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Witnesses: Claude Perras and Richard Morgan

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Members present

Lord Teverson (Chairman)
Lord Hannay of Chiswick
Viscount Hanworth
Lord Hunt of Chesterton
Lord Moynihan
Lord Oxburgh
Baroness Neville-Jones
Lord Soley
Lord Tugendhat

Examination of Witnesses

Claude Perras Head of Sustainability, London Mining plc, and **Richard Morgan**, Head of Government Relations, Anglo American

Q203 The Chairman: This is the second part of our session today. We are looking at mining. I welcome you, Mr Perras. I understand that Mr Hossie is not available after all, but we are very grateful to you for coming along. You should have a copy of our interests. We will be going through a number of questions that you have seen. At the moment you are clearly the only person who can possibly answer these questions, so I am afraid you are going to have to do all of them.

Claude Perras: I am going to be drilled, am I not?

The Chairman: Perhaps you could introduce yourself and then we will start the session.

Claude Perras: First, thank you for inviting us to this Committee. I apologise on behalf of our CEO, Graham Hossie. We had an emergency at the office this morning, as you may have heard in the news with regard to London Mining. My name is Claude Perras. I am the head of sustainability for London Mining. I am responsible for health and safety, the environment and external relations, so I cover most of the angles when we develop projects.

I am here to try to respond to your questions and to help you to better understand the Arctic and some of the challenges that the industry is facing there.

The Chairman: You have interests in Greenland, or you have had. Have you been there?

Claude Perras: I have been there many times. I am also leading the IBA negotiation with the Government of Greenland and two municipalities.

The Chairman: Excellent.

Claude Perras: I am quite well versed about the area and some of the challenges, especially in Greenland. I am originally from Canada, so I have also worked in the northern part of Canada, and in some of the provinces as well.

The Chairman: We look forward to your contribution this morning. Based on your area of expertise, how important in a global context are the mineral resources of the Arctic likely to prove to be in the future, and are there particular resources that might be of importance to the UK and its mining industries?

Claude Perras: The Arctic is a frontier area for the mining industry. The resources are there. They have started to be exploited and extracted in various parts of the Arctic. I can focus more on Greenland. Greenland does not have much experience of the mining industry. It is a matter of time before these resources are accessed. For the UK, there are different commodities—iron ore, rare earths, various nickels et cetera—that are strategic for any developed economy. These are the last reserves of various commodities existing on the planet right now. They will be developed eventually. It is a matter of time.

Q204 The Chairman: You have been listening to some of our evidence from the oil side of the business. Clearly one of the suspicions there is that because of the price of oil and gas, in a way there is less incentive to move from exploration into production. On the mineral side, there is perhaps this driver of rare earths or other minerals that are less prolific

elsewhere, particularly in view of the Chinese position on rare earths. Do you think this will be a major driver, despite the difficulties? Is this a very different situation from that of the oil and gas industry in this area?

Claude Perras: In the mining industry, you have different commodities, so the cycle of the prices for commodities varies. You may have more drive to develop a certain type of commodity at a certain time. Right now, the iron ore price is quite low and the rare earth price is quite high, so it varies. It is a matter of timing. The industry will develop projects in the planning process for when the price will pick up. Currently, developing an iron ore project in Greenland would be quite challenging because of the price of iron ore, but when the price starts to go down a lot of companies start planning for when the price will pick up.

The Chairman: To come back to my first question on UK interests, are there particular resources that might be of importance to UK mining interests?

Claude Perras: I believe—I am talking about the UK and Europe—that currently resources such as iron ore, rare earth and other commodities such as gold are of strategic importance to the UK in the long run. Getting access to commodities is always a strategic issue for any country in the world, and I would think it is for the UK Government.

The Chairman: Thank you, I will come on to Viscount Hanworth. We welcome Mr Morgan.

Richard Morgan: I am sorry I am late.

The Chairman: I am sure the House of Lords is quite a difficult place to get into on occasions. We are on question 1 at the moment. Perhaps when we get to the next question I can ask you to introduce yourself formally.

