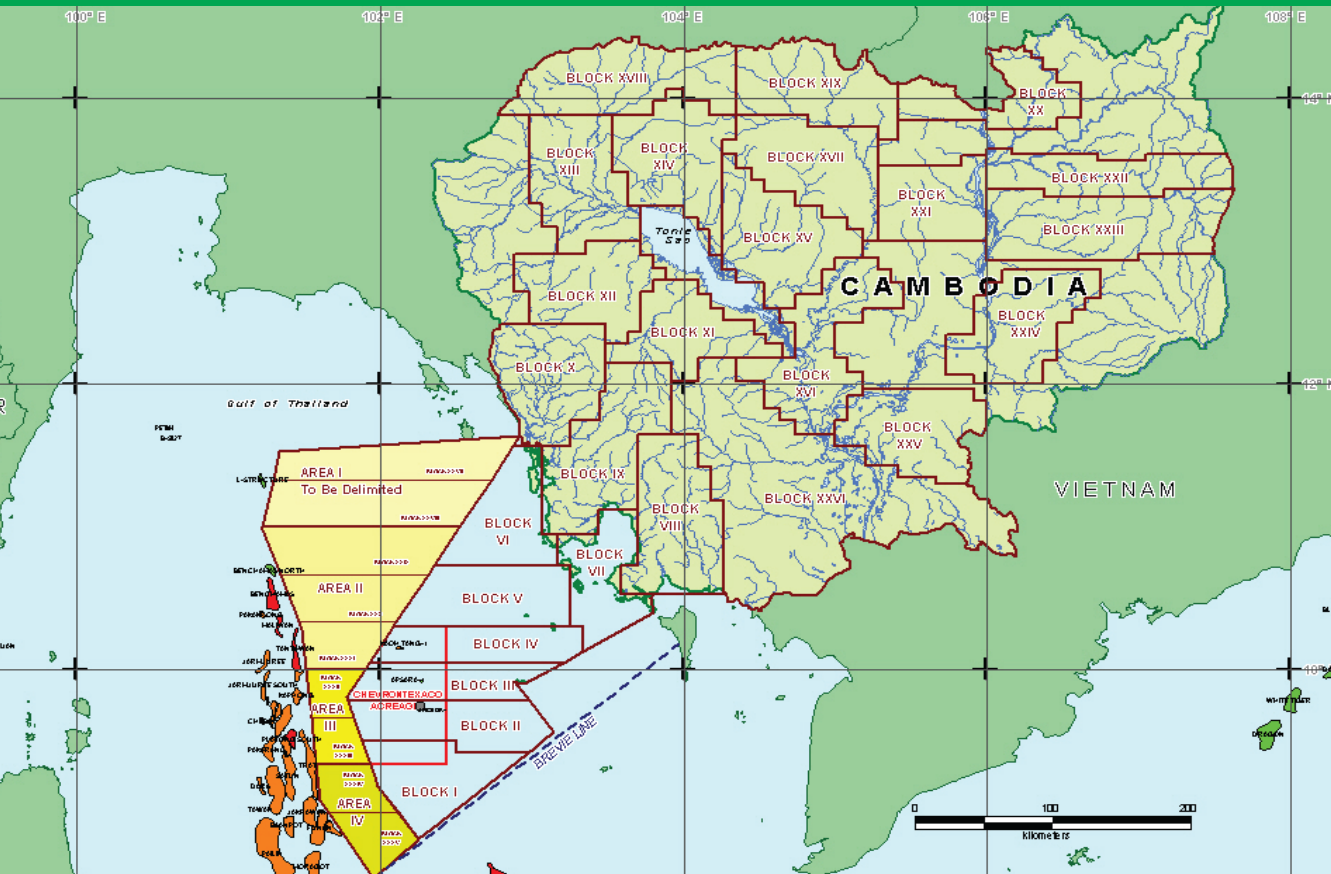


Managing Public Expectation

Cambodia's Emerging Oil and Gas Industry



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ECONOMIC INSTITUTE OF CAMBODIA

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* The opinions expressed herein are those of the authors and do not necessarily reflect the views of Oxfam America, East Asia Regional Office.

Cambodia has yet to develop single oil and gas field despite the prospect of its existence, both onshore and offshore, and the effort in engaging oil companies in the country. There is a long track of history around 1960s, where oil and gas exploration has been seemingly unsuccessful due to technical and political reasons.

The 2004 discovery of oil and gas by the then called Chevron Texaco – now named Chevron – in Cambodia’s offshore area has drawn a lot of public attention being covered by both national and international media.

Since then, Cambodia has been overwhelmed by news of the possibilities of large revenues from oil and gas streaming into the country, fueling the hopes of the Cambodian people and international communities that Cambodia’s development will rise to a greater level.

This revenue, however, has yet to be realized since the development of the sector is still in its infancy and is still hovering around. Despite this, the general public, and the media, whose job is

to capture interesting pieces of information for their publication, have plunged into serious discussions about the issues surrounding this sector. In particular, the media has turned to speculations, rumors, and guesswork to fill in the large gaps of missing or withheld information, which has led to high expectations of what the oil and gas sector might bring for Cambodia.

Taking into account the possible negative effects of speculations and rumors of the emerging oil and gas industry in Cambodia, such as resource curse, corruption and so on, the study has three main objectives:

- manage public expectations of oil and gas revenues to be more realistic;
- encourage a diverse economy that develops many industries outside of oil and gas to accommodate expectations which will lead to avoiding the resource curse;
- and provide better understanding to educate the public and the media about the oil and gas sector.



A CALTEX gasoline station in Phnom Penh

Historical Background

In 1965, the Cambodian government granted exploration acreage to foreign firms for the first time but nothing happened. It wasn't until 1970 that the first exploration contract was signed with Elf Aquitaine, a company which the government granted rights to a large offshore block. Two years later, Exxon received a 35 percent interest in the block. In 1975, the Elf-Exxon group relinquished their block following disappointing drilling results and increased hostilities in the region.

In 1991, the first licensing round was announced and a total of 26 exploration blocks, offshore and onshore, were offered. But all blocks were eventually relinquished. Another licensing round was in 1992 with 20 blocks to be offered but all had the same fate as the previous year. And in 1994, another four onshore and offshore blocks were offered but no award was announced.

