2113

CORKE, Dr Peter Ian, Principal Research Scientist, Manufacturing Science and Technology, Commonwealth Scientific and Industrial Research Organisation, 2643 Moggill Road, Pinjarra Hills, Queensland 4069

GLADWIN, Dr Michael Thomas, Research Group Leader, Minescale Geophysics Group, Exploration and Mining, Commonwealth Scientific and Industrial Research Organisation, PO Box 883, Kenmore, Queensland 4069

HARLEY, Mr George Johnston, General Manager, Corporate Property, Commonwealth Scientific and Industrial Research Organisation, PO Box 225, Dickson, Australian Capital Territory 2602

HILL, Dr Roderick Jeffrey, Chief, Division of Minerals, Commonwealth Scientific and Industrial Research Organisation, PO Box 312 Clayton South, Victoria 3169

HOBBS, Dr Bruce Edward, Chief, Division of Exploration and Mining, Commonwealth Scientific and Industrial Research Organisation, Private Bag, Wembley, Western Australia 6014

MACONOCHIE, Mr Alexander Paul, Manager, Minesite Rehabilitation Research Program, Exploration and Mining, Commonwealth Scientific and Industrial Research Organisation, PO Box 883, Kenmore, Queensland 4069

MOODY, Mr Trevor Laurence, Assistant General Manager, Corporate Property, Commonwealth Scientific and Industrial Research Organisation, PO Box 225, Dickson, Australian Capital Territory 2602

SCOTT, Mr Alan Thomas, Sites Operations Manager, Queensland Centre for Advanced Technologies, Commonwealth Scientific and Industrial Research Organisation, 2643 Moggill Road, Pinjarra Hills, Queensland 4069

WRIGHT, Dr John Kevin, Chief, Division of Energy Technology, Commonwealth Scientific and Industrial Research Organisation, Delhi Road, North Ryde, New South Wales 2113

STEPHENSEN, Mr Martin Conrad, Associate, Conrad and Gargett Pty Ltd, GPO Box 170, Brisbane, Queensland 4001

WOLFE, Mr Bruce John, Associate, Conrad and Gargett Pty Ltd, GPO Box 170, Brisbane, Queensland 4001

KNOTT, Mr Robert Gordon, Manager, Engineering Services, Gutteridge Haskins and Davey, 15 Astor Terrace, Brisbane, Queensland 4001

SANDERS, Mr Norrie, Manager, Environmental, Gutteridge Haskins and Davey, 15 Astor Terrace, Brisbane, Queensland 4001

BUTCHER, Mr Malcolm, Director, Davis Langdon and Beattie, Level 10, 241 Adelaide Street, Brisbane, Queensland 4000

WHALEY, Mr Brian Charles, Senior Associate, Ove Arup and Partners, 86 Astor Terrace, Spring Hill, Queensland 4000

CHAIR—Welcome. Do you have any comments to make on the capacity in which you are appearing?

Dr Wright—I am appearing before this committee in my capacity as the head of one of the divisions involved in the QCAT Stage II extension. As the people that we will be bringing to Brisbane will almost double our current complement of about seven people, the principal interest that we have in this extension is to set up a high grade coal gasification and related research facility at QCAT.

Dr Hill—My interest in QCAT II extends to the transfer of some staff from the North Ryde site of the division and also expansion of activities in our existing work at that site.

Dr Hobbs—My interest in this project is in extending the capacities that we already have on the site.

Mr Stephensen—I represent the architects for the project.

CHAIR—The committee has received a submission from CSIRO, dated April 1998. Do you wish to propose any amendments to that written submission?

Dr Hobbs—Yes, there are some amendments which we have given to the secretary. They are mostly quite small, but the major change is to correct site boundaries which have not yet changed in the way we thought they should have by now.

CHAIR—Do you wish to give us the reasons that you advised us of this morning, for the record?

Mr Moody—The site is subject to a land swap with an adjacent developer for

residential development. It was anticipated that by the date of this hearing the land swap agreement would be fully in place. It was delayed whilst we agreed on technical requirements. They are now agreed as of last Friday, 13 June, but at the date of this hearing the agreement is not formally in place so the property boundaries are as proposed by these amended drawings.

CHAIR—But it is your proposal, upon completion of the agreement, to move to the proposal as also submitted, is it?

Mr Moody—Yes.

CHAIR—It is proposed that the submission as amended be received, taken as read and incorporated in the transcript of evidence. Do members have any objections? There being no objection, it is so ordered.

The document read as follows—

CHAIR—Would a representative of the CSIRO now read the summary statement, after which we will proceed with questions.

Dr Hobbs—This is a summary statement of evidence for the proposed CSIRO development of the Queensland Centre for Advanced Technology Stage II at Pinjarra Hills, Queensland. This proposal brought before the Parliamentary Standing Committee on Public Works is for the construction of a stage II extension to the Queensland Centre for Advanced Technologies, QCAT, for CSIRO on its site at Pinjarra Hills, Queensland. CSIRO requires appropriately designed and equipped research facilities which will provide safe, healthy and efficient working conditions for its skilled staff, who direct and undertake a wide range of research to meet national priorities in accordance with CSIRO objectives and to approve programs.

The committee is aware that, as funds become available, CSIRO is progressively upgrading many old, substandard and inefficient laboratory buildings and constructing new facilities as required to meet changing research directions and priorities. The committee has, in recent years, examined proposals by CSIRO at Black Mountain in the ACT, Clayton in Victoria and Gungahlin in the ACT and reported favourably on them. Following parliamentary approval, these developments are now proceeding or have been completed.

This proposal extends the agreement made in 1990 by CSIRO and the Queensland government for the development of QCAT as a significant research and development centre. The proposed development, which will provide new research and support facilities for an additional 80 scientists and support staff—bringing the number of staff to 350—is consistent with a long-term planning strategy to accommodate 600 staff on that site. The centre forms a major part of CSIRO's presence in Queensland and is located on a site of 24.5 hectares of land at Pinjarra Hills in the outer western suburbs of Brisbane.

The new facilities will build on the successful first stage of QCAT and will ensure that the centre continues to develop as a world centre of excellence and a major technology precinct in close proximity to Brisbane. This will be achieved through expansion and diversification of QCAT's research and development activities in the mining, energy and related manufacturing industries in Queensland and in Australia as a whole.

The estimated cost of the proposed facilities is $22.3 million. Construction will be staged over a 15-month period, with completion by mid-2000. The proposed development consists of the following works: a three-storey research building of approximately 1,900 square metres; a technology transfer building of approximately 2,400 square metres; a number of new process and technical bays, buildings and storage facilities located in a 'bay compound'; expansion of the existing library and canteen facilities; minor alterations to existing buildings to suit change of functions; site works, including new roads, car parking and environmental rehabilitation; extension and modifications to site services; and

relocation and modification of the existing sewage treatment plant.

The new research building will comprise lightly serviced bench scale laboratories, laboratory offices and open planned work areas, seminar rooms, support areas and a rock storage facility. The technology transfer building will provide accommodation for a major computer facility and serviced office accommodation for multiple tenancies. It will be a combination of open plan and individual offices. The technical and process bays will comprise variable height, open plan industrial type buildings. The design of the buildings reflects CSIRO's aspirations to provide a public interface for clients and visitors and quality working facilities with medium- and long-term flexibility and adaptability. The design will maximise the use of natural light. Passive energy conservation measures will be incorporated into the building and landscape design and active measures into the mechanical, electrical and hydraulic services design. Siting of the building complex is generally consistent with the site master plan.

