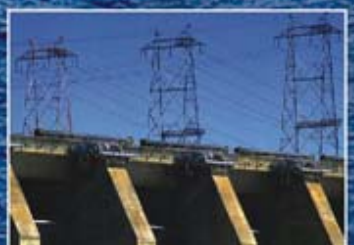

UNDP Azerbaijan

CONVERTING BLACK GOLD INTO HUMAN GOLD

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USING OIL REVENUES TO ACHIEVE SUSTAINABLE DEVELOPMENT

FULL REPORT

Prepared by

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mhc international ltd

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In the course of our work, the team held bi-lateral meetings with high-level officials from most key Government ministries and agencies based in Baku, including the Ministries of Education; Industry and Energy; Labour and Social Protection; and Finance, the National Bank, the State Oil Fund, and Azpromo. The Minister of Education, the Hon. Misir Mardanov took a special interest in our work, as did Mr. Shahmar Movsumov, Executive Director of the State Oil Fund, both of whom served on the BGHG Advisory Board. The team made use of data supplied by the State Statistical Committee and worked with the Center for Economic Reforms (CER) in MOED on identifying models of the Azerbaijani economy.

The team likewise met with a number of representatives from the international donor community, non-governmental organizations, and foreign embassies, as well as staff from private companies and institutions, including several meetings with British Petroleum, the major international oil company in Azerbaijan. The team would like to express our appreciation in particular to the United Nations Development Programme and Messrs. Marco Borsotti and David Eizenberg, Mrs. Gyulshan Rzayeva and other staff of the UNDP office for their tireless support and active encouragement.

In writing this report, we recognize that there are many viewpoints about how Azerbaijan should tackle the tough policy challenges that lie ahead for using the country's oil revenue. The next few years will be a time of tremendous change as the Government and Azerbaijani society grapple with these challenges. We hope that this report, which represents our own views and not necessarily those of any government official or agency, will in some small measure contribute to successfully addressing these challenges.

Finally, the study team would like to express our appreciation for the opportunity to have worked on this assignment and to experience the warmth and hospitality of the Azerbaijani people and the country's vibrant culture. We return to our own countries richer with "human gold" in our own hearts and minds because of the time spent in Azerbaijan.

Executive Summary

This report examines one of the most important policy issues facing the Government of Azerbaijan today: how best to use the country's new oil revenues to achieve long-term sustainable economic growth in ways which benefit all segments of Azerbaijani society. There has already been considerable discussion among national policy-makers about this significant policy challenge. The report therefore aims to help national policy-makers better understand the broad strategic landscape and certain aspects of the challenge in which policy and investments decisions must be understood and implemented.

To provide Azerbaijan policy-makers with an international context, the report compares 40 other single-resource exporting economies and notes that, while there are many single-resource countries that have mismanaged their economies, some countries have done well. Overall, single-resource exporting countries have a very mixed record of success and failure. In addition, the report examines five countries in more depth as a way of pinpointing useful lessons that might be of relevance for Azerbaijani policy-makers. The five countries are Norway and Chile (success), Trinidad and Tobago (promising), Nigeria (failure) and Kazakhstan, a neighbouring country with similar challenges as those facing Azerbaijan. The examination of these five counties shows that good governance and transparency, along with sound macro-economic management, are clear keys of success.

From a macro-economic perspective, the report argues that Azerbaijan cannot simply spend its way into sustained and balanced economic growth. Strategic investments are certainly necessary, but the overriding concern must be one of investment prudence and understanding the expected benefits, potential risks, and long-term implications of different kinds of investment decisions and spending alternatives. In this vein, this report places considerable emphasis on using oil revenues to significantly expand human capital development and skills formation. This is the basis for turning "Black Gold into Human Gold (BGHG)." Furthermore, accelerated skills development can serve to dampen the effects of Dutch disease, promote growth in the non-oil sectors, and reduce poverty and income inequality. Taken together, this component of Azerbaijan's oil revenue strategy can have major dividends in promoting Azerbaijan's fuller integration into the global economy over the medium and long term.

An underlying theme of this report is that government policy must strive to facilitate the non-oil sector's entry into the global economy by making it competitive internationally. For it is in the non-oil sector where the vast majority of the Azerbaijan population lives and works. It is this majority who must have the skills and opportunities to compete in the international economy. Paradoxically, Azerbaijan could technically succeed in avoiding the adverse effects of Dutch disease, but fail in the longer term goal of full integration in the global economy with a competitive non-oil sector.

The report suggests a number of practical and immediate steps to be taken to improve human gold. To enhance Azerbaijan's competitiveness and develop the non-oil sector, a massive increase in human skills is required to suit the future labour market. The report argues that the Government should consider preparation of a comprehensive Human Resource Development (HRD) Strategy, as has been done successfully in several other countries. A similar approach is found in the Employment Strategy of Azerbaijan that would be complemented by the suggested HRD Strategy.

At the same time, and as a component of the HRD Strategy, the report argues for an Accelerated Skills Development Programme or Initiative (ASD) aimed at urgently using oil revenues to educate Azerbaijanis in a broad range of skills and training suitable for an internationally competitive non-oil sector. Options include an (i) expanded Scholarship Fund,

based upon the initiative in the President's October 2006 decree on the subject, to send significant numbers of Azerbaijanis abroad; (ii) in-country education parks; (iii) establishment of a "community college" model of vocational and technical training to provide opportunities for continuing post-secondary education; and (iv) a 'radar' scanning system to improve data and analysis of skills to allow a better match of labour market supply and demand. In this process, the report strongly advocates using a framework of public-private collaboration to design and implement the ASD development programme.

The report makes practical recommendations to place greater emphasis on supporting the analytical tools needed by government to facilitate monitoring black gold into human gold, namely, agreement on the economic modeling tools to be used by government and more systematic use of labour force surveys to track changes in labour market conditions. A second recommendation calls for the government to give greater attention to more systematically learning from the experiences of other successful oil-producing countries, and, in turn, Azerbaijan sharing its 'lesson learned" with newer, less experienced countries.