Japan's National Oil Corporation commenced a 12-month airborne gravity and magnetic survey over onshore Tonle Sap Lake and the Mekong River Basin in 1997. The process was suspended after 7,000 line-kilometers were surveyed and it resumed in 1998 and finally 21,675 line-kilometers were successfully completed.

The result found the presence of a sedimentary basin between 4,000 and 4,500 meters deep in the area. But there were no drilling activities then. In 2002, the Cambodian National Petroleum Authority (CNPA) signed a Memorandum of Understanding with Philip-

pines National Oil Corp (PNOC) to jointly explore onshore and offshore oil. But no contract was ever signed.

In August 2002, CNPA formally granted a new offshore oil license of Block A to Chevron Texaco (now Chevron). Initially, Chevron had 70 percent interest while Mitsui 30 percent. In March 2003, GS Caltex bought 15 percent interest from Chevron. In 2004, CNPA re-designated the remaining offshore area into five blocks (Block B to F) which were subject to exploration and development.

Until now, all blocks have been granted to a total of 13 companies for exploration. Nevertheless, only Chevron and its venture participants in Block A have been the most active explorers of oil and gas in Cambodia. The other companies with interest in other blocks have done very little other than buying and selling their stake.

Chevron has conducted drilling exploration and publicly confirmed the availability of oil and gas in Block A in 2004. To date, the exact amount of oil and gas in the reserve is yet to be known.

CNPA's estimation, however, based on basin level analysis indicated that the cumulative oil and gas in the offshore area of Cambodian side could be up to 400 million barrels of crude oil and three trillion cubic feet of gas¹. Yet, the accuracy of the estimation and the possible recovery of oil is still under question.. The only thing that is publicly known to date is that Chevron has struck oil in Cambodian offshore Block A.

It should be noted that since Chev-

¹ Wood Mackenzie, Cambodia country overview, February 2006

ron's discovery is the first oil discovery in Cambodian history, many people have an increasing interest in this emerging sector. For example, multilateral development organizations such as the World Bank, the United Nations Development Program (UNDP), and the International Monetary Fund (IMF) to name a few, have been involved in the issues surrounding oil and gas through research and capacity building.

At the same time, the issue of transparency in revenue management also has been raised. There has been a recent surge of interest from civil society organizations' (CSO) of the issues, specifically looking at the good and bad experiences of other oil-rich countries. This string of dynamism is centered on the issue of resource revenue, including how much it will be generated, how it will be managed, and how it will affect the country.

Two major reports, a UNDP-funded discussion paper No.1[1] and an IMF country report No.07/291[2], have dealt with resource revenue based on some rough estimations and assumptions. Although oil and gas revenue was not comprehensively covered, it was heavily featured in both reports and has largely sparked public and the media's attention.

The UNDP paper indicated that the total sale of oil and gas could be worth US\$100 billion and US\$50 billion respectively. These figures can be translated into US\$2 billion of annual net revenue coming into the country, which is substantial for the Cambodian economy. The IMF report conversely, has estimated the possible revenue on a rather modest level. It says that under a given scenario Cambodia could presumably get US\$174 million of oil and gas revenue by 2011 and maximally US\$1.7 billion by 2021.



Public Perception and Awareness

The oil and gas sector is very complicated and can involve sophisticated terminology and issues that could be difficult for the general public to understand. Since the idea has been implanted that an oil and gas industry could be established in Cambodia, the public has been keeping an eye on this emerging sector.

One reason that this sector has attracted the public's interest is because the petroleum resource may be the last major natural resource in the country that could generate substantial revenue. Moreover, with the oil and gas issue covered in the UNDP and IMF reports, the public is convinced that Cambodia will potentially get revenue from this sector, and that the revenue can do both good and harm.

Tentative study

There are, so far, three main reports that are important to look at in terms of where the public is getting its information from— the UNDP paper and the IMF report that are mentioned above, and World Bank monthly newsletters that sometimes covers the oil and gas issue in Cambodia. Among them, only the UNDP paper and the IMF report have put certain figures to the oil and gas revenue and reserve. These figures have been quoted verbatim and sometimes out of context by local and regional media.

It is generally accepted that those reports have played an important role in providing information to the public on not only the issue of oil and gas in Cambodia but also the experience of

other oil-rich countries. However, they did not reach a wider public audience. One of the reasons is that the reports are mainly available in English.

Some civil society organizations (CSOs) working closely on oil and gas issues understand that the UNDP paper is good in covering the oil and gas sector, while the World Bank newsletter is rather educational and diplomatic. The

UNDP paper

In the SWOT Analysis of Cambodian Economy, a discussion paper funded by UNDP, oil and gas issue has been highlighted. Its provisional estimate on the reserve in Block A was 400-500 million barrels of oil and 2-3 trillion cubic feet of gas. Since other blocks are yet to be drilled, additional amount of oil and gas will be available.

The rough estimation of potential oil production of all blocks was as high as 200-250 thousand barrels per day at full production. The report also put the total oil and gas reserves at two billion barrels and 10 trillion cubic feet respectively. The value of the resource would be US\$100 billion for oil and US\$50 billion for gas. Moreover, the report predicted that the annual sale value of oil and gas would be US\$ 6-7 billion if the production lasted for 20 to 25 years.

Besides this estimation, the report also worked on other issues such as energy security, waste and corruption, and other implications. Similarly, it drew some experience from Nigeria to illustrate the resource curse that Cambodia should avoid in the future.

Source: *A SWOT Analysis of the Cambodian Economy, UNDP, 2006*

IMF report

The main objective of the IMF report is just to illustrate the potential impact of the oil and gas production and its implications on macroeconomic policy by modeling the impact on baseline economic scenario.

The report also admitted that the reserve is in uncertainty, but mentions that the oil in Block A would amount up to 700 million barrels. To highlight the possible policy challenges of oil sector, IMF developed “illustrative oil scenario” and clearly indicated that the scenario is not designed to forecast the potential oil sector.

Nevertheless, it emphasized on the likely size of investment, fiscal regime, and macroeconomic environment based on key assumptions:

- Reserve of three oil fields is 500 million barrels with the first one running in 2011, and the net present value of oil wealth would be around \$15 billion.

- Only offshore oil is assumed to be available.

- State oil revenue comes from three sources: royalties (12.5% of total production), profits, and income tax of 30%.