In developing this proposal, CSIRO and its consultants have contacted interested groups, including CSIRO staff and unions, and those local authorities having statutory responsibility over the locality and services. General support for the proposal has been received from staff, government and industry organisations. The proposed design fully meets the CSIRO functional brief and conforms with technical requirements of local authorities. It will be designed and constructed in accordance with the building code of Australia, relevant Australian standards and appropriate laboratory codes.

The proposed works will provide additional research and technology transfer facilities to meet changing research and market needs and will enable CSIRO to continue to integrate with Australian industry. CSIRO believes that the complex will provide an appropriate workplace that will stimulate and promote research and development activities and will further enhance opportunities for conducting national and international research consistent with its long-term objectives.

The centre will provide a powerful statement about CSIRO's commitment to expanding its overall level of research and development in Queensland and to providing a primary focus for continued interaction with Australian industries. CSIRO is satisfied that the proposed development works are the most appropriate, timely and cost-effective way to provide safe and efficient accommodation for its staff and to meet its research needs. It therefore submits the proposal to the committee for examination and seeks its endorsement.

CHAIR—Thank you, Dr Hobbs.

Senator CALVERT—You state in paragraph 9 the aims and intentions of the CSIRO up here. I think you are implying that you are seeking a centre of excellence. Is the work you are doing here and the centre itself recognised outside Australia as a centre of excellence? We saw quite a deal of what you are doing there this morning. For the

record, I would like to put into perspective what you are doing and achieving. Is it a world-class facility?

Dr Hobbs—Such a question is always very difficult to answer. We have held quite a large number of international conferences at that site already, and they are always very well attended by people from overseas. We do go out of our way to publicise the activities of the centre internationally. To some extent, the fact that we do work with companies that are equipment manufacturers overseas certainly publicises our work quite strongly, too. I would say the centre, QCAT, does have an international reputation. It is enhanced a lot by the fact that many of the really major institutions overseas, such as the US bureau of mines—which closed up recently—put this centre in a rather unique position around the world in supplying technology not only to Australian industry but to industry around the world.

Senator CALVERT—Basically what I am asking is: are the taxpayers getting value for the dollars they have put in? Are the taxpayers in Queensland, who have invested heavily in this, enhancing work that has already been done somewhere else and adapting it for Australian purposes? What sorts of results are we getting in both financial and practical terms? This morning we saw some of things you are doing, and it was quite an eye-opener. What I am really doing is giving you an opportunity to put on the record for anybody who cares to read our report or the *Hansard* for today's proceedings just how important you see the project as being and why we are going to spend more money in improving the facility.

Dr Hobbs—A lot of the work is new. Some of it takes existing technology and tries to do something with it. Australian conditions are, to some extent, quite unique: a lot of the coals are quite different from overseas coals, and the mining conditions are commonly quite different from overseas conditions. The fact that we often have very high horizontal stresses in Australia as opposed to overseas where that situation is not true does mean that we have to develop technologies that are specific to the Australian environment.

We are successful, and we measure that success to a large extent by the support we get not only from the Queensland government but also from industry directly. At the moment, that institution out there generates around $25 million worth of research each year directly, and another $25 million is spent on site by commercial operators. That means that around $2 comes back to that site for each $1 that is invested in it. By all the measures that we understand, it is quite a successful enterprise and certainly returns value to the taxpayer.

Senator CALVERT—Is the four-dimensional computer program of coal mining that we saw this morning peculiar to Australia? Is that something that has been developed here, or has it been developed somewhere else?

Dr Hobbs—No. The technology that you saw, whereby one can represent a mine

in three dimensions and then drive around it and look at all the data in various ways, is unique to QCAT at the moment. There are other attempts to do those kinds of things overseas, but I do not think they are as good as what you saw this morning. That technology will be pushed now because not only is it important for production purposes but it is increasingly important for safety purposes. So introducing automation, for instance, into the coalmining industry—or even, for that matter, into any open pit environment—will depend on that technology being developed a lot more.

Senator CALVERT—While we are talking about coal, one of the major projects you are going to undertake is the gasification facility, and that fits in with the government's Kyoto declarations in reducing CO_2 and all the rest of it. Is that technology unique to Australia or is it something we have enhanced upon? I think Dr Wright might tell us about that.

Dr Wright—No, it is not unique technology to Australia, and the purpose of the program to be run at QCAT is not to develop new technology per se. What is happening overseas is that the advanced technology has been developed to demonstration scale in various places—in Japan, in the US in particular, and also in Europe. These plants are now turning out results which look very good for the future. All the pundits are now saying that this is going to be the next wave of coal-fired power plants; that this is what the technology will be in the future. So there is emerging around the world a huge market for coals to go into that technology.

The purpose of the work that we will be doing at QCAT is to test our Australian coals in that technology at a scale where the results are meaningful. That means a whole gamut of tests in the major piece of equipment there and also a whole series of satellite programs looking at the fundamentals of the process so that in the years to come we will have an extremely good knowledge of exactly how our coals behave in that technology. This will be a marketing tool to enhance our coal exports, which is now a $9 billion export industry. We have to keep up with that technology or we will find ourselves slipping behind in the export market for coal.

Dr Hobbs—I would like to emphasise though that one of the outcomes of that technology is a drastic reduction in greenhouse emissions, so it is an important piece of technology for Australia.

Dr Wright—Yes, there is a big decrease in greenhouse gas emissions from that technology, but it does not stop there. There are a whole host of added environmental benefits with this process. One of those would be that the ash in the coal, at the temperature and conditions of the process, would be melted into a slag rather than a fly-ash, which makes the collection of this material and the end use of it much easier than currently.

The process also produces a lot fewer nitrogen oxides because it is run under

basically a reducing set of conditions where NO_x does not form. As you will probably realise, NO_x is quite a powerful pollutant and also a very strong greenhouse gas, so the use of IGCC will cut back on that. It also is good if we ever have to start burning higher sulfur coals, because the sulfur will come out in a reduced form rather than an oxidised form, which is much easier to extract. So it has a range of environmental values other than just greenhouse gas emissions.

CHAIR—What you are really telling us is that, without these sorts of data that you hope to generate, the saleability of Australian coal in the future might be greatly reduced.

Dr Wright—Australia has some magnificent coals, particularly for conventional power generation. They are low in sulfur, they can be cleaned up and their ash contents lowered by coal preparation, which is also done at QCAT. About 50 per cent of Australian coals have a property whereby their ash fusion point—this is the melting point of the ash that is produced—is very high. This is excellent for conventional power generation systems because the ash does not coat the boiler tubes in conventional power generation. There are a range of ideal coals in Australia for that particular technology.

When we go to the IGCC process, which is a higher temperature process, the high fusibility of the ash can be a disadvantage because you cannot form slags easily. There are various ways of overcoming that. One is by adding some fluxes to the coal. We have done a series of laboratory tests whereby we have looked at the complete range of commercial coals in Australia and we looked at how much flux and what type of flux we would need to add to the coals to produce a slag composition which will suit that process. We have all that information but we need to test it on the full scale.

Not every coal can be used without adaptation. We need to know which of our coals are going to be used without having to treat them and those which we do have to add to, and how much that is going to cost the end user. That information is absolutely essential for our marketing.

