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Oil, Gas & Energy Law Intelligence

Policy and Institutional Framework to Combat Resource Curse & Dutch Disease: An ENATRES Discussion by M. Schloss

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Policy and Institutional Framework to Combat Resource Curse & Dutch Disease: An ENATRES Discussion

Miguel Schloss
Dalberg
Global Development Advisors

An op-ed article in Iraq's oil wealth triggered a broader discussion on the Governments' "take" of extractive industries proceeds, the public sectors' ownership and regulation of the sectors, and ultimately the policy and imitational framework to combat resource curs and Dutch disease.

Michael A G Bunter (Geologist from Geoconsutling Co., UK), drew a distinction between the Iraq's State/Government Take (the government share of undiscounted overall petroleum project cash flow) with State or Government participation, which he flet were confused in the article in question.

Agreeing with M. Bunter, **Daniel Johnston** (Director, D. Johnston & Co. Inc. USA) noted that the lack of understanding of this most fundamental business issue (division of profits) and the difference between Government Take and State Participation betrays a truly deep lack of credibility. Many Governments do not have any "Participation" (none - zero) by the national oil company yet receive a huge share of profits.

He stressed that the claim that service agreements are a "half-way house" does not resonate and of the service agreements found in Latin America he has seen none that possess the characteristics of the Iranian Buyback. He said that he believed service agreements, in their variety of forms, are at one end of the spectrum with concessionary systems on the other end. This is true from a purely legal point of view (regarding transfer of title to hydrocarbons) as well as from a philosophical point of view (regarding the level of government "control"). Seen in this light, he thought that the notion that "the dreaded" PSAs represent a "great giveaway" is ludicrous. PSAs by contrast to the universe of "other" systems typically reap a significantly larger share of profits for the Government (in addition to a variety of other advantages).

In concluding, he said that it is a shame that such histrionics, hyperbole and junk science are part of the discussion. Where perception often trumps reality he doubted the real story will ever be believed by non-industry folks even if it is articulated properly.

Wumi Iledare (Visiting Professor in the University of Port Harcourt, Nigeria) shared the views expressed by D. Bunter and M. Johnston on the differences between government take (ERR) and the right to participate as an active stakeholder in national resource development. He was uneasy, however, about the assertion that PSA does reap a significantly larger share of profits for national government than "an unspecified system."

He thus have wondered, that if PSA is so fantastic to enhance government share in the division of profit, why is it used more prominent in least developed economies? More so when one of the most important driver of IOC's access to gross revenue(AGR) is so dependent to a large extent on the cost recovery element in most PSC.

Unfortunately, in most of these countries, government officials are far less equipped than IOC staff to adequately monitor or anticipate the inevitable cost overruns. And even when they have the capacity, the willingness and ability to enforce the rules may be lacking.

In an earlier part of the discussion, **Rush Sean** (Senior Counsel of Petro-Canda), taking a moe enterprise- and accounting-level reasoning, noted that in the UK title to hydrocarbons remains with the Crown until it is produced. Prior to that time, IOCs have a "License to search, bore and exploit" not own. At the wellhead title then passes to the Licensees who then divide it amongst themselves, usually pursuant to a Joint Operating Agreement. The ability to obtain maximum value for the resultant crude is modified by the fiscal regime such as Petroleum Revenue Tax and the corporate surtax. Transportation and processing costs also affect the final value derived. However, such companies are able to book the reserves.

At the same time, a buy back that he looked at some years ago, provided for the IOCs to take a share of production that was equivalent to repayment of capital invested (like "cost oil"), opex plus a rate of return. Title transferred once the crude had been delivered to an export terminal. This arrangement did not allow us to book the reserves, from memory, because crude was used as payment in kind for services provided. There was no underlying interest in the asset.