Q205 Viscount Hanworth: Are there exploitable resources of uranium or thorium in Greenland or elsewhere in the Arctic Circle, and if there are what kinds of national interests or excitements have been expressed?

Claude Perras: There is uranium in Greenland. There is also uranium in northern Canada, in the Canadian Arctic, as well. These are strategic resources. There has been a big debate in Greenland about the exploitation of uranium. It has decided that it will proceed with the exploitation of uranium.

Viscount Hanworth: Do the Chinese have any particular interest that you can describe to us?

Claude Perras: The Chinese are prospecting like other countries. Currently investors in Greenland are coming from China, Canada and the UK. There is a broad range. It depends on where the head office of these companies is. Various countries are currently prospecting in Greenland.

The Chairman: Mr Morgan, would you to introduce yourself briefly, and then we will move on.

Richard Morgan: I would be happy to. I am in charge of government relations for Anglo American mining. We have certain interests in the Arctic, but not many at this stage, primarily on the Canadian side and in Finland. We had a look at Greenland as well. Essentially for us, it fits into the wider picture. There are about 10 commodities that we are after. In Canada it is mainly diamonds, and in Finland we were looking primarily at a copper-nickel polymetallic mine. There is a range. We have had some conversations with Greenland. That is the rough introduction to our interests in the Arctic.

The Chairman: Thank you.

Q206 Lord Moynihan: In the context of that introduction, have you had any support for your business activities in the Arctic from the UK Government?

Richard Morgan: We had a presentation at a UKTI-managed event in the City that focused mainly on the Scandinavian countries rather than on the Arctic per se. It was really about accessing Scandinavia, but with a view, certainly in our case, to mining further north, so we

had some overlap in that sense, but on the Arctic as such, no. In a way, as with all these things, we have not yet got to the stage where there is enough commercial momentum behind our interest to be taking it further. It is still very much at the exploration stage.

Lord Moynihan: Do you have anything to add?

Claude Perras: There was a conference on the Arctic, organised by the UK Government, a few months ago. I believe it was last June here in London. I will focus on Greenland more specifically. As you know, the British embassy in Copenhagen looks after Greenland. My experience is that people are not very familiar with the area. The UK Government could do much more to support British industry if it is interested in really exploring the area. I am sorry to say this, but from experience I did not feel that they were very useful.

Lord Moynihan: Out of interest, do you know whether other Governments or the European Union give significantly more support to their companies looking to engage in the Arctic, and if so, can you give us any examples?

Claude Perras: The EU has called a few meetings about Greenland, which we have attended a few times in Brussels, with regard to the development of mining resources in Greenland. There are other countries. As you know, it depends on how the companies are being funded, but there are a lot of companies coming from Australia and Canada and prospecting. The last time I was there, state governments from the US were going there to help to develop the infrastructure. As you know, one of the major problems with work in the Arctic is the lack of infrastructure. This is one of the areas in which other countries are coming forward to try to support the development of the local infrastructure, which is a major gap for developing some of these resources.

Lord Moynihan: In that context, do you feel that the UK could do more?

Claude Perras: Of course, much more. When you go to Greenland, you will rarely hear about any UK government support in the Arctic to help to support the development of these resources.

Lord Moynihan: Do you agree, Mr Morgan? Do you think that we can do more at government level to support your potential activity?

Richard Morgan: Certainly my exposure to Greenland has been exactly in the context that Claude describes. It was facilitated in Brussels and with a willing combination of the Greenland Government and the Danish Government. It did not particularly occur to me to try to work a UK angle into that. In my experience, we try to call on the UK Government if there is a political issue of some sort and we not getting the access that we think we ought to be able to get, whereas in this case they were being very welcoming.

Q207 Lord Oxburgh: Together you have quite a lot of experience in mining in various Arctic territories, and you will have experienced a range of different regulatory regimes. Will you talk about the similarity of those regimes, or the differences? To what extent do they cause difficulties?