Senator CALVERT—Dr Hobbs, you mentioned to us that a lot of your work is done in cooperation with companies and they put money into any project. We noted this morning in the briefing you gave us that the size of your building here and the number of people you have working for you have increased beyond your planning. We are here to improve some more additions today. Given the success of what has happened in the past, do you think we will be back here for a stage 3 or a stage 4 further down the track?

Dr Hobbs—The answer is probably yes. This proposal is to take the total number of staff to 350, I think, or the occupancy on the site. Assuming that we cannot get a lot smarter at the way in which we generate funds, that would mean, at least to CSIRO, an extra $10 million worth of research effort on that site. As I said earlier on, it is around $25 million now. That is a substantial ask from the industry, but I think success will breed success and industry will continue to want larger and larger high impact studies done. The

gas fire is an example of a high impact and hence very expensive project. I think we will see more of those. Probably—we have not thought this out very well—in five years time we will see the opportunities and we will need to go into QCAT stage 3.

Senator CALVERT—Is the site you have now able to be expanded again? With the services that you are providing for this stage, are you planning further down the track to—

Dr Hobbs—We commissioned some architects to do a site plan for us off into the future. Indications are that the site could support about 600 staff. The localities of those future buildings have been notionally set aside. So yes, the present work that we are doing now would fit into a master plan stretching out to the middle of the next century, or something of that order.

Senator CALVERT—Thank you. I will ask a question about magnesium later.

Mr HOLLIS—From a construction point of view, does the site present any difficulties?

Mr Moody—The site itself, because it is a site on which people are operating, always presents some difficulties in construction and coordinating the work so that there is minimal disruption to existing activities on the site. That is purely one of planning the operations of construction so that that can occur. The other difficulties are probably related to soil conditions as such, although they are not insurmountable. We are excavating in rock for the process bays, but that rock material will be used in turn for fill for other areas of the site.

Mr HOLLIS—Regarding the steep side of the hill, is that going to be cut and excavated and it is going to go over the other side?

Mr Moody—That is right, so we are aiming for a balanced cut-fill situation. There will be some carryover.

Mr HOLLIS—What is the ground or soil there? Is it rock?

Mr Moody—The soil is a slope wash clay overlying rock in the steeper sections that you saw. As you head towards One O'clock Creek, the depth of clay increases. It is an alluvial clay which has rock at much greater depth. So our footings will be founded on rock. They will be high level footings progressing to piles where we are going into greater depth of clay over the rock.

Mr HOLLIS—Are there any environmental difficulties there?

Mr Moody—Obviously an important criterion is that we do protect what we would

consider is the fragile environment of One O'Clock Creek. Measures have already been taken by CSIRO staff to carry out restoration works on that area. Our intention is to preserve and rehabilitate that creek area as part of what we believe is a responsible approach to construction of these facilities.

Mr HOLLIS—From a staff point of view, how is the present building operated? Has it been successful or not?

Dr Hobbs—I think it has been very successful. The state of staff morale in that building has stayed very high right from the very beginning. It always looks, and is, busy. I think that adds to the overall atmosphere. Almost anywhere you go, people can see that something is happening, and it creates an air of excitement around the building that is quite important for research purposes. I think it has been a very good success.

Mr HOLLIS—I was going to ask you how the staff feel about the alterations, but obviously they are happy with that?

Dr Hobbs—Yes. Surveys and so forth have been done.

Mr HOLLIS—Have they been consulted?

Dr Hobbs—Yes.

Mr HOLLIS—Someone mentioned to me recently that when we are dealing with an environment where scientists work, it is more important that there be interaction between the staff, the researchers. I think someone mentioned to me this morning that even over coffee it is, if you like, a formal or an informal meeting. From an architectural point of view, was this taken into consideration? Were there any special considerations given to the design of this building where this interaction, either formal or informal, could take place?

Mr Stephensen—Of course, we were not the architects for stage 1. I agree that the existing architecture offers wonderful interaction for staff. We will continue the same sort of philosophy in stage 2.

CHAIR—Mr Stephensen, within the group of plans provided to us, which are numbered, is there anything that shows us how you are going to deal with that? I think that Mr Hollis has raised quite an important issue. I kept looking, but I just cannot see whether any of the drawings indicated that.

Mr Stephensen—If you take the research building and the technical transfer building, and the tech transfer building first of all—

CHAIR—Which number is that?

Mr Stephensen—No. 5 is a good example. Whilst it is an attempt to collect a whole lot of different departments and offices, meeting rooms and such what into one area, there are always leftover interactive spaces where people can meet to talk. You can see the meeting areas in the little recesses facing up the page.

CHAIR—I can't; you had better point them out to me. Are they the little crosses?

Mr Stephensen—Wherever the number '22' occurs, it offers a little meeting area where scientists and various other people can meet to talk. It just continues the same sort of feeling that happened in the stage 1 buildings.

Mr HOLLIS—Did you get feedback from the management and staff on this? Was it stressed to you that this was important?

Mr Stephensen—We did. After completion of stage 1, there was a SWAT analysis with all the staff, and the comments were taken on board. Some comments were positive, and some were negative. We tried to lead on from those comments. We have talked to all the users in preparing the plans, and I think the general reaction of the users is that they quite happy with the way the plans are developing.

Mr HOLLIS—Would you agree with this, Dr Hobbs? Have you or any of the others here any reservations? Are you all happy with this? Do you think that the plans have fulfilled what obviously is an important work environment for the people who are going to work there?

Dr Hobbs—We went to a lot of trouble in stage 1 to think about ways in which people could be, if you like, forced to interact. The fact that the library is so close to the canteen is an example of that; the fact that people have to cut across other people to get to photocopiers and so forth is part of that system.

Mr HOLLIS—So they can have a chat instead of going to do what they are supposed to do.

Dr Hobbs—You are right. A lot of scientific ideas result from random interactions with people, so the more you can generate that the better.

Mr HOLLIS—In most other work situations, it would be seen as a negative that someone is working on something and someone else on their way to make a photostat decides to have a chat to them.

Dr Hobbs—There are still offices—and I think that is an important element in this too—other research establishments that have gone down the track of completely open offices, and that just does not work in the scientific community. You have to have the chance for interaction, but you also have to have the chance for privacy too.

This building adds to QCAT stage 1 in the presence of these little areas labelled '22'. One of the things that we missed out on in QCAT stage 1 was the opportunity for groups of people to congregate in areas like these '22' areas and have coffee or tea or whatever the heck they need to have. The newer AGSO building in Canberra has a lot of those opportunities. I have studied that in some detail, and it works very well.

CHAIR—Just before you leave the subject, the library-cum-cafeteria was the major area of my interest, having seen it today, but that does not appear in one of the drawings, does it?

Mr Moody—That is shown in the 'Development Plan'. There is an area—10 on sheet No. 2—which shows library and canteen extensions. We are increasing the capacity of the canteen to seat 180 people, which represents a ratio of about 50 per cent of the staff. At the same time, the library will be increased. We are adding something like 235 square metres to that combined space to re-create the current integration of activity that occurs in this canteen-library area. We would like to see that same philosophy proceed with the design of this building.

Mr HOLLIS—I understand that it is CSIRO policy to specify Australian-made goods wherever possible?

Dr Hobbs—Yes.