The inability to book reserves in his experience can be a showstopper. Once reserves are booked they fall onto the balance sheet of an oil Company as an increase in the asset base or replacement of produced assets. Obviously this has attractiveness for investors and can consequently increase shareholder value, and the converse is true for Companies who fail to replace reserves, something most upstream oil and gas management see as a significant driver at a strategic level when making investment decisions.

At the risk of venturing outside his area of expertise, he understood that Companies involved in the provision of Services to the oil industry derive share value differently by demonstrating a backlog of quality development projects that will provide an ongoing return to investors and one of their drivers is to continually add to the backlog as projects complete - their equivalent of "reserves replacement".

Luke Danielson (former Director of the global Mining Minerals and Sustainable Development Project , UK), while agreeing with the perceptive nature of the discussion felt that the issue is not only confined to the "take" of the pbulic sectors.

He illustrated the point by noting that General Pinochet, a steady advocate of privatization of almost anything, never suggested privatization of CODELCO, the Chilean state copper company and world's largest copper producer.

He said that, when asked why he did not privatize the copper industry, he supposedly remarked that he did not want foreign mining companies to have more power over economic policy than his own Finance Minister.

Chile is frequently held up as one of the great success stories of resource based development.

He accordingly wondered whether this is this "despite" the fact that the country had an enormous state mining sector?

Or is it at least in part precisely "because" there was an important state mining sector, that provided the revenue to build the vital capacity of state institutions and rule of law?

So the issue is not simply maximizing the financial "take," but also maintaining national autonomy and control over a variety of

development decisions that profoundly affect the future course of the nation.

Following a brief exchange aimed at clarifying the role of CODELCO and the use of the proceeds of its revenues, **Miguel Schloss** (Director, Board of Dalberg Global Development Advisors, Chile) said that he was bemused by the way Pinochet is depicted abroad (and even by many in Chile) in such simple black-and-white terms. He felt that this just goes to show that when someone spearheads major reforms, it may take a couple of generations to accumulate the empirical evidence and restore the calm to reach reasonably objective judgments on what has happened.

He said that in Chile, since its early days, the Constitution established that all underground wealth belongs to the nation. Pinochet had in fact taken the view in some of his writings before he came to power that mining was a strategic asset of the country and a public good that required Government oversight.

The issue thus didn't revolve on the narrow question of government ownership, but the manner to unlock such wealth to reinvest it in the country's human resources and productive capacity, and the way to do so under effective Chilean jurisdiction. De facto, a different distinction from the one made by M. Bunter was being made by separating control exercised via public ownership of the resource from control via exercise of sovereign regulatory and governance framework.

Accordingly, the framework that was set up during Pinochet's time involved the recasting of the mining code, the tax regime and build-up of the necessary oversight institutions. To assure the legality of the reforms, particularly the provisions of *concesión plena*, the legislation was approved separately by the Constitutional Tribunal. In this way the Government ensured the sustainability of the provisions beyond the military regime and the manner Constitutional provisions were interpreted to reconcile the requirements of public ownership and oversight with effective private access to such resources. CODELCO was left to this day as a government-owned company, though representing a smaller share of the country's copper production, and with increasing scrutiny by Congress with attendant pressures for reform.

The rest is by now well recognized history: private investments, production, reserves, foreign exchange earnings and fiscal revenues

generated by the sector increased substantially, and with it the development of the country for several decades by now.

Moreover, countries that have thereafter followed this approach have obtained similar performance in their extractive industries. The general lessons to be drawn from the Chilean and other cases like it is that countries that have succeeded in generating a vibrant mining sector, which contribute to the sustained economic development of host countries have tended to flourish where there has been:

- Solid *mining sector policies and strategies* that provide incentives for investment and generation of a fair share of resources for the host countries concerned, particularly through the adoption of legislation and regulations that are competitive internationally (including the establishment of open, efficient and transparent access to mining properties).

- Establishment of a *mining tax regime* that is reliable, predictable and competitive.

- Strengthening of *government oversight institutions* so that they can act on solid technical grounds, and independent vehicles of contestation and adjudication to assure fair treatment of all concerned.