- Government revenue will increase gradually from US\$174 million in 2011 to a maximum of US\$1.7 billion in 2021 before gradually declining thereafter.

These main assumptions were the bases for analyzing the sector and, especially, its implications on macroeconomic policies and challenges. In the report, the year of peak production from the three oil fields was 2021, followed by a gradual decline, and the production would last till 2030.

The report also discussed a variety of topics related to risk and policy challenges, and priority in oil management. For risk and policy challenges, IMF report focused on the beneficiaries of the potential pitfalls, the complication of fiscal management, the negative effect of oil industry on current ones, and other possible positive scenarios. The priorities in oil sector management included immediate action to normalize the revenue regime for oil sector, the solutions to future macroeconomic policy challenges, and strong regulating institutions.

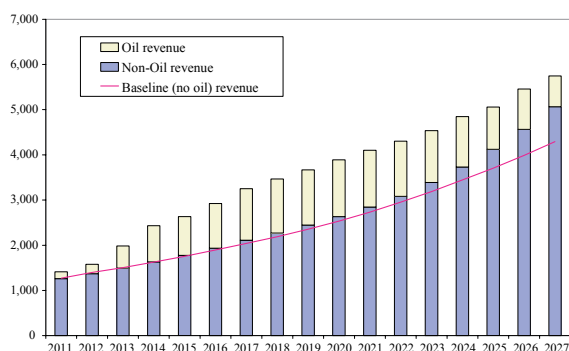
Source: *Cambodia: Selected Issues and Statistical Appendix, IMF, 2007*

IMF report, however, is generally perceived to be too technical and thus not easily digestible for a general audience. According to the World Bank, the monthly supplement note on oil and gas is aimed at familiarizing policymakers, researchers, and the general public with issues and concepts of the petroleum industry.

According to the IMF, its report is intended to inform policymakers and the public about the macroeconomic implications and policy options associated with discovering oil. The UNDP paper intended to raise awareness of the oil and gas issue in its attempt to analyze the SWOT of Cambodia’s economy where oil and gas can be both opportunities and threats for the economy.

While the UNDP paper and the IMF report gave some figures on the revenue estimate, most of the CSOs have the knowledge base about the issues to understand that the estimate is not necessarily substantiated and it may be far from reality. The given figures are obtained from

Cambodia Fiscal Revenues (millions of dollars, 2006 prices)



Source: *Cambodia: Selected Issues and Statistical Appendix, IMF, 2007*

simulated calculations that are subject to some specific assumptions.

The media, lacking in-depth knowledge of the issues, have taken the figures out of their original context, and reported on them as if they come from a realistic base, rather than speculative one. By doing so, the media have furthered the confusion of the public, most of whom do not have access to the reports. It is accepted that nature of the media is to file down information into “bite size” pieces for their audience in a limited amount of space. In addition, the competitive world of the media means that they will use only the most interesting information to appease their audience. And because of this, the media often times ignore important assumptions, information or context. In addition, the media have limited knowledge on this complex industry, further compounded by limited access to information on the sector because of its confidentiality.

Oil and gas in the media

Since the oil and gas issue is very new and politically sensitive in Cambodia’s context, every piece of information on the sector attracts media attention. In this regard, while some media – local and international – have responsibly covered the issue, other have misinformed the public in a manner that feeds speculation. Using the figures from the IMF and UNDP documents out of context, the media has been circulating the potential revenue that Cambodia would earn in the near future. Below are the highlights of some media coverage on resource revenue.

An article of one English-speaking newspaper[3] read that “...the UNDP



study of Cambodia’s nascent extraction industry claims that the Kingdom may be able to produce 200 to 250 thousand barrels of oil a day at full production. Cambodia may have up to two billion barrels of oil and ten trillion cubic feet of natural gas...the annual sales value of oil and gas would be US\$6 - US\$7.5 billion ...”

A local-language magazine[4] also heavily quoted the figures from the UNDP paper with a high degree of confidence. While the figures given in the UNDP paper are themselves questionable and unlikely to be realistic, these pieces of news can easily confuse the public on the potential resource windfall fueling unrealistic expectation and excessive optimism. According to UNDP, the figures of oil and gas volume and the production rate are mainly based on consultations with stakeholders rather than any firm scientific evidence. Therefore, there is a high possibility that the figures are not realistic.

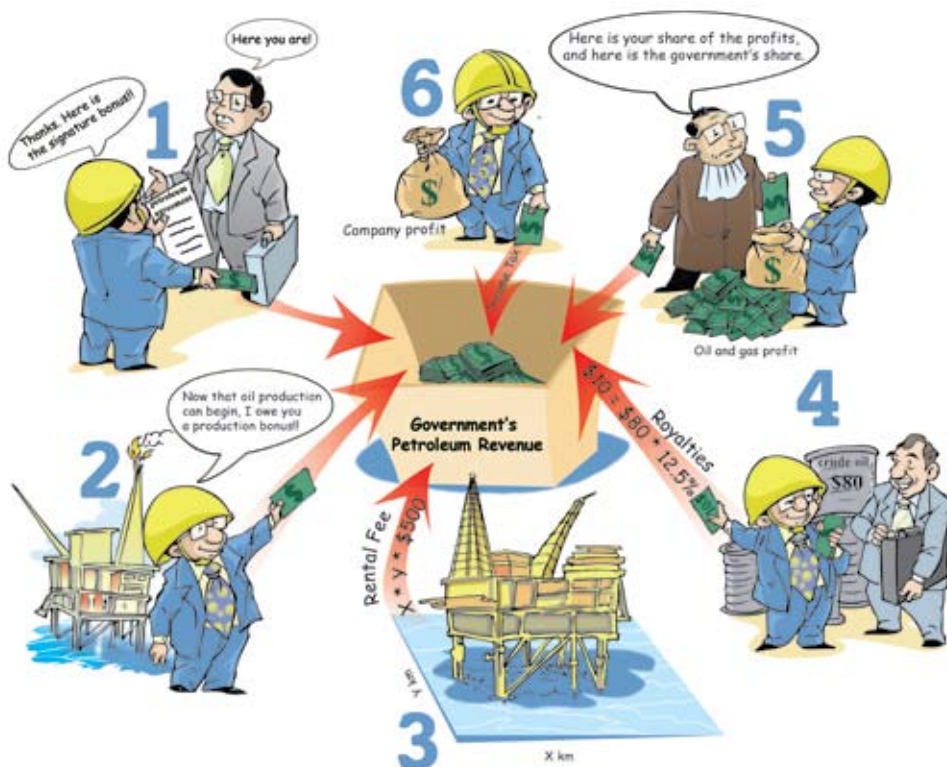
Moreover, a popular local-language newspaper[5] reported, basing on an unspecified document, that Cambodia's revenue from oil and gas will be at US\$1.7 billion, and this windfall is expected to flow in 2010. It should be clear that technically it is too early for such huge revenues to flow into the country by the mentioned timeline. This information again creates an unrealistic expectation among the public that the revenue stream from oil and gas will start flowing in so soon.