The report encapsulates its recommendations in what are called "BGHG Principles". These serve as the framework for defining specific and concrete "next steps" and are given in a *'BGHG Strategic Principles: Programme of Action'* matrix in the concluding chapter of the report. To date, discussion on the findings and proposed recommendations of this report were coordinated by an inter-ministerial and inter-sectoral BGHG Advisory Board. It is recommended that this Advisory Board be continued into the future to oversee some, or possibly all, of the recommendations and suggested next steps made in this report

In summary, the report suggests that Azerbaijan's stated Vision can be achieved provided that the oil revenues are allocated wisely and, equally important, sound policy decisions and continued institutional reforms are vigorously pursued at the same time. The current task before Government is not so much what should be done, but the more complex task of deciding how it is to be done, who is to do it, the costs for undertaking it, and the sequence for carrying out the multiple components. Government must give concerted attention in 2007 to formulating concrete action plans that move beyond the broad policy framework and draw the roadmap of what has to be done. Given the level of oil revenues now flowing into Azerbaijan, anything short of this will likely result in significant inefficiencies and failure to achieve desired outcomes.

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Abbreviations and Acronyms

AGC	Azeri-Chirag-Guneshli
ASD	Accelerated Skills Demand
bbl	barrel (of oil)
BGHG	Black Gold to Human Gold
BP	British Petroleum
BTC	Baku-Tbilisi-Ceyhan
EBRD	European Bank for Reconstruction and Development
EITI	Extractive Industries Transparency Initiative
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HRD	Human Resources Development
IMF	International Monetary Fund
JF	Job Futures
JV	Joint Venture
LF	Labour Force
LMI	Labour Market Information
MHCi	MHC International Ltd
MoE	Ministry of Education
MoED	Ministry of Economic Development
MoF	Ministry of Finance
MoIE	Ministry of Industry and Energy
PIP	Public Investment Programme
PRSP	Poverty Reduction Strategy Paper
PSA	Production Sharing Agreement
SOCAR	State Oil Company of Azerbaijan Republic
SOFAZ	State Oil Fund of the Azerbaijan Republic
SPPRED	State Programme for Poverty Reduction and Economic Development
SSPF	State Social Protection Fund
UNDP	United Nations Development Programme
UNESCO	United Nations Education, Science and Culture Organization
UNICEF	United Nations Children's Fund
VAT	Value Added Tax
$	U.S. dollar

Chapter 1: Introduction

1.1. Purpose of Report

This report has been written at the request of the Ministry of Economic Development to examine one of, if not, the single-most important policy issue facing the Government of Azerbaijan today: namely, how best to use the country's new oil revenues to achieve long-term sustainable economic growth in ways which benefit all segments of Azerbaijani society. The report aims to help national policy-makers better understand the broad strategic landscape in which policy and investments decisions must be understood and implemented to ensure that Azerbaijan can achieve sustainable and equitable growth.

There has already been considerable discussion among national policy-makers about how best to use oil revenues. Policy-makers have likewise become familiar with the terms, oil curse and Dutch disease, to describe what has happened to the many single-resource economies (largely oil based economies)that they have mismanaged their economies, and experienced negative growth along with worsening poverty and greater income inequality.

On the other hand, some single-resource countries have managed their resource revenues well and significantly expanded their economies, promoted the non-single resource sectors, and lowered poverty and income inequality. Needless to say, Azerbaijan's policy-makers are keenly aware of the importance of learning from these other countries' experiences and ensuring that Azerbaijan joins the ranks of successful single-resource economies.

Azerbaijan's policy–makers are also aware of another oil revenue issue with which they must contend. Oil wealth does not necessarily mean full employment. The Gulf States have shown how difficult this has been and have offered the solution of public employment. With Azerbaijan's larger population, the 'Gulf model' is not an option. It is imperative, therefore, that Azerbaijan develop its non-oil economy where most of its population lives and works. The oil sector itself, and related industries, are largely capital intensive and therefore not great providers of employment.

1.2 What is Meant by Black Gold to Human Gold

Azerbaijani policy-makers understand that oil (*black gold)* can have both positive and negative effects. The former provides a Government with savings surplus but also may, if policy is not imaginative, raise the exchange rate and/or costs in the non-oil sector where 97 percent of the labour force is employed. This means that low skilled products will not be internationally competitive and, consequently, un- and under-employment will result in the non-oil sector.

It will be difficult to promote employment in the non-oil private sector for a whole host of institutional and economic reasons. One of the main fears is that the price level will rise compared with Azerbaijan's neighbours (the so-called Dutch Disease). Consequently, the promotion of low-tech small and medium scale business, where normally in a growing economy most new employment is created, is a risky strategy.

However, because of Azerbaijan's inherited high levels of education, it will be possible to train Azerbaijanis in new, and advanced, skills (*human gold*). A massive injection of resources into human skills development would, therefore, help to move Azerbaijan's non-oil sector up towards internationally competitive standards. Care, of course, has to be taken that use of oil funds for this purpose is not brought onshore too rapidly and therefore lead to exchange rate over-valuation. Consequently, oil receipts must be used for investment projects, as far as

possible, with a large overseas component. This process has been encapsulated as moving from *black gold to human gold*[1].

1.3 Azerbaijan's Future Vision

The Government understands the above problems and, *inter alia,* has created an oil fund that, at time of writing, amounts to $1.3 billion. The Government's original intention was to sterilize these monies offshore so as to prevent oil revenues leading to the Dutch Disease. More recently, the Government has brought some of these funds onshore so as to raise Government expenditures as well as public sector salaries. Even as this report is written, there is a boom in construction resulting as much as a result of ex-patriate transfers than oil revenues which have only just begun to arrive in large quantities in Azerbaijan.

As part of its efforts, the Government of Azerbaijan has laid out an ambitious and comprehensive plan for moving the economy and the social well-being of the Azerbaijani people to a much higher level of sustainable development. Following the early difficult years after independence, Azerbaijan has already made considerable strides in restoring economic growth, reducing the high levels of poverty, and tackling regional inequalities across the country. These considerable achievements have been achieved despite the significant burdens imposed by unresolved political conflict.

Through numerous pronouncements by the President of the Republic, the Parliament and high-level government officials, Azerbaijan's vision is clear. It calls for the country to achieve even more significant economic and social advances that quickly propel Azerbaijan into the ranks of high middle-income countries and place Azerbaijan at the economic cross-roads between Europe and Asia, and, by implication, the rest of the world. While many countries around the world have also elaborated equivalent "national visions," only a very few countries have the added benefit – and potential risk – of windfall oil revenues, as does Azerbaijan. In this regard, the President's decree on the development of a "Long-Term Strategy on the Management of Oil and Gas Revenues" stipulates that in addition to saving at least 25% of all oil revenues, the remaining monies will be used for a range of economic and social goals. These include:

- Promoting the non-oil sector, encouraging regional growth, and facilitating the expansion of the small and medium enterprise sector ;
- Investment in the country's core infrastructure base;
- Fulfillment of poverty reduction measures and the solution of other social problems;
- Stimulating the improvement of the intellectual, material, and technical base of the economy;
- Development of human capital to include training highly qualified specialists and improving the professional skills of employees;
- Executing projects relating to reconstruction activities in liberated territories and the return of internally displaced persons to their native lands.