- Buildup of a reliable and wide range system to *technical data on the resource base* of the countries concerned to facilitate generation of interest in further exploration and eventual production investments.

He thus concurred that the issue goes well beyond matters of "take" or ownership, but involves all the policy, institutional and associated governance structures to ensure that there is proper oversight of the sector, as well as the use of the resources generated by it.

L. Danielson felt that this depiction vindicated his basic point, though in a more sophisticated manner – that Chile has progressed and done so in part because it was able to use revenues from resources – much of it through CODELCO – to build the capacity of the state as a partner in development.

Various other participants added other angles to the issue. **A. F. Alhajji** (Associate Professor of Ohio Northern University) forwarded an

article indicating that Venezuela was taking further steps against international mining and other natural resource companies, This and other similar moves were seen as part of a broader trend of "resource nationalism" in many countries, while investment treaties may afford companies arbitration rights against the government.

In a similar vein, **Juan Pablo Pérez Castillo** (former Board representative of Venezuela in Inter-American Development Bank and Director General of the OPEC Fund) said that the discussion showed the importance of taking a longer term view of development issues rather than reducing the entire matter to a question of "take" of revenues.

Charles F. Zimmermann (Senior Consultant, Nexant Inc.) concurred particularly with the four policy instruments issues identified by M. Schloss found in "countries that have succeeded in generating a vibrant mining sector, which contribute to the sustained economic development of host countries." He added that this discussion is relevant to the global development of renewable energy resources. Many countries could learn from Chile's experience.

Given the expectation that oil prices will be high, over the next 30 years, and given the track record of renewable energy technology development over the last 30 years, he noted that it is only reasonable for oil-importing countries to look upon their own renewable energy resources as a resource that should be managed by the government with a view to the long-term economic development of the country and the long-term energy security of the country.

There are sound reasons for saying that the country's most valuable hydropower resources, for example, must be managed by the government. It is not absolutely necessary to create state-owned companies for the exploitation of hydropower resources and give them exclusive "water rights" at the best locations (e.g. Niagara Falls, New York). However it is necessary to unlock the wealth represented by low-cost hydro resources, low-cost geothermal resources, low-cost wind resources, and perhaps someday also in the "low rainfall" and "desert" countries, low-cost solar resources. Not enough attention is being given to this question.

He indicated that we are accustomed to focusing on the resource management questions facing the oil-exporting countries such as Iraq rather than the oil-importing countries such as China and India. From the standpoint of long-term global economic development,

however it may be more important to look at the oil-importing countries - including those with declining oil production. They will all need to manage their renewable energy resources to the benefit of the nation. This is true even for places such as Scotland, which has the ability to set an energy policy although it is not a nation.

He stressed that Juan Pablo Perez Castillo's observations are entirely correct - that the government should take a long-term view rather than focus on short-term "profit." For example, in the long term it may be very sensible for Denmark to develop a strong wind power industry, even if wind energy has been and will be unprofitable (and subsidized) when oil prices are low. Although he is not an advocate of government price controls for wind energy - especially, fixed prices – he would not recommend a national energy policy in which short-term investors are encouraged to enter and leave the wind power business simply on the basis of how much money they expect to make in the next three of four years.

The investment decision should have a long-term aspect to it. In this respect the renewable energy advocates and the Saudis have quite a lot in common; they are looking at two sides of the same coin. Unfortunately there are renewable energy advocates support the idea of making renewable energy ridiculously expensive in their own country, and there are Saudis who support the idea of making oil and gas ridiculously cheap in their own country. Neither one is correct - neither one is representing the true national interest. In this respect a great many of the renewable energy lobbies are phony, because they misrepresent the issues of resource management which Miguel Schloss has articulated so well.