Claude Perras: If we talk about Greenland and the Scandinavian countries, they are more or less following the regulatory framework that exists in Scandinavian countries. I must admit that in the case of Greenland the red tape is quite cumbersome. It is very difficult to progress any licences or projects in Greenland, because there is a lack of experience in dealing with the mining industry. A lot of the time in our negotiations on the licensing, even now with the IBA that we are currently negotiating, I can tell you that it is quite difficult because our opposite numbers on the Greenland side have never done it before. There is a lot of red tape, and they are very suspicious. Being a former colony of Denmark, the bureaucracy of Greenland is mainly run by Danish people and Denmark is not a mining

country either, so they do not have the experience. I am now a UK resident, and the UK could bring a lot of support to a Government such as that of Greenland with a framework of support for dealing with the mining industry to break these suspicions and to create a more favourable environment in order to engage in these negotiations.

Richard Morgan: It is an interesting follow-on from our experience in Finland. It was in the Arctic Circle and Finland has a mining tradition. I suppose I should preface this by saying that we increasingly think that there is no easy place to get permission to mine, so let us not set the threshold in the wrong place. Every place is increasingly challenging for various good and maybe not so good reasons.

The Finnish example was interesting for us, because they thought they had a good tradition of mining and wanted to show that and to get mining back up in the north of Finland—it would create jobs. But that was only one part of the government structure. It was largely the Ministry of Mines. It then transpired that there were more challenges to its authority than it had thought. The exploration team on our side was made up of geologists, and the mining technical team on the Finnish side thought it had an agreement, but in practice the Environment Ministry and others have a stronger remit to say that you can and cannot have licences to do things.

Lord Oxburgh: How does that compare with Canada?

Richard Morgan: That is interesting because Canada has a greater tradition of allowing mining, but in both cases as a responsible mining operation you will want to have full local permission. The issue in Finland had been reindeer herding, and in our case there is a relatively rare moss in the area. The Canadian bit and the Finnish bit freeze over in winter, clearly, but in the summer you have a lot of ponds and puddles with moss in, so it has been a question of seeing what is there without interfering with it. In the Finnish case, it is covered

by a Natura 2000 conservation area, so you have to be extremely careful on those sites. In fact, in Finland, we have been drilling only in the winter when it is frozen so that we do not cause any disturbance to that. There is a whole question there.

In Canada, the question is the relationship with the indigenous peoples, the first-nation communities. The Cree are in Hudson Bay, but up in Snap Lake, which is further north on north-west side in the Northwest Territories, the issue is that we will build ice roads to service those mines in the winter. The communities tend to hold those roads to ransom, not particularly against us but because they want things out of the Government. They are used as a kind of bargaining tool. There is quite a lot of complexity to how you make those things work. We think that our relationship with the first nations is good, but it all goes to whether you can have a licence to operate.

Lord Oxburgh: So it is a very diverse picture, and there will probably be objections to what you want to do, but the motivations for those objections may have a different basis in different cases.

Richard Morgan: Yes, and that is similar in all parts of the world. We had a very big potential project in Alaska, which in the end we walked away from for much the same sort of reason – the Pebble project. Again, it had quite a lot of local support, but there was a wider national decision and it conflicted with the salmon fishermen. The moral of that story is not to go up against salmon fishermen with deep pockets.

Q208 Lord Hunt of Chesterton: We have touched on this, but what measures do you take to mitigate environmental and societal risks in your work?

Richard Morgan: I rather anticipated that question.

Lord Hunt of Chesterton: That is all right. Might measures be required in Arctic states that are very different from those elsewhere in the world? One of the things that I learnt a bit

about in Sweden is that in the Arctic areas they are using these presumably old mining areas for storing nuclear waste. If you fill a mega-hole in the ground, are there things that you can put into that hole such as nuclear waste? There is a nuclear programme in Sweden and a growing one in Finland. Is that something you would get involved with?

The Chairman: Finland is building its own hole at great expense.

Richard Morgan: I do not have particular experience of that. The wider question about the social and environmental risks applies everywhere we mine, but obviously in the Finnish example I gave—

Lord Hunt of Chesterton: The Arctic Council is, hopefully, a way of sharing best practice and knowledge. Does it have any role in that respect?