Mr HOLLIS—It is okay to specify Australian goods, but sometimes, from CSIRO's point of view, they will specify a name that is often an overseas product, which excludes Australian participation. To give you an example on laboratory taps—not, I hasten to add, that I am an expert in taps—it has been put to me that on all CSIRO contracts which are let a German tap firm, Broen, is specified. Although CSIRO says, 'Wherever possible we will specify Australian-made goods,' I am aware that, with laboratory taps, if you specify Broen it therefore excludes all Australian-made taps because they do not make Broen taps; they make other types of taps. But the very fact that you have specified a German tap excludes Australian tap makers who may make equivalent or better taps.

Mr Moody—We certainly do not intend to exclude any Australian or New Zealand product from our projects and, in fact, where a brand name may be specified in specifications for works, it is really as a base standard or equivalent. If, for example, we have specified a particular brand of tap but there is an Australian equivalent that can meet that standard and represents value for money and performance, then we will use that product. We go to considerable effort to find out what products are on the market that suit our requirements. People might argue on the basis that one is cheaper than the other, but what we are looking for is long-term performance of that particular item, whatever it might be.

Mr HOLLIS—On an item like that, is there a selected group of people who you invite to tender, or is it put out to general tender? If I were a tap maker in Port Kembla, how would I get on your list or how would I know that this is coming up? How do I break into what people have put to me is a fairly closed circle when it comes to providing individual items to CSIRO projects?

Mr Moody—We certainly cannot tell any firm that is breaking into industry how it should develop its marketing strategies, whatever that product might be. Certainly, if a product is drawn to our notice, we would like to know more about that product and, if the supplier is willing to come in and demonstrate that he has a product that meets our requirements, at least we know of its existence.

We go to tender for the construction of an overall facility, which goes to a head contractor. He in turn engages subcontractors for components of the works and they in turn go to suppliers, so the chain can be fairly lengthy before it gets down to perhaps the individual tap manufacturer. Yes, proposals are put to us if we ask for a performance requirement, and our specifications normally are performance requirement. If a product is offered that meets that requirement and it is an Australian product or it demonstrates that it is best value for money, we will use that product.

Mr HOLLIS—Just to get it on the public record very clearly: an overseas brand name is used but that is the benchmark, if you like. It does not exclude.

Mr Moody—Not at all. It is certainly not our intention anyway.

CHAIR—I think what Mr Hollis wants to know is whether your specification document would include the word 'or equivalent'.

Mr Moody—Yes.

CHAIR—In other words, you can get a brand name to strike a standard, not to be specific.

Mr Moody—That is certainly what should be in our specifications. I am fearful that somebody might pull out a specification that says something different. In the past, to my knowledge, we have said such a standard 'or equivalent'.

Mr RICHARD EVANS—Dr Wright mentioned before that coal was about a $9 billion export commodity for Australia. Where does that rate amongst other minerals and mining?

Dr Wright—It is No. 1, followed by gold and stretching into iron ore, I think.

Dr Hobbs—Then you drop to things like zinc, lead and copper.

Mr RICHARD EVANS—Was your evidence before that the implications of the Kyoto conference and the greenhouse implication worldwide were not going to affect the coal industry that significantly?

Dr Hobbs—It may eventually, but I think the time scales are what need to be considered.

Mr RICHARD EVANS—What sorts of time scales are we talking about?

Dr Hobbs—If, for instance, a foreign country were to suddenly go completely nuclear and stop taking coal from Australia—

Mr RICHARD EVANS—Like Japan.

Dr Hobbs—Yes, like Japan. The time scales in doing that would be that it would be at least a decade before those stations were up and running and it may even be two decades. They are the kinds of time scales that one would be worrying about.

On the other hand, the changes in Asia recently have changed what might be the short-term scene, but I think the long-term scene is still the same—that is, before the so-called Asian meltdown, the predictions were that there was absolutely no way those Asian countries, although they had big coal resources themselves, could produce at the rate that was required to keep their economies going. We may be seeing a slight slowing in that, but the effect is still there. What I am really saying is that, unless Singapore, Hong Kong, Malaysia and Indonesia go completely to nuclear power, there still will be a gap in production not five years out now but 10 years out. That still bodes well for the Australian coal industry.

Mr RICHARD EVANS—Although there was press on the weekend, I believe, about Japan considering going stronger into nuclear power, and 'meltdown' is the operative word I guess in that context.

Dr Hobbs—That may be what their population believes also.

Dr Wright—I think there is a huge pressure on coal because of Kyoto. I do not think that is going to decrease over the coming decade. There are a number of ways we can try to counteract that as far as keeping Australia's export coal sales up is concerned. One way is to pursue the very best technology that we possibly can to try to decrease the environmental impact of coal, particularly the CO_2 emissions. Beyond the IGCC process, we then move into things like coal gasification combined with fuel cells, which give us another 20 per cent increase in efficiency and another very big drop in greenhouse gas emissions. Right around the world people are now looking at removing CO_2 from power stations and sequestering that CO_2. I have always been a bit of a sceptic as to whether this was economically feasible, but some of the calculations I have seen are starting to show

that it is at least comparable with some forms of renewable energy—that is getting very interesting. As time goes on, we may continue to use our coal resources perhaps in totally radically different ways.

Mr RICHARD EVANS—From your evidence, am I to assume that this site at Pinjarra Hills is going to be based solely for coal?

Dr Hobbs—No. The emphasis is certainly on coal at the moment, but Queensland has very large metal resources as well. If anything, that has been tackled more through equipment development and equipment automation rather than the processing end of the spectrum at the present time. That could change quite easily.

Mr RICHARD EVANS—From your evidence earlier, talking about expansion in the future, I guess that right now this particular site is at the cusp of deciding whether we develop this or have a rethink about it. Given that Western Australia is a big mining state, why is it not moving to Western Australia?

Dr Hobbs—We have on the drawing boards at the moment, we hope, a meeting of this committee quite soon to discuss another building very similar to QCAT at Bentley in Perth. That would be devoted solely to the metals industry. Our philosophy to a large extent is that if you put these facilities close to the customer then they are used by the customer. That is shown at QCAT, where we are close to the coal industry and hence a lot of work from the coal industry goes through that facility. In Western Australia the emphasis is definitely on metals and that is why we are trying to put a facility in there as well.

Mr RICHARD EVANS—That is encouraging because Hamersley did contact you about that. Is that the same location in Bentley that they were referring to?

Dr Hobbs—They have laboratories in Bentley and that is what they are referring to there. Our new facilities will be right across the road from them, but they are not referring to the new CSIRO facilities there.

CHAIR—This proposal does include an ore beneficiation bay and an iron ore processing bay. In the context of what you just told us, why are they being included in this development and not in the Western Australian development?

Dr Hobbs—I will let me colleague Dr Hill answer that. As I understand it, what we are talking about here is a mineral processing research group. The fact that they spend a lot of their time on iron ore at the moment is a fact of life, but there is no reason at all why they could not move to zinc from Century or gold or whatever in the future. It is the generic capability of this group that is important, not the fact that they happen to be working on iron ore at the moment.

Dr Hill—The Division of Minerals has a three-pronged long-term strategy for its research work. It wants to develop pyrometallurgy in its Melbourne laboratories. It wants to develop hydrometallurgy in its Western Australian laboratories. I note in the context of the earlier question that the Division of Minerals also has just accessed another major pilot plant scale building next to its existing Waterford facilities in Western Australia, which will substantially enhance our downstream processing in the hydrometallurgy area. The third prong of our long-term strategy is mineral processing. It is our intention to locate that at the QCAT centre where we can access the Carpentaria and Mount Isa provinces for base metal work. At any one point in time there may be activities specialising in one particular metal or other. At the moment we have substantial activity in iron ore, that is true.