J P Pérez Castillo recognized the importance and relevance of the four policy instruments discussed by C. Zimmermann and M. Schloss, but he was not sure of their effectiveness or sufficiency under conditions of the Resource Curse. It may even be that the conscientious and serious application of these instruments could lead to denial of the curse and of its consequences, if not to the downplay of its negative impact.

Venezuela may be an example of failure in the context of the four policies, although it could also be due mainly to the resource curse. Failure to recognize that absorptive capacity is not unlimited, or that economic systems are limited in their capacity to efficiently transform liquid resources into productive resources, can be deadly to development efforts (including accountability, transparency,

and even political participation) . Worse still is the failure to recognize that absorptive capacity can in fact decline the longer the duration of the resource curse (meaning, excessive presence and usage of foreign exchange resources).

In only two periods (1945-1948 and 1958-1974) were these policy instruments in place, adapted to the specific conditions of the country. They disappeared with the sharp rise in the price of oil in the 70s (for which we can blame everyone--executive and legislative branches of government, politicians and economists, businessmen and business organizations, workers and labor unions, intellectuals and university professionals, and the public in general) and have never again appeared, not even during the years of low prices. It was actually worse during the low price years, because government and PDVSA both advocated the capture and increase in market share even at the expense of the low price of oil.

However, the Venezuelans did adopt and adapt another Chilean experience with considerable (albeit limited) success, which has nothing to do with natural resources -- the creation of the Venezuelan Development Corporation in 1947 to assist the establishment of a viable industrial sector through credit and technical assistance. It became obsolete when oil prices increased in 1974 never to be revived.

M. Schloss responded by noting that J P Perez Castillo and C. Zimmermann had raised important matters that clearly the policy and governance measures he had pointed out are not meant to address. He deliberately focused his comments on what is necessary to build resilient and internationally competitive extractive industries (which is of course more problematic in mining than in hydrocarbons).

As he pointed out in his comments above, there are obvious limitations to judge success or failure of extractive industries sector policies in terms of balance of payments, fiscal and other such variables without also including the equally (if not more) important growth and development performance – and the management of surpluses (and consequent resource course). Similarly, the same applies regarding energy use (as against production).

Clearly, these require broader governance and macroeconomic management arrangements that go beyond the discussion that was taking place:

(i) In the case of management of surpluses (and consequent Dutch Disease), he agreed with J P Perez Castillo's indictment of CVG in Venezuela (or Corfo in Chile). They clearly showed the inherent constraints of working through geographical or sectoral approaches in the presence of overriding macro surpluses. To overcome such constraints, in the case of Chile, fiscal revenues from copper have been accruing to a stabilization fund since the early 80's, which has a separate governance structure and clear rules that limit discretionary powers in such a manner that they act countercyclical in terms of when resources go the public budget and when they are to be replenished to the fund. While far from perfect, this arrangement, together with other checks and balances, and tax arrangements to municipal and government levels, are aimed at depoliticizing the management of surpluses and generating demand for accountability in the resource use – thereby disciplining resource management and dampening Dutch Disease syndromes.

(ii) The case of energy generation is more complex, since Chile has been jolted by issues of energy security (resulting from the suspension of gas exports from Argentina) and emerging environmental concerns, triggered by local concerns and obligations the country may have to undertake as part of its eventual membership in OECD. With deregulated and privatized system, the country's generation sector is forced to compete by putting a premium on efficiency. By and large, this has worked well, in terms of increased investments and catching up in generating capacity. On the other hand, enhanced energy security and environmental concerns raise new questions regarding how the country can build on an essentially successful system, by factoring more clearly such concerns (preferably through the pricing and incentives system) to continue the investment process and avoiding distortions normally associated with overly intrusive or directive systems. He invited for any suggestions or experiences that can shed light on such policies would be appreciated.

C. Zimmermann interjected by stating that J P Perez Castillo references to the Resource Curse required a more precise definition of this and associated concepts.