It is the opinion of the authors of this report that all of these objectives can be achieved provided that the oil revenues are allocated wisely and, equally important, sound policy decisions and continued institutional reforms are vigorously pursued at the same time. The current task before Government is not what should be done, but the more complex task of deciding how it is to be done, who is to do it, the costs for undertaking it, and the sequence for carrying out the multiple components. Government must give concerted attention in 2007 to formulating concrete action plans that move beyond the broad policy framework and draw the roadmap of what has to be done. Given the level of oil revenues now flowing into Azerbaijan,

[1] Michael Hopkins: "Main Challenges to Azerbaijan", UNHCR, Ten Years of Humanitarian Intervention, Azerbaijan, 2004

anything short of this will likely result in significant inefficiencies and institutional wastage or paralysis.

A major theme of this report is that Azerbaijan cannot simply spend its way into sustained economic growth. Strategic investments are certainly necessary, but the overriding concern must be one of investment prudence and understanding the expected benefits, potential risks, and long-term implications of different kinds of investment decisions and spending alternatives. In this vein, this report places considerable emphasis on using oil revenues to significantly expand human capital development and skills formation as a means to dampen the effects of Dutch disease, promote growth in the non-oil sectors, and reduce poverty and income inequality. Taken together, this component of Azerbaijan's oil revenue strategy can have major dividends in promoting Azerbaijan's fuller integration in the global economy over the medium and long term.

1.4 Report Structure

To elaborate the above issues, the report is organized into seven chapters. The next chapter examines Azerbaijan's socio-economic performance in the context of other single-resource economies in order to highlight lessons learned from successful single-resource countries and how they might be applicable to Azerbaijan. The third chapter then looks at the interrelated macro-economic aspects associated with Dutch disease, public investments from oil revenues, and policies for Azerbaijan to successfully compete in the global economy. The fourth chapter examines some of the macro-economic theoretical bases for our approach. The fifth chapter then turns to a suggested Human Resource Strategy for Azerbaijan followed, in the sixth chapter, by an element of this strategy, namely an Accelerated Skill Development Initiative. The final chapter provides a summary and conclusions in a matrix and offers a series of policy and strategy recommendations.

Chapter 2: Lessons from Other Single-Resource Economies

2.1 Introduction

Azerbaijan is only one of many countries around the world that primarily rely, or have relied, on a single export commodity for the bulk of their foreign exchange earnings. As Azerbaijan begins to see the first dramatic increase in oil revenue, it is important to keep in mind the historical record of other single resource economies. Azerbaijani policy-makers know that many of these single-resource countries have a very mixed record of economic performance despite the benefit of foreign exchange earnings from hydrocarbons, minerals and other commodities.[2] There have been more failures than successes, and only a few single resource-economies are truly integrated into the global economy. The "resource curse" is thus often associated with single-resource economies, notably in the petroleum and mining sectors.

But what exactly does the "resource curse" look like in terms of basic economic data and other socio-economic indicators and how prevalent is it? What can be learned from different single-resource countries' economic and social performance? This chapter examines 40 single-resource economies to answer these questions. In addition, a more detailed comparison is made with 5 countries, two of which are considered successful single-resource economies (Norway and Chile), one a "promising" single resource economy (Trinidad and Tobago), and one country (Nigeria) which is often classified as unsuccessful in managing its oil revenues wisely. Comparisons are also made with Azerbaijan's neighbour – Kazakhstan – since it is facing many, similar challenges as Azerbaijan in using oil revenues to transition its economy in an equitable and sustainable direction.

2.2. Comparisons with Forty Single-Resource Economies

In Annex A of this report, two tables have been generated which present data about the 40 counties under comparison, along with six well-performing emerging market countries without oil or mining resources. The tables contain a great deal of data but are an effort to highlight some of the divergent performance characteristics of these countries.

As the tables demonstrate, the 40 countries represent a wide range of very different economic performance and social conditions. Single-resource economies are found in all regions – in Europe, Africa, Asia, North and South America, and the Middle East. As the tables show, not all the countries have performed badly, but the comparisons clearly suggest that there have been a number of notable failures – Nigeria, Angola, Gabon, Libya, Saudi Arabia, Chad, Democratic Republic of Congo, Venezuela and Algeria. Between 1999 and 2005, ten of the 40 countries had both a lower GDP per capita and a lower UNDP HDI ranking (a composite indictor for social well-being).

Several countries have shown a considerably drop in their social indicators of more than 10 points as measured by their UNDP HDI ranking -- in some instances, even when GDP per capita increased. These include Cameroon, Chad, Democratic Republic of Congo, Ecuador, Nigeria, Suriname, Trinidad and Tobago, Venezuela and Zambia. The sharp declines may be a result of multiple factors, political stability and civil war, regional economic recession, the HIV/AIDS pandemic (Botswana and Zambia), as well as inability in addressing underlying macro-economic distortions.

[2] Single resource does not necessarily mean only oil and gas. It includes minerals such as copper and diamonds, as well as agricultural commodities such as coffee and tea. This chapter looks primarily at hydrocarbon and mineral exporting countries.