The reason for moving our North Ryde facility to Pinjarra Hills is in order to consolidate activities across the mineralogy and the sintering and pelletising type aspects in one location which would generate substantial scientific synergies and advantages which we would then deliver to the clients. I note in this context too that there is another letter in the submissions from Robe River, which is another large iron ore producer supportive of this move. I think it is fair to say that we can probably never get unanimity in response from clients to any particular move we make.

Mr RICHARD EVANS—The implication is that Hamersley is supportive and so is Robe; and I guess they would be very supportive of combining it. But I think if you put the question to Robe, as to whether they would like it in Western Australia, they would say yes, as compared to Queensland.

CHAIR—It does seem rather peculiar that of all the minerals, iron ore and activities associated with it would not be located in Western Australia, because that is where all the iron ore is.

Dr Hobbs—I think the point is that if you did move that group to Perth, in five years time the iron ore research might wind down and research would move to zinc. People in the Carpentaria province would then be saying, 'Why do you have this thing in Perth?' You cannot win all the time.

CHAIR—I am not entirely prepared to accept that logic.

Mr RICHARD EVANS—The other argument is, of course, that when you have got Woodside and Alcoa moving their head offices from the eastern states to Western Australia and growth in Western Australian minerals, one wonders why we are not—although you have assured me that we are—actually moving that way.

Dr Hobbs—Bently, by the way, will house an extra—and I have probably got this number wrong—60 staff from petroleum. It will move from Melbourne to Perth, so it will be a petroleum minerals facility.

Mr RICHARD EVANS—Have recent reductions on research and development tax benefits had an effect on your client base with regard to research?

Dr Hobbs—It is hard to answer the question because so many things happen at once. There is a real downturn in the Australian minerals industry at the moment, with a lot of restructuring and corporate blood being shed. That has an effect on us. There is no doubting that the reduction in the tax rate from 150 per cent has made an impact on us. But it is hard for me, at least, to measure that relative to the other things that are going on at the same time.

Mr RICHARD EVANS—The reason why I am asking is that I am on another inquiry which is looking at that particular issue. With a lot of the greenfields exploration now going offshore, is that ultimately going to affect research in your own facilities—if in the future money is going offshore and not staying around?

Dr Hobbs—At the exploration and mining end of the spectrum, we tend to follow those companies as they go offshore. We have an office in Santiago, for instance. We do a lot of work in South Africa these days. We have got new projects just starting in Chile with BHP and Codelco. As the industry globalises, we find ourselves tending to do the same thing.

Mr RICHARD EVANS—Do you have a worry or a concern about the lack of greenfields exploration at the moment?

Dr Hobbs—Yes. I think it can only make a big dint in Australia's standard of living 15 years out.

CHAIR—I have got a question regarding the report of the fire people: in particular, its relationship to the measures required around the gasifier. For the record, can you give us some further information—as it would seem to be more than a requirement in that particular area; it would seem to have to be superior to your basic BCA rules.

Mr Stephensen—The gasifier is, in fact, not a dangerous facility at all.

CHAIR—Even working at those temperatures?

Mr Stephensen—Yes.

CHAIR—I always thought that about diesel engines, until I read the Westralia evidence. There are very high temperatures within the site, but you are saying they are properly contained.

Mr Stephensen—They are properly contained in a very expensive container. I do not believe it is likely to ignite or catch on fire. The building will be sprinkled anyway,

which is over and above standard Building Code of Australia protection.

CHAIR—Are you satisfied that the measures you are taking in this particular area are adequate for whatever risk is represented there?

Mr Stephensen—Yes.

CHAIR—Are there any other aspects of the development that require any special measures relating to fire treatment? What about the documentation that exists in the library? Does it matter if we have to wet that down occasionally?

Mr Stephensen—If the library is sprinkled and there is a fire locally—and it would have to be a fire locally in the library—only that sprinkler head goes off. It is a pretty good way of fighting a fire, to be honest.

CHAIR—I do not disagree with that argument, but do you have records there that one would consider highly valuable or, in fact, wouldn't it matter? I guess that is the general question.

Mr Stephensen—I think all the records would be replaceable. I hate to say there are only books there. Is that correct?

Dr Hobbs—I think that is largely right. There are runs of journals and things that might be hard to get at, but, basically, it would just be expensive.

Senator CALVERT—You were talking about moving people to Bentley. I know that when CSIRO moved to Hobart there were concerns from people who were working in Melbourne at the time about relocating. You are relocating people here. You are talking about relocating people to Bentley. What is your long-term plan? How do you cope with that? Do the employees eventually settle down and decide that the move was for the best?

Dr Hobbs—It is quite variable. Many of the people that we moved to Brisbane five years ago or so were quite happy to start with but then went off and got other jobs or went back to Melbourne or somewhere, but a lot that moved over that five years are very happy with the move. It is difficult to know what will happen in a move to Bentley. Our division personally does not intend to move anybody from the east coast to Perth. We will just increase our numbers by advertising. Petroleum does intend to move. The drop-out rate could be as high as 50 per cent I suppose.

Senator CALVERT—You said earlier that you like to have your operations close to the customers. Has that always been the case? Is CSIRO now saying, 'Okay, we want to move our areas of excellence out into the community into areas where they need it'? Has that always been the case, or is this a new and more practical way of thinking than it was in the past?

Dr Hobbs—I do not think it has always been the case. My personal experience is that we had laboratories in Melbourne which were about a $5 million or $10 million type system. We moved three people here and that grew to 250 in three years or something. The same kind of thing is happening in Perth now. We do not have a building but we are moving people across. The projects are coming on quite strongly at the moment. I think that is true for minerals too. There is a resistance from staff to do it, but it is quite variable. Some rejoice at the opportunity and find a completely new life.

Senator CALVERT—It looks like the policy of CSIRO will be moving people to where they need them. Is that right?

Dr Hobbs—Yes. That is in the contract that you sign from day one.

Senator CALVERT—You have had to go to a fair amount of bother and work today to put all of this together for us to have a look at. Do you have a forward plan of all your capital works that you may be doing down the track—not only major projects but minor projects as well?

Mr Moody—Is that a question nationally?

Senator CALVERT—Yes, I am talking about nationally.

Dr Hobbs—There is a forward capital works plan, yes.

Mr Moody—CSIRO has a Capital Investment Plan that looks many years ahead as best it can to provide facilities, with research being the priority. Research requirements change, obviously, sometimes in the short term and sometimes in the long term, but we do have the Capital Investment Plan that does all it can to support research priorities across Australia. There can be a range of projects from $500,000 up to, for example, today's facility of $22 million that has been allowed for and planned for in our capital investment strategies.

Senator CALVERT—Is there any use in keeping the Public Works Committee abreast of what is going on so that we have a record of the minor works? We do that with Defence to a certain extent so that Public Works has some idea of what is going on down the track.

Mr Moody—We would be happy to provide that.

Senator CALVERT—It may be handy for you people to not have to go through a process like today's, which could create problems. If, for instance, with the Bentley project—

Dr Hobbs—The Bentley building is full right now. It has been designed and we

know it is full. That is two years off completion, assuming that it gets through this committee. Bentley stage II is in some people's brains already, but there is room for limited expansion on that site. It will certainly be an issue.