For the definitions of Dutch Disease, Resource Curse and Natural Resources he recommended Wikipedia:

- *Dutch disease* is an economic concept that tries to explain the apparent relationship between the exploitation of natural resources and a decline in the manufacturing sector combined with moral fallout. The theory is that an increase in revenues from natural resources will de-industrialize a nation's economy by raising the exchange rate, which makes the manufacturing sector less competitive and public services entangled with business interests. However, it is extremely difficult to definitively say that Dutch disease is the cause of the decreasing manufacturing sector, since there are many other factors at play in the very complex global economy. While it most often refers to natural resource discovery, it can also refer to "any development that results in a large inflow of foreign currency, including a sharp surge in natural resource prices, foreign assistance, and foreign direct investment."[1] The term was coined in 1977 by *The Economist* to describe the decline of the manufacturing sector in the Netherlands after the discovery of natural gas in the 1960s, culminating in the world's biggest Public-Private Partnership (P3) N.V. Nederlandse Gasunie between Esso -now ExxonMobil, Shell and the Dutch government in 1963.[2]
- The *resource curse* (also the *paradox of plenty*) refers to the paradox that countries with an abundance of natural resources tend to have less economic growth than countries without these natural resources. This may happen for many different reasons, including a decline in the competitiveness of other economic sectors (caused by appreciation of the real exchange rate as resource revenues enter an economy), volatility of revenues from the natural resource sector, government mismanagement, or political corruption (provoked by the inflows of easy windfalls from the resource sector).
- *Natural resources* are naturally occurring substances that are considered valuable in their relatively unmodified (natural) form. A natural resource's value rests in the amount of the material available and the demand for it. There are two types of natural resources: Renewable and Non-renewable

It would not make sense to argue that any country with an abundance of natural resources will have a Resource Curse. Rather, the source of

the problem is the possibility to export energy or export a commodity obtained from the natural resources, in such a way that an enormous inflow of revenue overwhelms the ability of the government and the economy to efficiently absorb the revenue. Of course, one might try to make this definition a little bit more precise by arguing that the problem is related to economic rent, not revenue, but when we are discussing many thousands of USD per capita per year this becomes a somewhat academic distinction.

Thus the Resource Curse is not relevant to all mining or extractive industries, or all crude oil production. It is only relevant to the situation in which there is a conversion of "wealth in the ground" to "money in the bank" at such a rapid rate that the country is overwhelmed and economic development is adversely affected. We have not seen this happen in the case of renewable energy resources. Rather, the renewable energy scene is especially vulnerable to megaprojects such as the Three Gorges Dam -- see http://en.wikipedia.org/wiki/Megaprojects . A megaproject in a small country such as Nepal will lead to inefficient management and investment decisions - e.g. reservoirs that are designed so that they are too small to ensure electricity supply during dry years. If there were a breakthrough in renewable energy technology that resulted in low production costs, the new technology could in theory create a Resource Curse. He didn't think it really matters whether the sudden influx of money results from oil, or mining, or something else.

Regarding the optimal policy to promote investments in electricity generation from renewable energy: This is a complex subject but he thought the best solution is either a stable and predictable tax on something undesirable, such as a tax on carbon emissions, or a stable and predictable subsidy per unit of energy for something desirable, such as electricity generation from hydro, wind, or solar. In either case the tax or subsidy should be applied in a non-discriminatory way over a very large area or a large group of countries.

J P Perez Castillo appreciated C. Zimmermann's explanations derived from Wikipedia and recognized that he used the term resource curse rather loosely, somewhat in the same loose manner it has been used in discussions in ENATRES and elsewhere, and in some studies on natural resource abundant countries. He felt that Z. Zimmermann was correct to point out the distinctions, (although there are similarities such as the impact on the exchange rate) which don't alter the essence of my arguments and can be used interchangeably (or combined) in cases such as Venezuela's.