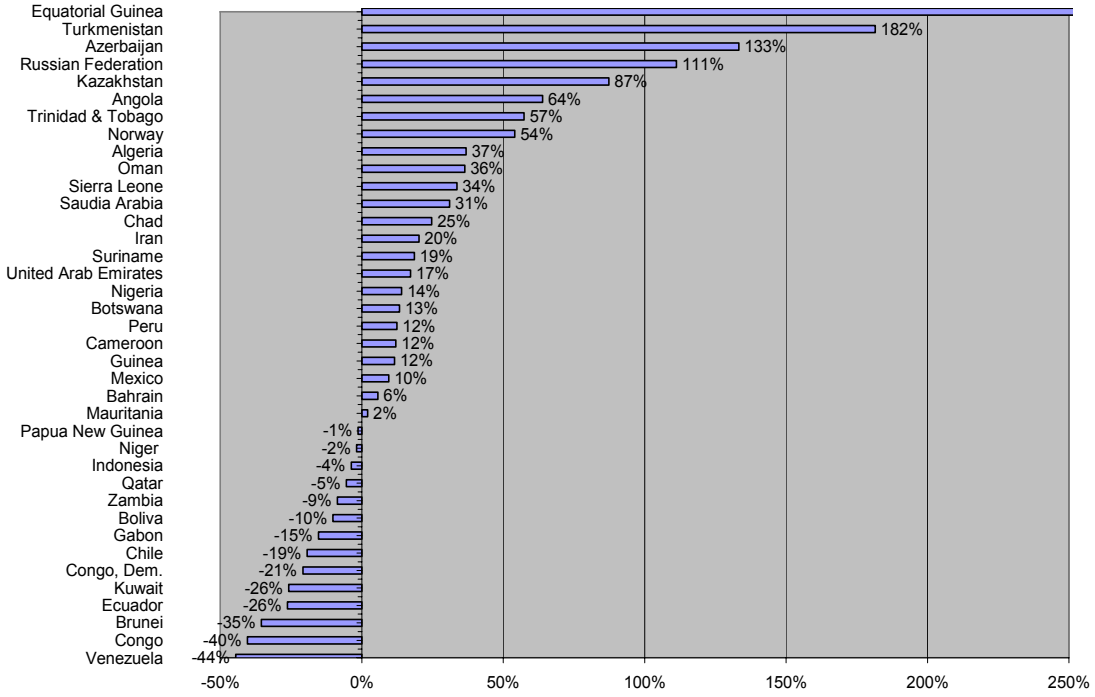
While there are fluctuations in the counties' economic and social performance, most observers often highlight certain countries – Norway, Chile, the Gulf States of Qatar and Dubai, Botswana, and Mexico – as having been successful in meeting the single-resource challenge. Chile and particularly Mexico are notable for their diversification away from dependence on a single-resource commodity for foreign exchange. Oil exports in Mexico now account for only 13.6 percent of foreign exchange earnings, while Chile's copper exports are down to 53.9 percent export earnings.

Still other countries have what might be called "uncertain outcomes" with respect to how their economies will be benefit or not. In this group, we include Ecuador, Peru, Equatorial Guinea, Kazakhstan and Azerbaijan because the longer term economic and social ramifications from their single-resource dependence are still not clear. For Azerbaijan, Kazakhstan and Equatorial Guinea, poverty inequality remains a significant problem, despite significant improvements in per capita GDP growth.

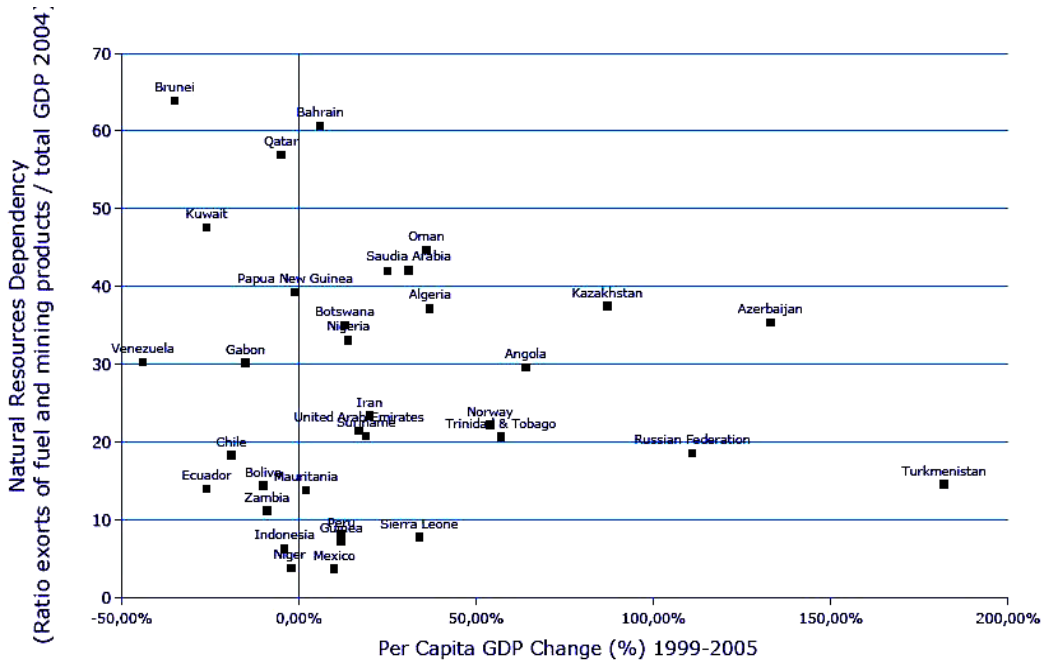
How do single-resource economies compare with the successful emerging-market comparator countries of China, Costa Rica, Korea, Malaysia, Singapore and Thailand? By in large, the six comparator countries have performed similarly to the better performing single-resource economies. Of all the countries, China stands head and shoulders above all the countries with an average of over 10 percent per capita growth per year between 1995-2006 and an HDI ranking moving up 13 places in just six years. China's average annual inflation rate was only 1.6 percent between 1995-2006. At the same time China's GDP per capita is the lowest among the six comparator counties at a still modest $5000 in 2000. By comparison, Korea shows impressive gains in per capita GDP of over $4,000 between 1999-2005, surging to nearly $18,000 in 2005. This translates into average annual GDP growth per capita of 5.79 percent between 1995-2006. Singapore has the second highest per capita GDP of all countries in 2005 at $24,481 (behind Norway), which surpasses even the per capita GDP of the Gulf oil states of Bahrain, Qatar, and United Arab Emirates. Five of the six comparator countries have adult literacy rates of over 90 percent. And the sixth county, Malaysia, has an adult literacy of almost 89 percent. Only 10 of the single-resource economies have adult literacy rates over 90 percent.

The three graphs below capture the essence of the wide ranging economic performance of single-resource economies and their degree of dependence on single-resource exports for foreign exchange earnings.