Richard Morgan: I do not think we have had enough engagement.

Lord Hunt of Chesterton: Is there no sort of industrial panel in the Arctic Council?

Claude Perras: I understand that there is a private sector group that works with the Arctic Council, but the framework for social and environmental impact is left to each country and each jurisdiction to decide how it wants to do it. Greenland, for example, has resiled from the Danish regulatory framework, and each province in Canada has its own regulatory framework, so it is very complex. It varies depending on which direction you go in, but more or less they follow the same standard. Today, you are also scrutinised by external groups—the NGOs and the advocacy groups—and you really need to be robust about social and environmental impacts. Then they need to be diffused, and discussed in public hearings to make sure that they are, but you will always have groups that are against these resources.

The Chairman: Perhaps I can just come back to the core of Lord Hunt's question. I think we are all aware, from the previous session, of the obvious environmental risks offshore. Mining is, at the moment anyway, completely onshore. We have talked generically about the

environmental risks onshore in the Arctic, but I do not think we have ever talked about what they are. Could you just tell us about those environmental studies and give us a list of the top priorities in relation to environmental issues? What are they?

Claude Perras: As Richard said, one issue is reindeer—in Greenland, disturbing the caribou herds when they are moving around. Water contamination, depending on the type of mineral that you are extracting, is another. Those are the main issues. In most cases, there is not much population. There are only herds of caribou, that is all, so you are not disturbing the environment for human beings as such. Those will be the three things when you are talking about onshore.

Offshore, people are concerned about the boat when you are shipping the mineral out—the impact on the fishermen, the whales or some of the birds and fish. Those are the issues that have been raised by the local fishermen's and hunters' associations in Greenland for example. The same issues are raised in Canada by fishermen's and hunters' associations, especially from the native groups. With mining projects, the question is how you minimise the environmental impact on those groups, especially on the fauna and the flora.

The Chairman: Mr Morgan, would you have the same list? There is one thing that I am particularly interested in as I come from Cornwall, where there is a load of mining waste, some of which I can see from my back garden. Is that all shipped out as well? How is that dealt with in the Arctic?

Richard Morgan: The mining in Finland has not got to that stage yet, but no, the waste is of such magnitude that you could not ship it out. With diamond mining, for example, it depends, but you tend to be moving 1 tonne of rock to get 1 carat in diamonds, so you have a lot of waste rock, although that is good in fact: the diamond concentration in Canada and our mines is not as high as that. So a lot of rock is being moved and you have to have an

agreement about where you leave it locally. In practice, we grind a fair bit of it for putting the roads in place. There is a footprint, and you obviously have to negotiate very carefully with everyone to ensure that the footprint is as minimal and contained as possible. Biodiversity, and whether you are impacting on migratory flows, is a big issue. It is a question of access and being open with the community, then about being open in recording what you see and do not see, and about whether you have to have special treatment of your food waste so that you do not attract bears and things like that. All that has to be considered. Water is a big issue, as when it is not frozen the area is very wet, so you are often dewatering a lot of the mines. Sometimes you put it into the local rivers, and the De Beers people claim that the water purity has to be as high as bottled water that you would buy to put it back into the water system. The social and environmental requirements are high anywhere you mine, but they are probably more stringent and more scrutinised in the Arctic, for obvious reasons.

Q209 Lord Hannay of Chiswick: I wonder whether we could stand back a little and either or both of you could comment on how mining in Arctic regions has changed. It has obviously been going on in Svalbard for a very long time. How has the mining changed in recent decades, and in what ways are the standards which the Arctic Governments require of mining companies now different, particularly with regard to the issues that you talked about, such as community consultation and what you do if you close your mine or withdraw from the project? Have these become much more demanding in recent years? Are they moving constantly towards criteria that are more demanding on mining companies, or are they reasonably stable?