The analyses derived from the experience of Netherlands were applied to the oil producing countries after the sudden rise in the price of oil in the early 70s and subsequently, without taking the trouble to point out that the Dutch Disease as such is a temporary phenomenon, while it is permanent in the case of many oil producing countries, Venezuela one of them -- i.e. quite different situations with different consequences.

In the case of Venezuela, the first to raise the problem was Juan Pablo Perez Alfonzo, but using for his analyses (among others) the writings of Colin Clark, in particular his book "National Income and Outlay" where he coined the term (calling it Doctrine) Economic Indigestion. He preferred avoid going into the details of Clark's use of the term, but Perez Alfonzo considered it appropriate for what he wanted to point out in reference to Venezuela. It was clearly an issue of overwhelmed absorptive capacity as witnessed by declining productivity of the factors of production and massive imports of everything imaginable. He later coined the term Devil's Excrement to forecast the debacle of the Venezuelan economy amidst the abundance of oil and foreign exchange (and it may be that the coining of this term led later to the coining of Resource Curse).

Students of the problems faced by "emerging" countries developed the notion of the Resource Curse to refer to a much wider range of problems faced by countries with abundance of natural resources, going beyond the problems faced by the oil producers and to my mind, causing misconceptions regarding the problems faced by these countries by targeting attention to the abundance of the resource rather than to the particular characteristics of oil producers, by which I mean the nature of their oil industries--basically enclaves using inputs that are mostly imported and selling their output mostly abroad. In other words, this had little if any real (as opposed to financial) impact on the domestic economy. To make matters worse, some students of the resource curse then coined the term *Petrostate* to refer to the oil producers, leading many to emphasize the issue of ownership over the problem of management or governance. At this point, much of the discussion became (and continues to be) ideological and political, rather than technical and socio-economic.

He preferred to look at the problem in terms of absorptive capacity, or difficulties thereof, rather than in terms of abundance of a natural resource or of a sudden or prolonged sharp rise in the price of the resource or in the foreign exchange received from its export. Here again, he used the term absorptive capacity in a much wider sense

than usual, because he include issues involving the economic, social and political structures of the country, including such indicators as the input-output matrix, capital/output and labor/output ratios, consumption behavior, income distribution, employment opportunities and even political participation and social values. This is, in other words, the whole issue of economic development or the capacity of a country to make rational use of the acquired wealth in the form of foreign exchange.

Germán del Corral (Mining Consultant, Gerdelco, Colombia) noted that the Resource Curse does not seem to have prospered in countries like Canada, Australia, the very US, and more recently Chile, all the contrary. All have been in places starting with immigrant countries, so their success is not 'genetic'. He wondered under the circumstances: How come?

C. Zimmermann felt that G. del Corral Corral raised an interesting question. Since 1960s it has been economically and technically possible for a country with a lot of money - or an oil or mining company with a lot of money - to sustain its day-to-day operations with "massive imports of everything imaginable." Figuratively speaking, at least, it became possible to bring in toilet paper and toothpaste by helicopter. In other words it became possible to have a relatively comfortable life in the oil business or the extractive industry business, without depending on the local economy to provide the things that would have been considered "local" necessities in the 16th, 17th, and 18th centuries.

Today it appears that we have massive imports of manufactured goods from China. We import all sorts of things, not just computers and TVs - in Europe we are even beginning to import food from China. The import of everything imaginable was not a viable option in the first stages of economic development of Canada, Australia and the United States.

A gold rush is a small, localized version of a Resource Curse. Until 1920, one of the common results of a gold rush was that the local prices of everything (hotel rooms, food and salt) were astronomical because the gold could not be converted into consumer goods as rapidly as the wealth was being "created" i.e. taken out of the ground. As a result the gold miner's dinner was constrained by the lack of locally available produce.

He felt that perhaps someone has done a multiple linear regression analysis of food prices during gold rushes, to give the proof of this concept in mathematical terms. All he could offer is the "soft" argument.