Graph 2.1
Percentage Change in GDP per Capita. 1999-2005

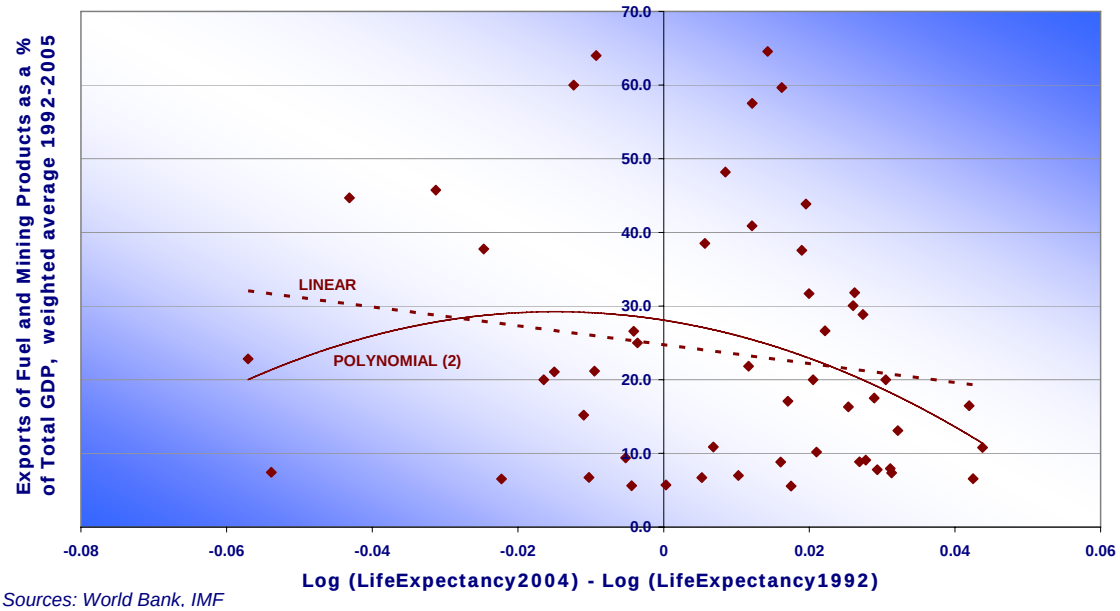


Graph 2.2
Growth and Single Resource Dependency



In the second scatter plot graph, the performance of these countries tracks not only percentage change in GDP per capita but also dependency on single resource exports for foreign exchange earnings. There seems to be no consistent pattern that more highly dependent economies perform better or worse than those countries which are less dependent on a single resource for export earnings. This would suggest that "success" is not a measure of resource dependency or not, but how the overall economy is managed, regardless of the source of exports earnings.

Graph 2.3
Natural Resource Dependency and Life Expectancy Changes, 1992-2004



Sources: World Bank, IMF

The third graph uses a wider data set and shows that single-resource dependency has a slight negative effect on life expectancy changes over time. Since it is more difficult to extend life for higher-income countries than for lower-income countries, we have taken log of life expectancy to compensate for this effect. Nevertheless, one can see that life expectancy at birth, on average, reduces over time with single resource dependency. This is not surprising since life expectancy is the ultimate development indicator taking into account all other development indicators. As might be expected, rapid growth that ensues from a single resource is not easily shared. One might expect that income distribution worsens as wealth gets concentrated in a few hands, and employment does not necessarily grow since the single resource economy is often one where the lead sector, the single resource, is capital not labour intensive. Worsening income distribution would be correlated, and even a determinant of, worsening life expectancy. The trend, however, is not inevitable as countries such as Vietnam and UAE have shown.

2.3 In-Depth Country Profiles

This section examines more closely five specific countries as a way of pinpointing useful lessons that might be of relevance for Azerbaijani policy-makers.

The five countries are Norway and Chile (successes), Trinidad and Tobago (promising), Nigeria (failure) and Kazakhstan, a neighbouring country with similar challenges as those facing Azerbaijan.

From the just-discussed 40 country comparisons above, the table below extracts the five comparator countries plus Azerbaijan to show their relative economic and social performance indicators.

Table 2.1
Socio-Economic Data for Five Comparator Countries

Country	Resource	Total Population in Millions 2005 (UNDP)	HDI Ranking 2005	HDI Ranking 1999	Change in HDI Country Ranking (+/-)	Life Expectancy at Birth 2005 (UNDP)	Adult Literacy Rate 2005 (UNDP)	GDP Per Capita 2005 (UNDP)	GDP Per Capita 1999 (UNDP)	% Change in GDP Per Capita 1999-2005 (UNDP)	Annual Average Rate of GDP per capita growth (PPP) GDP, 1995-2006 (IMF)	Average Annual Inflation Rate 1995-2006 (base 2000) (IMF)	Annual Average Rate of GDP Per Capita Growth, constant prices, 1995-2006 (IMF)	Ratio Export of fuels or minerals / GDP US$ 2004 current prices (WTO)	Ratio Exports of Fuels or Minerals / Total Merchandise Exports 2004, Services Not Included (WTO)
Azerbaijan	hydrocarbons	8.3	100	103	3	67	98.8	$ 3,617	$ 1,550	133%	11.47	4.10	9.78	35.4	85.0
Chile	copper	16	37	34	-3	78	95.7	$ 10,274	$ 12,730	-19%	5.03	3.86	3.00	18.3	53.9
Kazakhstan	hydrocarbons	14.9	80	76	-4	63	99.5	$ 6,671	$ 3,560	87%	8.81	11.31	6.80	37.5	80.6
Nigeria	hydrocarbons	126	158	146	-12	43	66.8	$ 1,050	$ 920	14%	3.46	13.41	1.84	33.1	75.7
Norway	hydrocarbons	4.6	1	2	1	79	--	$ 37,670	$ 24,450	54%	4.30	2.03	2.20	22.2	69.0
Trinidad & Tobago	hydrocarbons	1.3	57	46	-11	70	98.5	$ 10,766	$ 6,840	57%	8.81	4.67	8.00	20.7	42.9

Norway

By any measure, Norway has done exceedingly well in managing its oil resources. Norway is the world's seventh largest petroleum-producing nation and Western Europe's most important source of natural gas. In 2003, oil and gas exports accounted for more than 50 percent of the country's total exports of goods and services. From an overall socio-economic perspective, Norway ranks number 1 on the UNDP Human Development Index and has one of the highest per capita GDP rates in the world. Norway's successful economic management is demonstrated by three key indictors for 2005: a 1.6 percent change in the consumer price index, short-term interest rates of 2.2 percent, and an unemployment rate of 4.6 percent, one of the lowest in Western Europe.

In 2005-2006, oil and gas output and changes in their prices have greatly affected Norway's trade flows. The petroleum sector continued to contribute more than one-half of total export revenue, but high oil prices pushed up the merchandise trade surplus to $50.1 billion in 2005, beating the previous record of $33.6 billion in 2004.