Senator CALVERT—Are you saying that you would like the committee to deal with these matters as promptly as possible to allow matters to proceed?

Dr Hobbs—To be frank, if an election is called quite soon then we may even have to go through this process again and it presumably will make it at least six months late, but my worries are then for Bentley, because that also could be put off for six months if an election were called quite soon.

Senator CALVERT—I think it is important that, if there is anything we can do to help in that way, we do help. On another matter, I looked through the QCAT associated research groups paper that you gave us this morning. We had a look at one of these particular operations—the CRC for alloy and solidification technology as far as magnesium is concerned, or is that the magnesium foundry project which appears later down the page? Obviously, CSIRO money, government money and state government money is going into those projects, along with money from the Australian Magnesium Corporation. If, as has happened in my own state, they want to develop magnesium downstream processing, what are the chances of CSIRO helping there? Would they have to go back to square one, as may have been suggested this morning, and do their own technology rather than make use of what has already been developed?

Dr Hobbs—I do not actually know the answer to that question, but I think there is a difference between, say, mining that material in Tasmania and using it as a feedstock for Gladstone, as opposed to the other issue of actually putting in a new facility in northern Tasmania. In other words, the existing technology presumably could be used with that same feedstock in Gladstone without duplicating those facilities in Tasmania. But I do not really know the answer to that question.

Senator CALVERT—The work that is done here in Queensland would help the Queensland government and others. Is that their property? Is that there for general use in other areas around Australia?

Dr Hobbs—I tried to find out before this meeting, following our discussions this morning, what the intellectual property issues were with respect to that project, but I did not get very far. I would have to take that on notice and come back to you.

CHAIR—That is fair enough.

Senator CALVERT—I think it is important. The chairman raised the question of, whilst private capital goes into a particular firm for a particular reason, what benefit the rest of the people get from that. I suppose they get jobs and everything else that goes with

it, but intellectual property is something that is jealously guarded these days—and quite rightly so.

Dr Hobbs—It is our policy within CSIRO as far as possible to hold the intellectual property rights ourselves, but if a company comes in and pays full commercial rates and pays for the whole project, then often it is very difficult, if we take that job on, to convince them that we then own the intellectual property.

Senator CALVERT—I presume if proponents of that particular mine and downstream processing proposal in Tasmania approached CSIRO, they would get a sympathetic hearing.

Dr Hobbs—Most definitely.

CHAIR—I made the point this morning—and I start to think of Telstra, Optus and others—that there is a view widely held, when people own something—it might be a railway line in the Pilbara—that if it is not being used to its capacity government should intervene to ensure that reasonable commercial arrangements can be made by others to use that railway line, simply because that would be better for the national economy. The purpose of my question this morning—and Senator Calvert's—is that, whilst this might be developed with the aid of a national government institution, there should be a role, probably outside CSIRO, to ensure that access is available to other Australian industries, at a price, but not where someone folds their arms and says, 'Go to hell! I've got it and whilst you could add to the national economy by being able to use it, we won't even rent it to you at a price.' Anyway, as I said this morning, that is an issue for another day, but it is interesting that it has been raised here.

Dr Hobbs—The one way the community benefits is that that know-how, as opposed to intellectual property, is firmly entrenched within CSIRO. For instance, if another project were to come from Tasmania, the solution might be quite different from and far superior to the one that had already been developed.

CHAIR—Yes, I can see all that.

Senator CALVERT—How do you classify projects when they are put forward? Does someone just bowl up to you and say, 'We've got this new beaut idea and we'd like you to have a look at it'? Do you have a panel of people to assess and prioritise these projects?

Dr Hobbs—Different divisions do it in different ways, but there is a portfolio approach to the whole thing: what kinds of projects do we really want to be involved in and how do they add to our science? Those are fully costed, but then the price might be different depending on what we want to get out of it. If it is a straight commercial proposition we would try to get more than the commercial rate, but if we can see a way of

developing a brand-new piece of science which could not be done any other way we might do it for free. There would be a complete range of ways of doing that.

Senator CALVERT—Are you getting any new, exciting ideas thrust upon you by people or groups who can see perhaps a commercial benefit from developing, say, something like gallium arsenide? It is a new semiconductor material, isn't it?

Dr Hobbs—Yes.

Senator CALVERT—That is a good example of something that comes to you. How do you assess something like that where pressure is put on to spend a lot of money on this?

Dr Hill—We had a similar situation very recently in relation to titanium metal. The solution we came up with was that we knew ad hoc that there were a couple of research groups around different divisions that had expertise related to the production of light metals. So, under the umbrella of the new sector process for planning in CSIRO, I called together some representatives of each of the divisions and made a general call on the electronic mail network, and put together a half-day meeting where the scientists from those various groups—from Manufacturing Science and Technology, Telecommunications and Industrial Physics and Minerals—got together, chewed the cud and threw the balls into the air to find out how we could put the best possible team together to look at titanium metal production. That has now started a process that is going to snowball into, potentially, a full-blown project. That is the sort of thing that can happen and that is the sort of thing that CSIRO is very good at because it can draw expertise from a range of scientific and engineering disciplines.

Dr Hobbs—For instance, recently we had an approach from a company on the west coast of Tasmania. The vision is to find a new Rosebery. It involves a lot of technologies that we want to develop. This kind of thing will drive us quite hard and we relish it. So the price to the company might be about half of the cost.

On the other hand, we also have an approach from Anglo-American in South Africa to look at the Witwatersrand deposit and try to understand why it is there. The cost to them is very large because they are not an Australian company, but it does give us a lot of science that we normally could not get. The opportunity to look at the biggest in the world in anything is an opportunity that you cannot pass up. You learn a lot from it.

Mr HOLLIS—I note on the plans that you are going to have a new entrance. Why was it necessary to have a new entrance there?

Mr Moody—The existing site entry from Moggill Road is currently located in what is perhaps not the optimal site in the long term because it does not provide a simple entry point and there is difficulty with sight distance requirements at the intersection of

Moggill Road and the site entry. We could either spend a lot of money improving that entry or it could be resited. In fact, as part of a land swap arrangement with the developer, he is going to construct a new site entry in the location that is probably best suited to our needs, which provides a safer entry and provides a better identity, we believe, for CSIRO at QCAT.

Mr HOLLIS—On high tech and all the things that CSIRO is involved in, it seems to me that the one area that you have not got high tech is in your sewerage system. It seems strange that in a centre of excellence you have this sort of system. I know you are doing interesting things with the sewerage, but it seems a bit strange—and I know it is not your fault, and it is a local government matter—that that area is not sewered or anything.

Dr Hobbs—We had certainly anticipated at stage 1 that the site would be sewered and treatment works were constructed as an interim measure, pending the connection to sewage reticulation. We understand now that it may never occur, and as a result we are faced with the prospect of providing sewage treatment works that meet long-term capacity requirements for the site. The treatment works that we are proposing will serve our long-term needs and will serve a site of up to 600 people. We are committed now in the long term to treatment on site.

CHAIR—You could service the adjoining subdivision to make money.

Mr HOLLIS—Yes, go into business. The chairman raised the question this morning when we were at the site about the traffic. For the record, could you tell us about the road that is going through and why it is necessary because of what those vehicles convey.