A. F. Alhajji intervened to indicate that it was his understanding that the "resource curse" is a relative term and it is wider than what is perceived. In the case of Canada for example, the comparison should be between Alberta and other provinces. Based on this "relative" concept, there is evidence to show symptoms of the resource curse in Alberta.

He has heard that very few people in Alberta's government have college degree, which makes it difficult to distinguish between the effect of oil and the effect of "educationally challenged" policy makers, just like the oil producing states in the Middle East.

M. Schloss concluded that this has been an interesting discussion on a vexing set of problems.

To the best of his knowledge, a country suffers "resource course" when one of its sectors has an overwhelming comparative advantage over the rest of the economy, and it is unable to sterilize the surpluses it generates to avoid ending up consuming them in increased imports -- rather than reinvesting them in its human and physical infrastructure to develop a more diversified and sustainable economy. This of course is the obverse side of the absorptive capacity mentioned by J P Perez Castillo, and must be calibrated to it.

This has however precious little to do with genetics or immigrant population (del Corral's query) but with the frailty of human condition. In Chile, the country had fairly disastrous experiences with its mining sector leading to a collapse during WWI when Chile was exporting nitrates, and thereafter with copper up to the early '70s. The country burnt our fingers rather badly and thus instituted the system of surplus management described before, to avoid continuing allurement of using up surpluses without leaving anything sustainable and productive behind. This, of course, is more easily said than done.

One of the most serious and perplexing problems to overcome are the vested interests that perpetuate this kind of behavior. In general, when resources come from the sun or the earth, rather than hard toil, the temptation is great to manage the surpluses as if they were the

product of loot. As long resources are plentiful or there is even a moderately functioning State, there is every incentive to "buy" favors through massive subsidies. But while this may not be a long-term sustainable situation, the nature of natural resource dependency creates particularly difficult barriers to reform, by generating an entitlement mindset in the population while freeing States from the need to tax their citizens -- thereby removing an important incentive for accountability and transparency.

It is in this crucible that one has to find the way to diffuse the entangled interests that generate the conditions for resource curse. Whether through visionary and competent Governments (a preciously scarce commodity) or fairly impregnable systems of checks and balances, there aren't apparently many alternatives for disciplining such surplus management.

This led him to a final question regarding policies to generate energy renewable investments. He can see the logic of predictable taxes and subsidies to generate the incentives (C Zimmermann's' line of thought). The crucible is how one can avoid inadvertently creating new interest groups that make a living of such subsidies and/or taxes, selling particular "solutions", capturing the fiscal outlays and the like. He thus wondered whether there are any possibility or experience in "pricing" the externalities, so that they become an integral way of costing alternative technologies –with lower transaction costs than the current system of carbon credits which probably represent a puny part of the solution.

Robert Bassett (Counsel, Holland & Hart, USA) responded to the question about how to avoid creating new interest groups living off subsidies, and how to prevent kleptocrats from siphoning off all of the profits, brings to mind the State of Alaska as a successful example.

While oversimplifying matters a bit, hw noted Alaska's Permanent Fund receives 50% of the royalties which the State gets from oil/gas development on State lands (including Prudhoe Bay, most significantly). The Fund is invested and all of the interest earned by the Fund is distributed each year, per capita, to every resident of the State. This has several benefits. It preserves the capital in the Permanent Fund. It provides each resident with a direct benefit of resource development. It prevents politicians from raiding the Permanent Fund (to do so would require the affirmative vote of all residents).

This structure would clearly not work in any place without a strong government and rule of law, but he always found it interesting.

He concluded that perhaps it can be cited as one jurisdiction's method of avoiding the Curse.

J P Perez Castillo, while admitting the different stages and features of institutional and political development between Chile and Venezuela, reflected on the strikingly similar pathological dysfunction between the two countries. They were grounded on the vested interests inherent in the management of extractive industries. Such problems were by no means limited to these countries but were more broadly shared by others, particularly in those that have limited institutional and economic development.