Claude Perras: On the closure side, the Quebec Government, for example, have open pits and mines with liabilities of \$1.2 billion, which the province now has to absorb because the

developer opened the ground and then went bankrupt and left without closing them. Today mining has evolved: you have to put guaranteed funds in the bank, on the day you start, for the closure process. It is much more sophisticated than it used to be, and large companies have already taken steps. When I worked for Rio Tinto, this was built into its financial model and the CAPEX from the outset; it is built in when you start your investment. Alcan—British Aluminium—was the same, as all the plants had a lifespan. That has evolved a lot. The Arctic is an extremely sensitive area for them and companies want to make sure that they have learnt from history. They have seen what has happened in other countries where there has been a long tradition of mining, and they want to make sure that that does not happen in this area in the future. The framework is not more stringent; it is just more responsible in terms of making sure that you have the resources for rehabilitation after the mine closes.

Richard Morgan: I think that standards have got progressively more demanding, whether that is coming from the Governments per se, as Claude says, or from our own self-governance. Obviously from a reputational point of view you need to be seen to have covered every potential risk as well as you can, because if you have a reputation for having not done something well in a sensitive environment, you are not likely to get permission to do it again somewhere else. It is a mixture of greater scrutiny and greater standards. I think there are shared standards across international bodies now, under which everyone knows what you are referring to when you say, “Yes, we will meet that standard or this standard”. There is greater expectation.

Claude Perras: You have two types of plan now, the environmental closure plan and the social closure plan, because you know that sometimes in these frontier regions and very remote areas the local town and community can be fully dependent on one industry. What is the plan to ensure that it does not collapse or die after the mine shuts down? A lot of work is

done now in preparation for that and on how you support economic diversification. That was not the case before. Then again, it depends who the developer is and what standards they are following or implementing.

Lord Hannay of Chiswick: Are most companies taking on board the fact that during the lifetime of one of these projects these controls and regulations are likely to become stricter? Are they capable of responding financially to increased demands?

Richard Morgan: I think the big companies are.

Claude Perras: I do not think it is a problem for the large ones. I would say that it is mostly the junior companies trying to develop resources that might be looked at. As Richard was saying, the ICMM has set some standards, which we are trying to follow. Then you have the IFC standard as well. There are a lot of standards and now you have a new initiative called the IRMA, which is the international responsible mining accreditation, which again is trying to bring some standards. We are moving in that direction. It is a matter of time, because the customers are asking for certification and want to make sure that any product is developed responsibly.

Lord Hannay of Chiswick: Are you saying that small companies are rather disadvantaged compared to big companies in handling this evolution?

Claude Perras: I would not say that they are disadvantaged, but they may not have the internal capabilities or the understanding that the larger ones have. I am the head of sustainability in a smaller company, London Mining, which had the foresight to put somebody in that post. You will not find that in other mining companies: there will not be a head of sustainability or a watchdog to make sure that the company does the right thing. Again, it is the host country that has the resources and that decides to whom it will give the licence. Selection criteria need to be put in place. I always say to Governments that they

should give licences to companies that are responsible and are following certain standards, to make sure that they are developing their resources responsibly for the benefit of the local people.

Q210 Viscount Hanworth: We have already covered these issues in part, but I shall raise the question again. What have the responses of indigenous people been to the operations of the mining companies? What measures do companies take to accommodate the interests of indigenous people and to ensure that they benefit from these operations? Your answer will need to be specific to the various regions in question, because experiences vary quite widely.

Richard Morgan: In our mine in Hudson Bay, we work with the Cree community, and probably about 60% of the workforce will come from that community. That will vary a little from area to area. Obviously your licence will depend on the local community feeling that it is getting something out of it, which is generally jobs. That is recognised. But it has been as much negotiated by us with the community as it has been through the Government.

Sometimes in certain countries you will get a target and you are told to make sure that you employ so many people from indigenous communities, but in our case we just made it work.

Viscount Hanworth: Have such requirements in relation to the local people impacted on the profitability of these various enterprises, to the extent that some have not been pursued?

Richard Morgan: That is a big question.