Mr Moody—The current access to the process bay compound is a single lane road that runs between existing process bays and research wings. We are extending that road to service the new process bay compound as part of the complex. Our concerns are that if, for example, a vehicle is loading or unloading on the existing road, there may not be the opportunity for a vehicle to get out effectively—whether it is an emergency vehicle or whatever—from that compound due to the main road being blocked. As a result, we are constructing a new ring-road to the east of the new compound and the existing compound, which will serve the car park to some extent, but basically it will provide alternative access and egress from that bay compound should the existing road be blocked for any reason.

Mr RICHARD EVANS—I notice that the site is on 24½ hectares of land. Is that crown land?

Mr Moody—It is CSIRO land. There is a distinction.

Mr RICHARD EVANS—What is the distinction?

Mr Moody—Going back to the 1980s, all of CSIRO's land was Commonwealth land. I believe that it was in the late 1980s that that land was transferred generally to CSIRO title in its own right. It is owned by CSIRO. We have the opportunity to sell or buy that land within our own portfolio without its being considered crown land as such, or Commonwealth owned land.

Mr RICHARD EVANS—In your consultations, you went to various local resident action groups and, because it isn't crown land, you are not expecting any claim?

Mr Moody—You mean native title claim?

Mr RICHARD EVANS—Yes.

Mr Moody—No, because the land is not, as such, untitled crown land it does not come under the category of a claim for native title. In fact, we have gone on further from there and our understanding is, from consultations with various groups that have been approached, that there are no claims on that site anyway, or there were not intended to be any claims on that site. As far as consultation goes, we have consulted at length with local community groups. We had a newsletter drop to something like 300 houses in the area to seek their input in the preparation of an environmental management plan for that site, and we covered all such issues.

Mr RICHARD EVANS—Were any issues raised from there?

Mr Moody—No. In fact, very little response came from the community. My understanding is that the responses were generally quite positive.

CHAIR—My question, Dr Wright, has to do with your particular projects which are significant to this particular development. What is the time scale, in your view, whereby some Australian coal producers could be able to inform their clients of the suitability of their product—their particular coal—for a gasifier generation system? Do you believe you can put some sort of time scale on that?

Dr Wright—Yes. I believe that some of the companies could actually inform their clients now about how their particular products behave in this technology, but it would be based on mathematical modelling and on small-scale laboratory tests. It just depends how the clients will take those results, whereas if you can actually feed this material into a process which simulates all the conditions at once, then the results are much more believable and will be accepted as such. The project we have up and running with the CRC is a three-year program. I would imagine that towards the middle of that program the results coming out will be believable and acceptable to our clients overseas. Towards the end of that program, I think we will have a package of information there which will be an invaluable marketing tool to our coal producers.

CHAIR—In terms of overseas capital, could there be a prospect of a foreign coal producer, for example in Indonesia, coming to us and asking whether, for money, we would do a test for them; or would there be so many other facilities around the world that it would not matter?

Dr Wright—To take the example of Indonesia, I think this would a good facility for somebody who wants to test small quantities of material—to at least start to survey just how their material would behave—and we would be relatively cheap I suppose, in that regard, because of the smaller scale of this facility. To run a full test overseas at one of the demonstration plants would be a very expensive option for them. So to do the initial work, I think it would be quite reasonable for people to come to this country.

CHAIR—In other words, when you look at our five criteria, it has a wider benefit than just to the Australian industry. The project itself could bring revenue to the CSIRO outside of Australia.

Dr Wright—Yes, I believe so. Another important issue which I think I should raise is that I would like to see this new technology introduced into Australia; and I believe that this facility is going to help give an impetus to that push.

Dr Hobbs—We did talk about the time scale for doing that and, of course, if the project is not approved soon that would delay it quite substantially.

CHAIR—Is that a threat or a promise?

Dr Hobbs—Just a statement, Senator.

Mr RICHARD EVANS—I have been prompted to ask how this new centre will affect the duplication, if any, with the Julius Kruttschnitt Minerals Research Centre. How will you handle that?

Dr Hill—The Julius Kruttschnitt centre is a world class mineral research centre, as everyone knows. The Division of Minerals also has activities in mineral processing. There are some areas of overlap, and there are some areas of complementarity. We have worked together in the past on many projects. At the moment we are not working together on too many, but there are plans afoot to increase that collaboration. That is my intention.

CHAIR—Thank you, gentlemen, for your cooperation. It is greatly appreciated. For your information, if after the other witnesses have given evidence you feel there is any reason you wish to come back to address any matter that arises you will be welcome to do so.

[2.16 p.m.]

DAVIES, Mr Alan Leslie, Manager, Research Administration, BHP Coal Pty Ltd, GPO Box 1389, Brisbane, Queensland 4001

CHAIR—Welcome. The committee has received a late submission from BHP Coal dated 11 June 1998. Do you wish to propose any amendment to that submission?

Mr Davies—No.

CHAIR—If there is no amendment, it is proposed that the submission be received, taken as read, and incorporated in the transcript of evidence. Do members have any objections? There being no objection, it is so ordered.

The document read as follows—

CHAIR—I now invite you to make a short statement in support of your submission before we proceed to questions.

Mr Davies—I have been in the research field with BHP Coal over the last five and six years, which encompasses the period of time that QCAT development occurred. I would like it on the record that I have been invited here by CSIRO, and I believe that their reason for doing so is to have a representative from industry who can be seen to be objective and provide a customer focus. I also make the point that I was very pleased to do so. I think it is very close to industry's benefit to hear and have these facilities enhanced.

The submission is very short and I think relatively simple. It basically says that BHP Coal has been a major industry supporter of all of the research organisations with the exception of the magnesium associated ones, which do not have too much relationship to coal. We have been a supporter of those organisations right through the time that QCAT has been established, and I would say a supporter of those organisations before QCAT was established. I provided some statistics in the submission which I think point out that we are in the position of being a large customer of the research capability at the site. One of the things that I have provided in that submission is a paper that I recently prepared, which will cover some of the issues.

Clearly, we believe that we have had good value from the research organisations that are there. We are probably in a unique position within the industry at the moment of being able to say what benefit that research has provided because we have just recently completed a review which actually attempts to measure the gain for the buck that we have spent in research over the last five years.

Although I am not saying at all that all of that research was done through the QCAT organisations—in fact, probably something around one-sixth of that research involved direct funding of the organisations at QCAT—I would think that the value calculation that was associated with that is still quite relevant. That calculation says that for every dollar that was spent in research the return to BHP Coal is of the order of at least five times, and quite possibly eight times, when you measure the benefit in both improved technology and improved processes. I think on that basis we would believe that the facilities that have been established at QCAT have provided a benefit to both the industry and the community in general.

Certainly, our findings have been that there have been things which are very beneficial: the proximity of those sites to our major operations in Central Queensland; their proximity for discussions with our research personnel based in Brisbane; the facilities that have been established there and also the fact that there have been a number of different organisations which take a cooperative approach. I would say that it is quite clear that the level of support that we have provided to the facilities would not have been as great if the QCAT facility had not been there. So it is a logical extension to say that, yes,

we support further extension of the site.

As a member of the black coal utilisation CRC, which is the organisation which will be involved with the gasifier, we are very strongly supportive of the establishment of the gasifier at the expanded facility. I also commend the emphasis that has been given to several issues there. One is the technology transfer, because I think one of the things that our own review of our research has shown is that the big emphasis has to be not just on developing the technologies but on transferring them and guiding them into providing the benefit that our value calculation has evaluated. The other issue is the emphasis that has been given to facilities that are associated with mine safety, which is an area that we have to double our measures on to ensure that we minimise the number of injuries and in particular reduce fatalities to zero, which is certainly what the company's perspective is on mine safety.