Another article in an English newspaper[6] also reported that Chevron was ready to begin oil production in 2008. Again, this may fuel public misunderstanding on the timeline of oil production as it is an underestimation of the time for oil field development. From a technical perspective, it is highly unlikely for oil production to start in 2008 as a lot needs to be done in the

development phase requiring several years after exploration activities.

This topic also attracts international media attention. An article extracted from a well-known international newspaper[7], in its attempt to highlight the increasing interest of oil companies in Southeast Asia, gave rather different figures of oil resource. It said that officials put an estimate of 200 million barrels of oil, and that the World Bank put the figure of up to two billion barrels – figures which are ten times different. Whereas the former is very much uncertain, the latter that is often mentioned in other newspapers is misquoting. The press release in March 2007 by the World Bank clearly mentioned that the two billion barrels of oil is not an estimate by the Bank.

Besides the UNDP paper, the IMF country report that partially highlighted the extent of oil and gas revenue in



Cambodia was also heavily reported by the media. An article in a local-language newspaper[8], entitled “IMF: Cambodia’s oil is worth about US\$15 billion”, quoted specifically from the IMF report the revenue stream to the government without elaborating on the purpose of the IMF report, the scenarios, and the assumptions used in the report. In the same fashion, a local-language magazine[9] also covered the oil and gas issue based on IMF report by highlighting the amount of revenues to be obtained by the Cambodian government.

All of these examples of misquoted, misunderstood and out-of-context information lead to speculation from the general public about the revenues which are, at least at this stage, uncertain or unknown. It should be noted that the IMF report simply provided a calculation of a revenue stream within a possible scenario based on some specific assumptions. It was not the intent of the report to estimate or forecast potential

oil revenues outside of this context as has been done by some of the media.

In addition to the revenue issue, there is other information that the media did not report properly. An article of a newspaper[10] said that 2011 was the realistic production start-date for Chevron, which said it obtained from the IMF report. What is more, the article continued that the assumed 500 million barrels consist of 300 million barrels in Block A and 200 million barrels in other blocks.

In fact, the IMF report did not make any judgment as to when Chevron will start production, and how the assumed recoverable oil reserve was allocated amongst the offshore blocks or oil fields. According to the IMF, both the date to begin oil production and the size of the recoverable oil reserves in the report are illustrative assumptions serving as a close-to-realistic scenario. Based on the IMF, year 2011 is considered as a reasonable date for oil production to begin in Cambodia considering the current prog-



ress of oil and gas sector development.

The IMF also clarifies that 500 million barrels was a very crude assumption aiming at having a moderately sized oil sector in the country which is neither an overwhelmingly large discovery, nor a small one so as to have negligible macroeconomic consequences. In addition, the IMF did not make any assumption as to which oil fields contain the 500 million barrels of oil. In this case, the three fields mentioned in the IMF report were somehow arbitrary for the purpose of analyzing the cash flow of the revenues.

But because the media have used the IMF report figures as actual facts rather than outlining in their stories that the figures were hypothetical, it has unintentionally falsify the information to the public, which could feed into the public's high expectations. This misinformation along with the public's lack of knowledge of this new and complex industry will lead to a situation where misunderstandings, confusions and unrealistic expectations in petroleum sector are commonplace.

Civil Society Perception

According to discussions with some civil society organizations, oil and gas has increasingly become a common topic among the public and the civil society. Yet, their interests involve mainly in the revenue issue ranging from transparency to the impact on the economy. But as yet, nothing has been done to manage the increasing high expectations on the resource windfall that could lead to some negative consequences.

The general perception from many people and civil society is that the revenues generated from oil and gas can be

either a blessing or a curse. The blessing is seen as the possible developments that could come to Cambodia. While they pin their hope on this windfall for the development of Cambodia, there is a worry over the reverse outcomes. Many civil society representatives understand that oil and gas revenues could increase the government's financial capability to undertake various development programs which, if planned appropriately, will largely benefit people's livelihood and promote economic diversification. So, if the oil and gas revenues are used properly it could lead to sustainable growth for Cambodia.

The other side to this, the curse, is the increased poverty that comes from corruption, poor planning and misuse of the revenues. However, the lack of the government's experience in the sector together with the lack of proper policy and weak legal and institutional frameworks, have led to the question of revenue management – how the government will equitably share the windfall. In addition, there is a concern that some of the revenues will leak before it reaches the national budget, which could bring about political conflict and social unrest in the



country. In this sense, transparency in oil and gas revenue collection and expenditure is deemed necessary by civil society as it is a pre-condition for having the government to be accountable to its people.