Claude Perras: To be very frank with you, this is something that you always debate internally: what is the business case? If you have a captive population close to your mining site, it is much better to invest in training them than to bring external people in, who are expensive to “fly-in, fly-out”, as we call it in the industry. That is extremely expensive. Most companies that have some experience would prefer to invest in training local people

because they are there and it is much cheaper than having to bring people from overseas to work on the mine site.

Viscount Hanworth: You have indicated that that possibility does not arise in certain parts of Greenland—I imagine in the western margins. Is that the case? What recourse has been necessary in order to run the operation?

Claude Perras: This is being addressed by the IBA—the impact benefit agreement—in which targets are agreed between the developer and the local government on the number of people you will have to train and how gradually over the lifetime of the mine we will start replacing expatriates with local people.

The Chairman: We are going to come to this in the next question. In Canada do the first nations, or in Greenland the indigenous populations, have a veto over mining development these days?

Claude Perras: In Canada they have a veto. In Greenland they do not. The structure is different. In Canada you have to negotiate with each tribe. I am from Canada and I am not scared of saying that the Canadian system is a mess. It is not transparent. Each native group can negotiate whatever it wants, and junior companies promise the world to some of these groups, which they will not get. Then you get to Greenland where it is very structured and there is no room for negotiation. It is very public. In Canada the IP agreements, most of the time, are not public. You do not even know how much money the native groups are receiving. You cannot find out how much they are getting. It is a private deal between the developer and the native group. In Greenland, it is fully public.

The Chairman: How about in other parts of the Arctic, such as Russia?

Richard Morgan: We do not do Russia.

The Chairman: Lord Soley, would you like to pursue that?

Q211 Lord Soley: You have largely covered it, but just to be clear, having heard that last answer about the difference between Canada and Denmark it is perhaps hard to get a clear picture of this. Mr Morgan, I think you said that some 60% of the Cree were involved in your project.

Richard Morgan: Some 60% of our workforce for the mine near Hudson Bay were from the Cree community.

Lord Soley: Would you expect that to be the normal figure for mining operations, or does it vary so much that you cannot predict?

Richard Morgan: We do not really have enough of an operation base across the Arctic to be able to say that, but in practice there is no reason why you should not be able to arrive at that number. To go back to that question, it should not necessarily affect your business case. It is probably more difficult where you have to fly everybody in. The distances in Canada are so huge that the Cree community is 100 or 200 miles away. You are not on the doorstep, so you have to fly them in as well. The flight goes from Timmins up to the Cree town and then across to the mine, so it does a dog leg. They live in the same way the rest of the staff do on the mine. It is a completely self-contained place where people stay for their shift.

Claude Perras: I would just like to add that one of the challenges that we have in Canada and in Greenland is the issue that people are not used to working on schedules as we are in cities in the “white world”. Most people have a traditional lifestyle, so to start work from 7 am to 5 pm or 7am to 4 pm during the daytime is quite a challenge. When I was working at Rio Tinto, every time we worked with native groups it was difficult to do that, so establishing a target for local employment is quite a challenge. As you will appreciate, in addition you have drug addiction and alcoholism in these communities due to their history. They are inherent.

It is very difficult to train some people and retain them. Retaining native groups to work on mining sites is quite a challenge. The Greenland Government are very cognisant of that and are trying to put programmes in place. They even have categories of people. They call them A, B, C and D. D are like you cannot do anything with them, A you can hire them and B they need support from the Government to be able to work for you. It is a very complex structure. It can happen but it requires substantial investment. In these cases, it is very important that the local government, in the case of Greenland, partners the company that is developing the resource, as we do in Canada. In Canada, the provincial and federal governments will pull resources together to have training programmes to support the hiring of local people. I would call them private/public partnerships.

Lord Hannay of Chiswick: On this subject, could either of you give a feel for the extent to which the companies involved really try to use local people in increasingly sophisticated roles in their mining? To what extent is that 60% that you talked about the bottom 60% of jobs? That surely makes a very big difference to the amount of buy-in you get from local communities if they think they are being bettered, as it were, by this presence.