Mr RICHARD EVANS—What would BHP Coal spend in approximate terms on research and development every year and what percentage of the overall expenditure would that be?

Mr Davies—In comparison to overall expenditure, I probably cannot give the total dollars. We are roughly a $3 billion company if you look at the value of sales. That includes the well-known mine sites in Central Queensland, the Illawarra collieries associated with the BHP steel operations and the operations in Indonesia.

It is easier for me to answer the question about our dollars of expenditure, although I would say that, given the current industry circumstances, the dollars that I will refer to as a precedent of the last five years will definitely be less in the current financial year and probably even reduced for the following year. Our average expenditure on research, if we look at direct funding from BHP Coal, has been in the order of about $15 million annually averaged over the last five years. If we look at indirect expenditure, through the fact that we contribute to the Australian Coal Association research program, which spends about $9 million annually on research, we contribute roughly 30 per cent of the funds that are gathered through the 5c per tonne levy that are involved in that area of research.

On top of that, we are members of cooperative research centres. As participants there, we are putting funds in the order of several hundreds of thousands of dollars to each of those CRCs on an annual basis. I mentioned that we are a participant in the black coal utilisation CRC which is involved with the gasifier. We are a participant with the CRC for mining technology and equipment, which is based out at QCAT, so all of those figures would add to that amount that I mentioned.

Mr RICHARD EVANS—Is that all exclusively spent in Australia or is some spent offshore?

Mr Davies—Some of our research project involves accessing technology that is

not available in Australia. I would say quite definitely that, if it is available in Australia, we buy it in Australia. For example, there is a well-known project, and it has actually been covered in the paper that I presented—which I hope all committee members have received—called the innovative large mining truck. Mining trucks are just not manufactured in Australia; in the Western world all of the mining trucks are manufactured in the USA. So in those instances what we have done there is everything we can in Australia, including owning the intellectual property and the redesign of that truck, but to get it manufactured we had to go overseas.

Mr RICHARD EVANS—You said that this year and next year you are likely to reduce your expenditure in that area. Is there a particular reason for that?

Mr Davies—It is simply that the current market conditions in the coal industry are probably the worst I have seen in the 20 years that I have been in the industry. I would think all of the areas of discretionary expenditure, exploration and research are the areas that are under very definite pressure to keep to a minimum. I would think that that is a natural company response to the circumstances.

Mr RICHARD EVANS—Is that a trending down?

Mr Davies—I would hope it is only a minor issue and that we will continue, once the market turns around, to show the same sort of support of research. I guess I have very much a vested interest in maintaining strong support of research.

CHAIR—Mr Davies, thank you very much. We appreciate your input and the time you have taken to come before our committee to give us a commercial view of this particular project.

Mr Davies—Thank you.

[2.27 p.m.]

GANNON, Mr Robert Henry, Special Adviser, Major Projects and Investment Attraction, Department of Tourism, Small Business and Industry, 111 George St, Brisbane, QLD

CHAIR—Welcome. The committee has received a letter from you dated 11 June 1998 in which you request leave to make a short statement in support of the proposal before the committee. I invite you to make that short statement after which we will proceed to questions.

Mr Gannon—The Queensland government seeks to appear before the committee as a supporter of the project, as the organisation providing for the original funding for QCAT I, and as the organisation providing the funding for the expansion of QCAT II. As a policy issue, the Queensland government attaches great importance to the role of research and technological excellence in maintaining the global competitiveness of our mining and energy industries and in encouraging businesses to invest in downstream processing activities.

The government has taken a leadership role in facilitating a limited number of world-class centres for research and development of these technologies in Queensland, and is generally prepared to enter into alliances and joint ventures to provide funding for infrastructure to achieve these goals. QCAT is a key initiative in this program. That is already evidenced by the commitment of some $21 million to QCAT I and the additional $22.3 million which is to go into the construction of QCAT II.

The Queensland government considers the research and development activities to be essential requirements to the economic development of its state in Australia. You mentioned the magnesium technology before. In fact, the Queensland government has a small ownership of that technology and is more than happy to see it licensed to other users. We would probably choose to see it commercialised quickly here first.

Within the proposal that is before you today, I guess we have an overriding concern with the gasification facility. At the time when we set a program for the implementation of the gasification facility, it was not apparent from our previous investment in the centre, which was built entirely by the Queensland government, that the transfer of the responsibilities to CSIRO would involve hearings of this committee.

We are at a stage now where we have a Tokyo power company and a Korean power company interested in committing to trials. Anything that the committee could do within its powers to assist with that we would support and encourage. That sums up the position of the government. If the committee has questions, I am happy to answer them.

Senator CALVERT—I greatly appreciate the offer that was made by the

Queensland government as far as magnesium technology is concerned. You own a small part of it, but I presume that the major part of the technology is owned by Australian Magnesium Corporation. Is that correct?

Mr Gannon—My understanding is that the intellectual property is held by the Australian Magnesium Corporation, CSIRO and the Queensland government. There are a number of technologies held by that group. In the first instance, the Australian Magnesium Corporation has the right to exploit the technology to refine magnesium. Without giving too many commercial secrets away, we believe it to be well in advance of existing technologies employed throughout the world.

It is leading edge technology and, from the Queensland government's perspective in developing the magnesium industry, particularly in the use of magnesium in automotive componentry, we see it as essential that alternative supplies to the Australian Magnesium Corporation be established so that users of the metal have some security about supply and embrace the use of the material in automotive components.

CHAIR—I do not think we want to pursue that issue too far today, because it is a little bit outside the terms of reference, but—

Senator CALVERT—You would be interested to know that there is a major investment in Gladstone of something like $360 million. Is that correct?

Mr Gannon—In fact, it may be a little bit more than that again. It is a significant investment.

CHAIR—We welcome your reference to the role of the Queensland government in providing this funding. It was not pursued earlier because we felt that you would have the right to raise that matter or not raise it but, as you have, I do not know that we need any further evidence on it. We are aware of the arrangements that are made. I think we can leave it at that point, but it is obviously going to be of great help to CSIRO in this development. As there are no further questions, we thank you for your attendance and the obvious support that is available in a very material way from your government.

In the circumstances, as far as representatives from CSIRO are concerned, I do not think there was much controversy arising from the evidence of the last two witnesses as far as they are concerned. Is there any matter that you wish to reintroduce as a result of that evidence? If not, we will proceed to closure of the hearing. I will just deal with the correspondence received by the committee, which has been circulated to members of the committee. It is proposed that the correspondence be received, taken as read and incorporated in the transcript of evidence. Do members have any objections? There being no objection, it is so ordered.

The correspondence read as follows—

CHAIR—I thank all the witnesses who appeared before the committee today and who assisted our inspections this morning. I will be able to thank members after we conclude another stage of our inquiry in another matter. Thank you for your appearance here today. Thank you for the hospitality you have extended to us during our stay.

Resolved (on motion by **Mr Hollis**, seconded by **Senator Calvert**):

That, pursuant to the power conferred by section 2(2) of the Parliamentary Papers Act 1908, this committee authorises publication of the evidence given before it at public hearing this day.

Committee adjourned at 2.34 p.m.