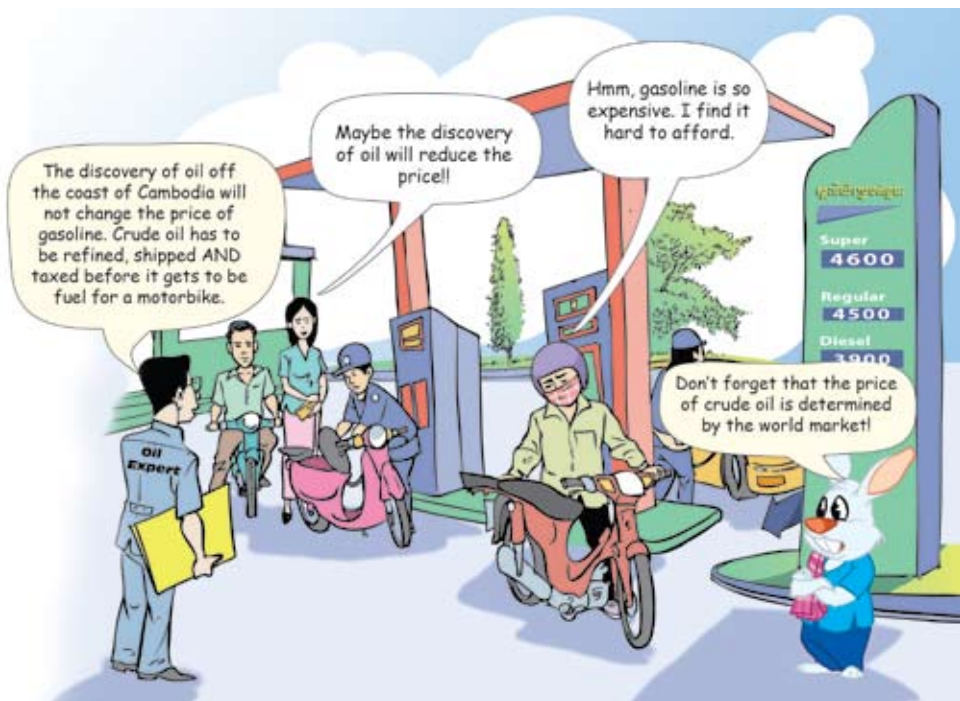
On the issue of public expectations, there is a general consensus that the public tends to expect more jobs will be created by the industry regardless of the capital-intensive nature of the industry employing only few hundreds high-skilled workers— seemingly unavailable in Cambodia. Moreover, with the current surge in gasoline prices, people also have a perception that future oil and gas production would lead to lowering the price of gasoline. If the public continues to go uneducated on the issues, such unrealistic expectations will continue to spread.

What is more, with the speculations of resource revenues, people believe that the revenues could be used to increase public official salaries, to increase public investment in health and

education, and to increase investment in other productive sectors such as infrastructure and agriculture.

However, their understanding of how to appropriately spend this revenue is still in question. Besides these expectations from the public, the non-disclosure of information related to oil and gas by the government has sparked concern that corruption among elite politicians could happen. In addition, there is an issue that no one feels the ownership of the revenue.

The public also has some concerns over social and environmental impacts such as resettlements, the loss of livelihoods, and negative impacts on health and the indigenous community. Although these impacts are not serious in an offshore oil and gas exploration and production, what is more serious in such operations is pollution and spills which may affect the water and any creatures in it.



The Need for Managing Expectations

While it is clear there are high expectations about what oil and gas can bring to Cambodia, it is not too late to manage those expectations. While petroleum development in Cambodia is in its infancy, public expectations can be better managed now through providing accurate information related to the industry to the media, educating the public about the issues and increasing awareness of the consequences of having high expectations. While the former would provide better understanding of the challenges of this particular industry, the latter would draw public attention on why managing expectations is necessary at this stage.

Challenges around oil and gas industry

From a technical perspective, the oil and gas industry is particularly compli-

cated. It is an industry facing a high level of uncertainty, and considerable work is required from the moment the first oil is identified until the oil is commercially produced. Moreover, the financial aspects of the industry also have to tolerate uncertainty in terms of timing and magnitude of what is to come.

Uncertainty in reserve estimate

The estimation of oil accumulation inevitably brings with it an element of risk. Even with sophisticated technology, an estimation of the resource is usually done in a probabilistic manner. It should be noted that when Chevron announced its first oil discovery in 2004, no reserve estimation was publicly stated nor the extent of the discovered resource and its likely recovery. A single oil well only probes part of the



subterranean reservoir; the rest may or may not contain oil.

Common confusion often occurs between the term resource and the term reserve. While the former is the amount of petroleum thought to be in-place, the latter is the amount of oil that is thought to be recoverable. In the oil industry, the recoverable reserve is usually linked to the amount of oil-in-place through what is known as the recovery factor, i.e. amount of oil-in-place multiplied by a recovery factor. The recovery factor may range from five to 75 percent depending on the porous quality of the rock containing the oil, the type of oil, the pressure, the gas content of the oil, and the extent to which an active aquifer supports the reservoir pressure.

Furthermore, the extent of the oil-in-place or recoverable reserve is subject to degrees of uncertainty or probabilities, depending on how much is known about the accumulation. The oil resource is considered proven, probable, or possible depending on whether it has 90 percent, 50 percent, or 10 percent confidence level of being present, or in-place. In the same way, oil reserves are considered either proven, probable, or possible recoverable reserves if there is a corresponding chance of recovery of 90 percent, 50 percent, or 10 percent respectively.

According to an independent oil and gas expert, the figure of 700 million barrels of oil claimed to be announced earlier may probably be only the possible oil-in-place resource volume, of which only had 10 percent confidence level of actually being found which would then be subject to the application of an appropriate recovery factor.

For an oil resource to be commercial-viable, there needs to be a 90 percent

chance of the resource being recoverable and there needs to be a scheme of development in place or expected to be in place. Thus, there is considerable uncertainty around the actual oil reserves that may be recoverable and the revenues that they may actually generate. Until recently, Chevron had drilled a total of 15 wells to examine the prospect of the Block A area and to define the extent of the recoverable reserves, and it is now in the beginning stage of development planning work.

Risky nature of oil and gas business

Not only does the oil and gas industry face uncertainty relating to the size of the reserve, but this industry also encounters other technical challenges. Indeed, the business of oil exploration is always associated with risk when it requires probing deep under the sea floor. It is acknowledged that oil and gas exploration is a precarious investment with little chance of success. For example, a small oil producing nation in Oceania where 30 oil and gas fields have been identified, only six fields are currently commercially viable.

Clearly, the success rate of this oil-rich country is only 20 percent, which is quite normal for this particular industry. It is therefore not appropriate to expect that all the oil and gas fields discovered or to be discovered in the Cambodian offshore area will be developed; and the early speculations of both the size of resources and reserves may well be far from the reality since either has yet to be seen.

It is far more likely that given the geological endowment of the Khmer Trough and in the absence of further

exploration and success, Cambodia will be lucky if it gets even a single development. According to one industry expert, it might be realistic to say that,

Over-expectations in Mauritania

Mauritania is a country in West Africa where oil production had just started not long ago. The President, the politicians, and the people spoke of how rich they were going to be. The World Bank analysis showed how much money they could expect to get. Production from the first field was going to be 75, 000 barrels per day and new fields would be in production by 2009, growing production to 150, 000 barrels per day, and may be even higher. Expectations were high.