GDP growth accelerated to 3.8 percent year on year in the second quarter of 2006, up from 3.6 percent in the first quarter. However, declining oil production saw total GDP growth slip to 2.1% year on year, down from 2.7% in the first quarter, with overall GDP growth expected to be 2.4 percent in 2006, compared to 2.3 percent in 2005. High oil prices are boosting the trade and current-account surpluses, with the latter expected to be close to 19% of GDP in 2006, before narrowing slightly in 2007 as a result of higher interest rates and lower investment growth.

Over the next two years, the Norwegian government has indicated its plan to target more public spending towards local government, health and education and to a programme of employment creation in the public sector.

Norway has gained considerable praise for the way in which is has sequestered much of its oil revenue in a petroleum fund, officially renamed "The Government Pension Fund" in January 2006. The Fund was set up in 1990 to be used for future health and pension benefits. The fund is administered by the Norwegian Central Bank and reached a portfolio value of $245 billion in the first quarter of 2006, making it one of the largest in the world. The fund value is

expected to actually exceed the Norwegian economy in 2007. Since 1998, the fund has been allowed to invest up to 50 percent of its portfolio in the international stock market.

Norway's Pension Fund is not without controversy and has generated a great deal of internal political debate. Two issues are of note to Azerbaijan: first, whether Norway should used more of its current oil revenues to solve current problems instead of putting aside such a large portion of oil revenues for future use, and, second, whether the high exposure of the Fund to international stock market volatility is financially safe and thus risky to the long-term valuation of the Fund.

Policy Lessons from Norway for Azerbaijan

Azerbaijan can learn from Norway's strong observance of law and its economic management of its oil revenues, but Azerbaijan will no doubt have to use a higher portion of its oil revenues for current development challenges, rather than investing for the future. It is clear, however, that Norway protected its economy by sequestering a large percentage of its oil revenues in the Government Pension Fund and protecting it from short-term government temptation to withdraw from the Fund.

Chile

Chile is one of the major copper-producing countries of the world. With a population of 16 million people, Chile underwent a period of significant political turmoil in the 1970s and early 1980s, but has managed to make major economic and social strides in the last 20 years. In addition to sound economic policies and substantial investments in human capital development, Chile strongly encouraged the non-oil sectors, especially agriculture and the service sectors, turning Chile into the most dynamic economy in South America and exporting agriculture products as far away as North America, Europe and Japan.

Fast growing GDP per capita and targeted social programmes enabled poverty rates to fall dramatically. Social indictors such as enrolment in primary schools, youth literacy, infant mortality, and life expectancy improved considerably, reaching levels close to those of industrialized nations. Households are also relatively well covered by social protection programmes.

During the 1990s, solid fiscal management and a deepening of reforms improved the investment climate and helped to diversify the economy. Trade liberalization triggered significant export diversity into forestry, wines, fruits, and other agro-based products. As a result, Chile decreased its dependence on copper and grew at a solid 6.8 percent per year until 1999, when it was affected by the East Asian crisis. Since then, Chile has avoided recession and restored growth.

Despite its economic success over the past two decades and its ability to deal with the effects of regional economic recession that hit Latin America in the early 2000s, Chile is now facing another kind of problem – more common to single resource economies. Within the last year, Chile has felt increasing pressures on its economy as the rising world price for copper has resulted in the appreciation of the currency with a tangible threat of making Chile's agriculture exports more expensive and thus less internationally competitive. The Government has sought to address this problem, by among other policies, increasing the levels of copper revenues that are sequestered off-shore.

Policy Lessons from Chile for Azerbaijan

Chile's message for Azerbaijan is to note the long-term commitment that Chilean policy-makers have made to using investments wisely so as to encourage the non-oil sectors and improve social capital, and to promoting sound macro-economic and governance policies, a process that is still on-going.

Trinidad and Tobago

Trinidad and Tobago is a small Caribbean nation of 1.3 million people that has actually confronted the challenge of petroleum revenue management on two separate occasions – first in the 1970s and again in the last few years with the discovery of significant offshore gas reserves. Trinidadian officials recognize that the country did a very poor job of managing oil revenues during the first oil boom, but have made a concerted effort to avoid the mistakes of the past.

In the 1970s, when oil prices were high, the windfall oil revenues were used for the expansion of economic and social infrastructure, including infrastructure for gas production and for an industrial development zone in one area of the country. However, the collapse of oil prices in the 1980s ushered in a period of prolonged economic contraction.

Over the last few years, sounder macro-economic policy and prudent investments have resulted in per capita GDP growing from $6,840 in 1999 to nearly $10,800 in 2005, although the incidence of poverty continues to be a major issue. Improvements in transparency and the regulatory environment have been a notable component in the government's approach to sound economic management.

At the same time, Trinidad and Tobago and Azerbaijan face many of the same kinds of policy challenges. For example, Trinidad and Tobago's oil and gas sector accounts for 65 percent of exports, but only 4 percent of employment, hence the need to facilitate private sector led growth and employment creation in the non-oil sectors though changes in policies and improvements in the regulatory environment and improvements in public services to encourage private-sector led economic diversification. Trinidad and Tobago will also use gas revenues to significantly upgrade human capital through substantial investments in education and social programmes.

Policy Lessons from Trinidad and Tobago for Azerbaijan

Trinidad and Tobago is still in transition to the level of sustainable economic and social development that Norway and Chile have achieved, but its policy challenges mirror many of the problems facing Azerbaijan and it is a single-resource economy certainly worth monitoring.

Nigeria

Although Nigeria is a country of very vibrant and entrepreneurial people, most observers would agree that Nigerian leaders squandered more than $200 billion in oil revenues over the last 25 years. Nigeria is a poorer country today than it was 25 years ago. It continues to rank in the lowest 20 percent of counties according to UNDP's Human Development Index. Corruption remains a rampant problem that is only just now beginning to be addressed by the Nigerian government. Crumbling infrastructure and abandoned buildings constructed in the early oil boom years are a painful reminder of the inefficient and short-sighted approach of the then Nigerian governments' approach of trying to spend their way into sustainable development. Despite its oil revenues, Nigeria is also a highly indebted country with outstanding public loans equal to 28.5 percent of GDP in 2003. Nigeria has also failed to

address the significant regional inequalities and to demonstrate clear transparency in how oil revenues were being allocated among and within state and local governments, issues that have resulted in political instability in many regions of the country.

The need for economic reform has topped the current government's policy agenda, the centrepiece of which has been the National Economic Empowerment and Development Strategy (NEEDS). This Strategy runs until 2007, with the aim of diversifying the economy away from its dependence on oil. Tackling corruption has also been given a high profile. Despite the administration's commitment to reform, progress has continued to be held back by strong vested interests opposed to change.