Claude Perras: It is a challenge to bring people into higher positions in the industry. These groups are not well equipped, so they start at the bottom of the scale and then climb up the structure. When I was working for Alcan, we had one plant manager from the native groups in Canada. That was the only one across the whole country and we had 60,000 employees. It is not much. We have to be very clear that there is a history. It is a big challenge. In most cases, the effort that needs to be made is to understand the local culture, adapting your work schedule and allowing them to go hunting when it is the hunting season. There are all sorts of complications. It is a very complex environment to work in. It is not as easy as it may sound.

The Chairman: This is obviously a very complex issue. Is social research undertaken in this area to try to help this move forward?

Claude Perras: Correct. There are engagement practices. A document has been written in Canada about how you engage the community, how you maximise local employment and what kind of programme you can put in place. It does exist. There are a lot of things. Again, the larger companies have access to that information. They will look for it because it is part of the commitment. The smaller ones that do not have the experience will sometimes go into a minefield and will start developing a resource without having that expertise or background information, and they will make some mistakes.

Q212 Baroness Neville-Jones: In the light of that last conversation, I would like to ask you a compare and contrast question. Given the difficulties that you have been outlining with labour skills, community dynamics, infrastructure demands and all these things, let alone a fragile environment, in your view is exploitation in the Arctic more difficult or in the end the same as mining anywhere else—with variations appropriate to the region, obviously? Every area has its own specifics, but in the end are all these difficulties that we have been talking about washed out by much more global considerations about the utility of what you are getting, the price you are getting and your commercial considerations?

Richard Morgan: You are weighing a very similar set of challenges wherever you are. With diamonds, for example, we are as likely to approve another project in the Canadian Arctic as we are in Angola—probably more so, in fact. A lot of factors go into that. To an extent there will be a financial consideration, but you also have to weigh the political risk.

Baroness Neville-Jones: I was going to say that there is political stability at any rate.

Richard Morgan: That is a real question for us in Angola versus Canada. The Arctic remoteness and fragility is part of it, but it is not predominant.

Claude Perras: As I think you appreciate, it is a fragile environment, so more precautions are needed. There is some experience that we need to draw from that. The challenge in the case of Africa is instability at government level. You have more stability up north. It is a matter of balancing the equation and looking at the business case and where there is less risk. From an operational perspective, working in the Arctic is a challenge. Let us be very clear that it is a challenge because of the weather, the biodiversity and the environment, but you have other challenges as well. If you go to Africa you have Ebola and malaria.

Richard Morgan: You have a lack of water.

Claude Perras: Exactly.

Richard Morgan: Or at least you have other democratic claims on that water.

Q213 Lord Hunt of Chesterton: You mentioned the variability of the ice melting on your operations, but you have not said explicitly whether climate change effects and risks are significant for your role. One of the features of climate change is that it affects significantly the lifestyle and activities of native people in those areas. I do not quite know whether it will be helpful. In your companies, are you making long-term assessments of this as a factor for your operations?

Richard Morgan: That is a very good question. You are right. I have not mentioned it, partly because you cannot always find geologists to agree with you on our side about whether it will make a real difference. I know we are looking at a 30 or 40-year timescale.

Lord Hunt of Chesterton: On that timescale people are suggesting very large changes.

Richard Morgan: They are. I do not know whether your geologists agree, but our geologists say that it may be getting warmer in some places, but not necessarily.

Lord Hunt of Chesterton: Geologists generally have been rather sceptical about climate change.

Richard Morgan: Our exploration teams are made up of them.

Claude Perras: Climate change is one of the big risks. The larger companies factor it in. It requires some internal skills that the smaller companies do not have. When I was working for Rio Tinto and Alcan, we had a full department focusing strictly on climate change. We knew exactly what mitigation measures to plan to put in place for the next 20 years, but you will not find that in smaller companies.

The Chairman: Mr Perras, Mr Morgan, thank you very much indeed. That brings us to an end of this session. I thank you for contributing. It has been most useful. That ends the public session of this Committee. I ask the public to leave. I thank them for having attended. We have one item of business which Lord Moynihan wants to raise and some papers to note and then that is it.