Today, production from the field is only 15, 000 barrels per day rather than 75, 000 barrels. Other fields have been put on a waiting list, uncertainty is large. The operator Woodside who was the dominant oil actor in the country has sold all its interests and has left Mauritania.

The Malaysian national oil company, Petronas, bought the interests for US\$400 million and will now become the dominant oil company. British Gas, who had entered Mauritania expecting to play a leading role in developing the country's gas potential, has sold out with a loss. British Gas is no longer interested in the country. Smaller oil companies have tried to sell their interests, but found no buyers.

The development in Mauritania shows how important it is to manage expectations.

Source: *Contributed by an independent oil and gas expert*

in Block A at this stage, about half a dozen discrete petroleum accumulations may have been identified, with some being very small and most likely never able to be exploited.

Therefore, even Block A, which has been best known to the public as supposedly having significant petroleum reserves, the commerciality of development is still in question given that the extent of resources may not be high enough that the development is economically viable. However, the decision by Chevron whether to go ahead with field development is expected to be made in the first quarter of 2008².

Uncertainty in production rate

Besides the risky nature of oil exploration, the oil production rate also is an important matter to look at. There has been mention in the UNDP paper that oil production from oil fields in Cambodia may reach 200 to 250 thousand barrels per day. Such an estimate looks highly premature since there continues to be no confirmed information on the discovered oil field reservoir conditions.

The daily production rate of oil, or its extraction rate, is technically determined by a number of variables such as: the porosity and permeability of the rocks; the pressure in the reservoir; the oil-gas-water ratio; the fluid characteristics; the depth of the wells; and so many other highly technical factors. All of these are known only when solid information is obtained and provided by the oil companies.

² Cambodia Oil Project Invest Decision Likely 1Q'08, Dow Jones Newswires, 18 December, 2007

proved by the government, there is another period of time required to actually carry out field development, possibly another one or two years depending on the scope of the work. Thus, it may take four years to fully develop an oil field from the time exploration is completed. It should be understood that Chevron is only at the end of the exploration stage and at the early stage of development planning.

Therefore, based on the assessment, it may not be conceivable to begin oil production before 2012, a timeline which is also confirmed by several oil and gas experts. So, the idea that oil and gas production could start before 2010 is unrealistic.

However, during a recent international conference in Phnom Penh on Fuelling Poverty Reduction with Oil and Gas Revenues – Comparative Country Experiences, H.E. Te Doung Tara, Director General of the Cambodian National Petroleum Authority, said that Cambodia expects to start its oil production in 2011. He further added that this optimistic prediction is based on the assumption that there is not any unexpected delay in the whole process. But according to an oil expert working in Phnom Penh, 2012 is a more reasonable timeline for Cambodia to start its oil production.

Uncertainty in timing and magnitude of revenue

In addition to the technical challenges, the oil and gas industry also has some uncertainties related to its financial issues, which also deserve public understanding. While oil and gas revenue is of interest to the public, it is normal

that expectations are that the revenue will flow to the government immediately once the production starts. However, in the oil and gas sector, it could easily be five years or more before significant revenues are seen by the government.

It is useful to note that, once production starts, large amounts of money would be taken by the companies to recover their exploration cost, development cost, and production cost. This is known as cost recovery.

This is allowed up to a certain limiting percentage of the post-royalty production revenues currently set at 90 percent, which would mean that only a small amount of the revenue would go to the government during the cost recovery period. Only when the cost recovery period is finished is it expected that significant amounts of revenue will go to the government.

Moreover, oil and gas revenue is considered unstable because of the volatility of world crude oil prices; the magnitude of gross revenues may change markedly from one year to another. It is quite surprising to look at the evolution of oil prices in the past. It has decreased from around US\$80 per barrel in 1980 to US\$20 in the late 1990s³, and increased to more than US\$120 recently. Thus, with unstable world politics and the increasing demand of energy, the revenue to be generated from oil and gas sector remains uncertain.

Given the various uncertainties associated with the oil and gas sector, the public are advised that they should understand the nature of this sector well. It is not so readily understood and is of far greater complexity than

³ Figures are in 2005 US\$

Technical Phases of Petroleum Operations

I. Exploration

1. Review and re-interpretation of reports and data from prior geological, geophysical and geochemical surveys and any prior operations in the area of interest.

2. Definition of play concepts (theories) for the accumulation of petroleum.

3. Conduct of new geological, geophysical and geochemical surveys.

4. Processing and analysis of new survey and interpretation of the results.

5. Review of play concepts and identification of prospects which have required parameters:

- Source: rock with sufficient organic content that when buried and heated will generate petroleum.

- Migration: the movement of generated petroleum from source rocks through rock strata that may be caught in a reservoir rather than be leaked to the surface.

- Reservoir: rock that has not only sufficient porosity (space between its grains) to contain petroleum, but adequate connection between the pore spaces to permit that petroleum to flow.

- Closure or trap: configuration of rock strata that either through folding, faulting or pinch-out defines a structure within which petroleum may accumulate.

- Containment or seal: barrier to the flow of petroleum created by impermeable rocks and structures which prevent further movement of petroleum.

6. Risked probabilistic volumetric assessment of potential resources in identified prospects and the selection of the best prospects for drilling or further surveys.

7. Drilling of rank exploration wildcat wells.

8. Review of well data in conjunction with earlier geological, geophysical, and geochemical data and appropriate re-interpretations.

9. If there has been a discovery, the well is tested to examine the nature of the fluids and to assess the behavior of the reservoir.

10. Initial assessment of the risked possible recoverable reserves of the field.

11. Drilling of appraisal wells and the conduct of further surveys to get a better defini-

tion of the field structure and geometry.

12. Drilling of further exploration well continues to examine the overall prospect of the area and to test other prospects in the area.

13. Definition of extent of risked recoverable reserves.

II. Development

14. If the field has a reasonable accumulation of hydrocarbons, initial conceptual development studies will be undertaken to identify possible schemes of development and their simple cost estimates.

15. Once some basic costs of development and production have been determined, the economics of the possible development and production operations are assessed to see if they might be commercial, i.e. capable of making a profit after the payment of all shares and taxes and liabilities to the Government.