In current economic terms, Nigeria's real GDP growth is projected to slow to only 4.1 percent in 2006, largely because political unrest in the Delta region has constrained oil production, but the GDP growth is expected to rebound in 2007-08 as oil production recovers in the second half of the year and political uncertainty associated with national elections dies away. Exports are dominated by oil: the trade surplus was estimated at US$34.8 billion in 2005. With oil prices forecast to remain relatively high against a background of rising production, substantial trade surpluses are forecast for 2007-11. Real GDP growth of 5.5 percent is forecasted for 2007 and 5.3 percent in 2008.

Policy Lessons from Nigeria for Azerbaijan

Perhaps the most significant lesson for Azerbaijan from Nigeria's experiences relate to the added difficulties of tackling major policy changes if they are not addressed at a very early stage and if the rule of law is corrupted. By not addressing underlying policy and governance issues early on, Nigeria faced the much more difficult task of making the same kinds of policy changes at a later stage.

Kazakhstan

Kazakhstan has been included in the report's more in-depth country comparison because of the fact that it and Azerbaijan share many similar challenges and many of the same Soviet-era legacies. At the same time, Kazakhstan began to receive the benefits of its oil reserves 4-5 years ago, and it is thus further down the track of defining and implementing many of the same kinds of policies and programmes that Azerbaijan is now considering.

The Kazakhstan government has given high policy importance to maintaining fiscal prudence, achieving economic diversification, and managing the exchange rate in the face of large hard-currency inflows. Of these goals, that of diversifying Kazakhstan's production base is the hardest to attain. The government tends to pursue interventionist policies for the promotion of favoured enterprises, obstructing the free functioning of market mechanisms.

In 2005. total Kazakh exports on a customs basis were worth $28 billion and imports $17 billion. Russia is still Kazakhstan's main trading partner, and is the major source of imports and a leading market for exports. This is partly the result of Kazakhstan's difficulty in moving up the value-added ladder, which makes the country unable to compete in Western markets. Instead, the bulk of Kazakh exports to the West consists of raw materials, particularly oil and metals.

In 2007, the government is expected to loosen fiscal policy, but high oil prices will ensure that the state budget remains in surplus in the medium term. Annual average consumer prices are forecast to rise by over 8 percent in 2007-08, despite efforts by the National Bank of Kazakhstan to combat inflation. Rapid import growth will dampen the rate of economic expansion, but the average annual real GDP growth rate in 2007-08 is expected to remain above 9 percent, driven by the imminent start of production at the Kashagan oilfield.

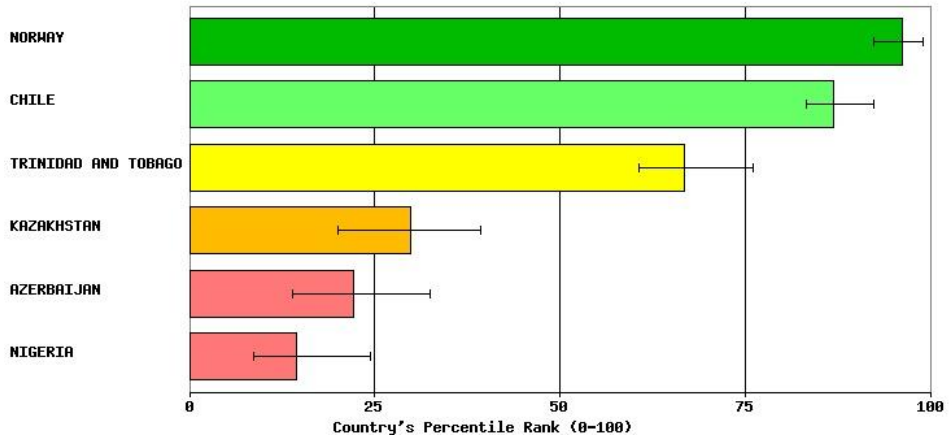
Like Azerbaijan, Kazakhstan inherited significant amounts of infrastructure and assets from the Soviet era and has a well educated population And like Azerbaijan. Kazakhstan faces the challenge of addressing regional imbalances and preventing a further erosion of human capital and infrastructure. The challenge for both countries is less one of availability of resources, as one of effectiveness and efficiency in the use of public and other resources to, among other things, rehabilitate and expand the infrastructure base and adapt the education system to the needs of a modern and fast-evolving market economy.

Governance Comparisons among Six Countries

In addition to the more traditional comparisons, we have highlighted five "governance" indicators of all six countries, as compiled from World Bank Institute data. The five indicators are described below. For every indicator, the successful countries, Norway and Chile, perform the best, followed by Trinidad and Tobago, which we have labeled a promising single resource economy.

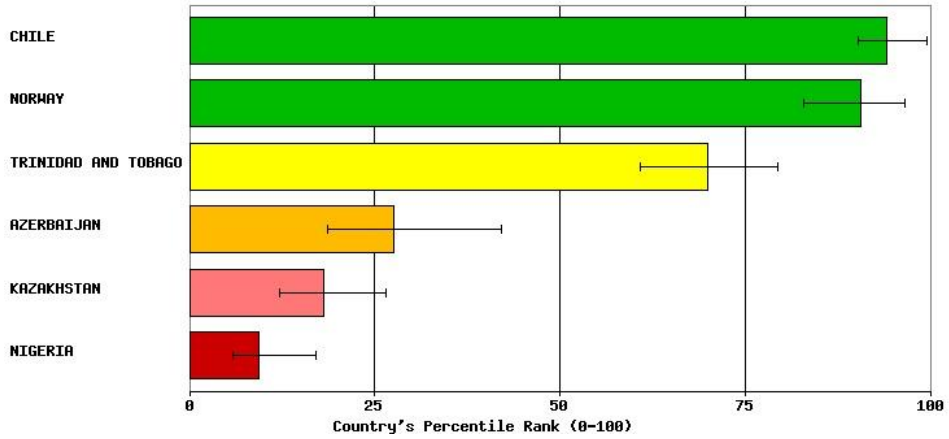
Government Effectiveness combines responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies.