16. If the field is potentially commercially viable, initial plans of development are reviewed and the best development design is selected; this then forms the design base premise. Cost estimate are reviewed and revised.

17. Then Front End Engineering and Design (FEED) is conducted to closely examine the chosen development scheme; again costs estimates are reviewed and revised.

18. Once the FEED is completed, detailed engineering and design is conducted, leading to the submission of application for development.

19. Once development is approved, the works are carried out to develop the field in the nominated manner.

III. Production

20. When the work has been completed, production shall begin: first oil and/or first gas.

21. Production operations continue fore the life of the field with occasional reviews and modifications to optimize facilities.

22. Production ends when the cost of operations becomes greater than the net value of production to the operator.

Source: *EIC, compiled from various sources*

most people think. Expectation on oil and gas needs therefore to be more realistic than it used to be to avoid any negative effect.

Consequences of over-expectations

While there are increasing general expectations about what oil and gas will provide Cambodia, it is important that the public understands possible consequences of these high expectations, especially in the light of uncertainties and challenges of this particular industry. There are various consequences associated with the over-expectations which may lead to difficult development planning, social mistrust, economic downturns, and other problems.

Job creation in oil and gas sector

The expectations may be that oil and gas development will create direct jobs for the people, especially the poor. The oil and gas industry is an extremely capital-intensive one that needs relatively few high-skilled laborers. Many jobs are created during the construction period of terminals, platforms, and/or pipelines, but they disappear as soon as the work is done.

Therefore, people might be disappointed that everything turns out to be less than what they expected. This may lead to a situation where people do not feel ownership of the resource and neglect this sector, causing a higher chance of lacking transparency and getting the resource curse.

Disappointed people who expected to work for the industry could also turn to other sectors such as garments and agriculture. But, by that time, it might be that those sectors will have

become uncompetitive and in trouble themselves due to some comparative disadvantages, if the government does not look at stimulating and protecting those vulnerable sectors.

Gasoline price decrease

There is a general expectation that the production of oil and gas in Cambodia would help decrease gasoline prices, which have soared recently. Gasoline prices are normally determined by the world market and local oil production would do very little to influence the price.

People are aware of cheaper gasoline price in the neighboring countries but they do not understand that it is the result of governments' subsidizing policy which is not quite sustainable in the long-run. More than this, there needs to be a comprehensive study done about whether or not the development of a domestic oil refinery would be cost effective for Cambodia's circumstance.

Indebted state and wasteful spending

The unrealistic expectation that large revenues could be generated at an early production stage might also lead to unreasonable demand by the public on the government, creating several negative consequences. Given that there are so many developments on the government agenda, the expectations would cause public pressure for the government to speed up the spending to achieve all these development objectives.

According to an expert, it is normal that when people hear of oil production, most of them expect money to start flowing in immediately, and they hope to see rapid improvement in the poor society.

But this expectation puts more pressure on the government. While revenue does not flow into the government budget as early as expected, the demand to have early development could result in the government borrowing money against the anticipation that future oil revenue will sort out the debt problem later.

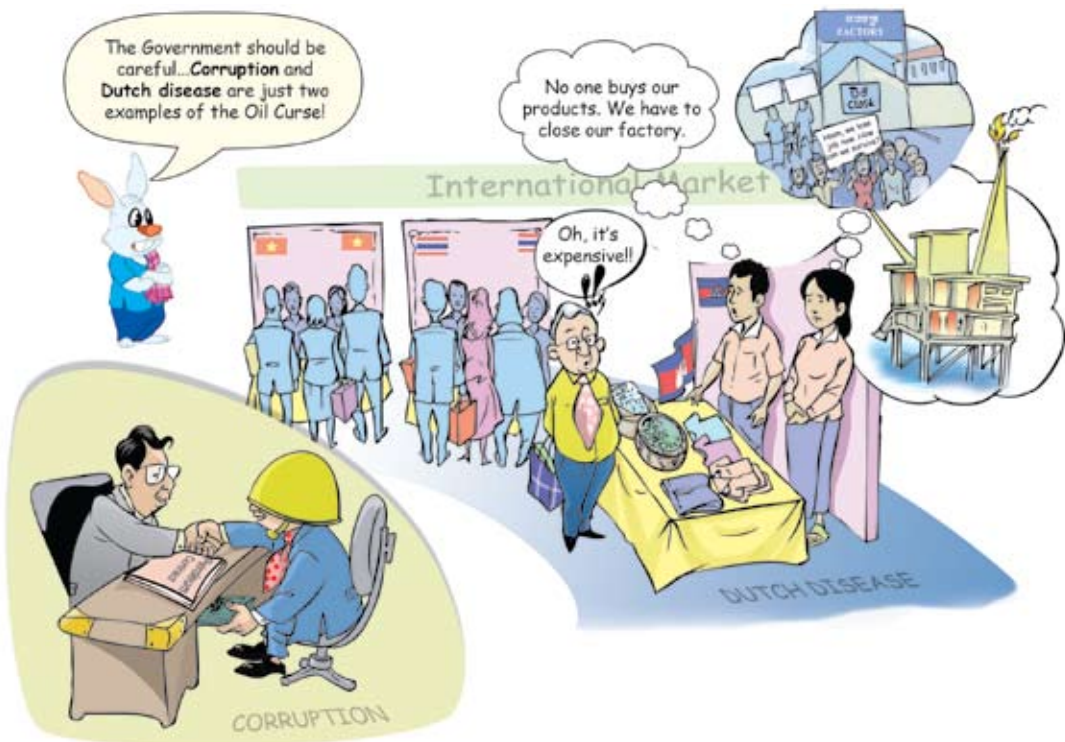
As explained earlier, the uncertainty around potential oil reserves looms as the actual revenue may or may not be as high as what has been speculated. Additionally, it may easily take five years or more before any significant amount of revenue comes to the government. In this case, Cambodia could become heavily indebted if the government borrows against future revenue expectations as the resource could merely generate an insignificant amount of revenues.

More importantly, speeding up development because of increased demands from the public without considering the

absorptive capacity of the economy and the institutional capacity would do more harm than good. It should be noted that public institutions in Cambodia are still very weak, thus excessive public investment would not be properly managed and monitored. In this case, the investment could result in a huge waste for the government. What is more, large public investment in a short period of time in response to strong public demand might crowd out private investment, which is already very low in Cambodia.

Difficult development planning

Another way of looking at the possible consequences is that high expectations could lead to overlooking the risks associated with the oil and gas sector, and that could complicate the government development strategy. A World Bank expert anticipates that overly optimistic



expectations could result in unrealistic budget planning, possibly running out of cash to complete investment projects (in infrastructure, for instance) funded by the government, and even abandoned projects, which are wasteful.

It is accepted that the oil and gas industry has lived through ups and downs; but people are more likely to plan for the ups rather than the downs. In this sense, a development strategy that is formulated with an optimistic scenario may not be sustainable in a period where oil production or oil prices collapse. This high volatility of revenue prospects is often the cause of difficult fiscal management and government's development planning experienced by resource-rich countries. Therefore, expectations need to be retained at a modest level in order to avoid misleading development planning.

Dutch disease

In addition, expectations of large revenues from oil and gas could lead to Dutch disease. It is possible that, without proper education of the issues, the general public could expect the economy to survive only on oil and gas revenues, thus neglecting the importance of economic diversification.

If public pressure ensures that the government focuses only on oil and gas, there would be no need for the manufacturing sector to be ameliorated, agriculture to be modernized, or labor skills to be improved. In the long-run, this phenomenon could cause the country's economy to collapse. In this regard, a strategy should emphasize the opportunities that will arise from oil discoveries in Cambodia, but should also stress

the risks of being over-dependent on only oil and gas.

Social mistrust

Besides the above consequences there is also the possibility that high expectations may lead to social mistrust and, in an extreme case, social unrest or instability. It is probable that with the current lack of transparency in the sector, the public tends to assume the worst if actual oil revenues generated are less than what has been speculated. The public would assume corruption or a mishandling of the revenues. In this sense, without providing a better insight of the risks and uncertainties associated with this particular industry, trust between the people and the government could deteriorate.

It is also noteworthy that mistrust does not occur only between the public and the government, but also amongst the political elites themselves, as was the case in Chad where mistrust led to a presidential coup. It was the president's own allies and relatives who ousted him. One of the best ways to build trust is through promoting transparency in the sector so that everyone is clear about what is happening all of the time.

Potential increase of rent-seeking

Last but not least, the speculations of large oil and gas revenues could also catalyze the potential increase of rent-seeking and corrupt practices. It is possible that with the current nepotism and patronage system in Cambodia some people may seek to gain a government position close to the oil and gas sector, expecting to gain from the potential windfall.

Conclusion

There have been various inappropriate mentions of oil and gas reserve in Cambodia drawing from the reports by UNDP and IMF. Both reports provided only the roughly assumed figures which are subject to change when more information is available. However, the media, which is the main communication to the public, tended to quote the figures given in the report as if they were certain. These can lead to excessive expectations among the public.

These high expectations can lead to several negative consequences: a disappointed, and therefore a disengaged public; an indebted government that has borrowed against possible incoming revenues; difficult development planning; Dutch disease; increase of rent-seeking; and general mistrust within the society. All of these consequences will need to be managed accordingly.

There are ways, however, to manage these consequences before they begin. These can include providing accurate information and knowledge to the public so that they can understand the challenges of the industry, and learn about the possible consequences of overly optimism. To do this, the government could start by promoting its own transparency and accountability in the process by adopting the Extractive Industry Transparency Initiative (EITI), for example, which requires the extractive companies and the government to disclose all their payments and receipts

in an accurate and accessible manner. In addition, paying close attention to those lessons already learned from other resource-rich countries, both successes and failures, could play an important role in managing expectations.

According to the discussions above, it is apparent that until now nothing is certainly known about the size of the oil and gas reserve in Cambodian offshore area. The public should understand that unless there is firm evidence of recoverable reserves and a solid development plan on the table, they should not have unrealistic expectations. It is important that everyone understands the risks.

Nevertheless, this study does not mean to keep the public's interest away from the oil and gas sector, or to discourage the government to make any forward planning for the development in windfall era. It aims to inform the public, media and civil society organizations that speculations should be avoided and high expectations should be dampened.

The Cambodian people need to look into the government's plan on economic diversification rather than to expect too much on this uncertain non-renewable resource windfall. Yet, they should also keep an eye on the progress of the development of the oil and gas sector to ensure, if revenue is generated, that it will be reinvested wisely and holistically to stimulate other important sectors in the country.

References

1. Dapice, D.O., A SWOT Analysis of the Cambodian Economy. January 2006, United Nations Development Programme: Cambodia.
2. Davies, M., J. Ntamatungiro, and P. Luengnaruemitchai, Cambodia: Selected Issues and Statistical Appendix. August 2007, International Monetary Fund.
3. Barton, C. and C. Sokha, Donors put spotlight on petro cash, in Phnom Penh Post, Vol.16, Issue 08, April 20-May 3, 2007: Phnom Penh.
4. Muny, Cambodia becomes an oil-rich country, in The Popular Magazine, Vol.13, Issue 378, March 11-20, 2007, p. 11-13. Phnom Penh.
5. Thang, S., UNDP:Cambodia needs capacity building to enjoy petroleum windfall, in Reaksmeay Kampuchea, Vol.15, Issue 4280, May 10, 2007: Phnom Penh.
6. Samean, Y. and E. Kinetz, Chevron ready to begin oil production in 2008, in The Cambodia Daily, Vol.37, Issue 07, May 25, 2007: Phnom Penh.
7. Gatsiounis, I., High oil price draws explorers to Deep Southeast Asian Waters, in International Herald Tribune. May 23, 2007: Kuala Lumpur. (<http://www.ihf.com/bin/print.php?id=5838838>).
8. Brevin, IMF: Cambodia's oil is worth about US\$15 billion, in Reasmey Kampuchea, Vol.15, Issue 4390, September 16-17, 2007: Phnom Penh.
9. Sokhet, R., In 2011 Cambodia will obtain US\$174 million from offshore oil, in Angkor Thom Magazine, Vol.08, Issue183, September 27-October 06, 2007, p. 14-15. Phnom Penh.
10. Postlewaite, S., Oil spigot set to flow in 2011, in Phnom Penh Post, Vol.16, Issue 18, September 7-20, 2007: Phnom Penh.
11. Winning, D., Cambodia Oil Project Invest Decision Likely 1Q '08, in Dow Jones Newswire, December 18, 2007.

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