Graph 2.4
Comparator Countries: Government Effectiveness



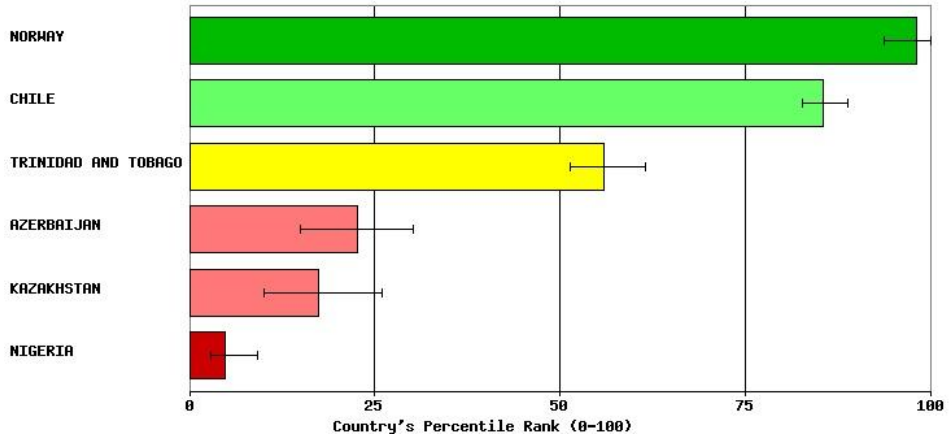
Regulatory Quality focuses more on the policies themselves, including measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development.

Graph 2.5
Comparator Countries: Regulatory Quality



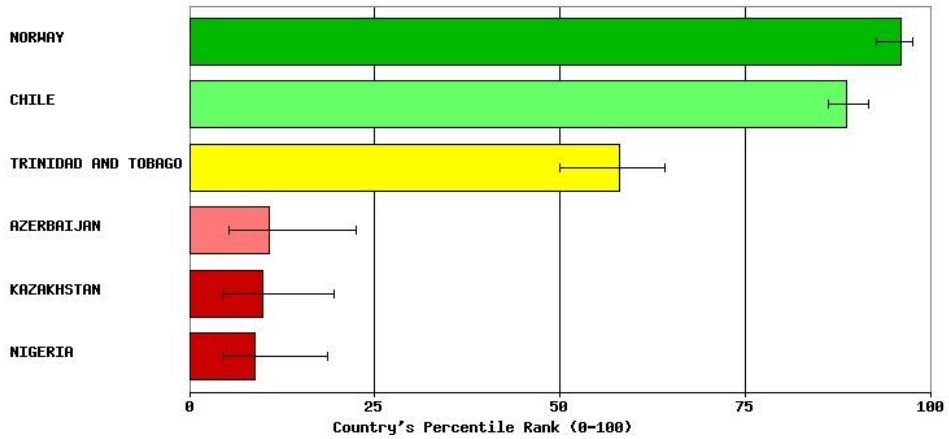
Rule of Law includes several indicators which measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts.

Graph 2.6
Comparator Countries: Rule of Law



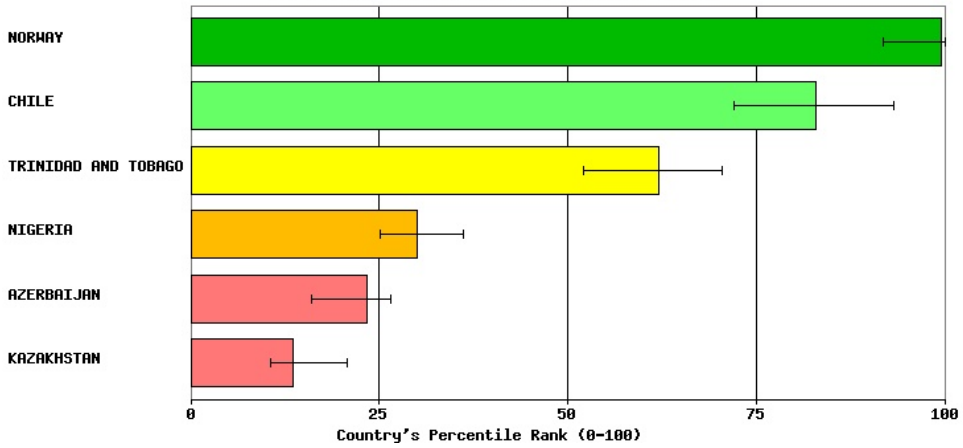
Control of Corruption is a measure of the extent of corruption, conventionally defined as the exercise of public power for private gain. It is based on scores of variables from polls of experts and surveys.

Graph 2.7
Comparator Countries: Control of Corruption



Voice and Accountability includes a number of indicators measuring various aspects of the political process, civil liberties, political and human rights, measuring the extent to which citizens of a country are able to participate in the selection of governments.

Graph 2.8
Country Comparators: Voice and Accountability



2.4 Main Findings of Single Resource Economies

The following three issues can be deduced from our global analysis of 40 countries, and more detailed analysis of five countries presented in this chapter:

1. Single-resource economies face considerable risks in assuring sustainable economic and social development. Prudent investments and vigilant attention to sound macro-economic and governance policies are common threads found in successful countries. This is particularly notable in our short overview of Norway and Chile.

2. Even successful single-resource economies, however, must continually adjust and calibrate their policies in the face of changing international market prices for their commodity exports.

3. An important lesson from some of the failed single resource economies is the dangers of not confronting the difficult economic and structural barriers and impediments to more efficient and equitable growth. By not addressing these underlying issues early in the boom years, these issues became more entrenched and more difficult to forcefully address in later years. This often leads to increasing social inequality and the marginalization of the non-oil or non-mining sectors.

Chapter 3: Azerbaijan's Challenges Ahead

3.1. Introduction

Miguel de Cervantes, the sixteenth-century Spanish author of *Don Quixote de la Mancha* once said that "the gratification of wealth is not found in mere possession or in lavish expenditure, but in its wise application." The famous Spanish novelist wrote this at a time when Spain was benefiting from newfound access to wealth in natural resources, including gold from the Americas.[3] Five hundred years later, Azerbaijan is facing a similar challenge as it looks to effectively and equitably manage its oil revenues over the coming decades.

The previous chapter highlighted how single-resource countries have varied considerably in their economic and social performance, from those that have managed their economies well to those that have largely failed in using their oil or mineral wealth in an effective or sustainable manner. Natural resource wealth is thus neither a necessary nor sufficient condition for long-term sustainable growth. This chapter turns to the central question facing Azerbaijan of ensuring that it becomes one of the "successful" single-resource economies, that it becomes known for its "wise application" of its oil revenues (to paraphrase de Cervantes) for the long term benefit of all Azerbaijanis. Toward this end, the chapter quickly reviews Azerbaijan's socio-economic performance to day and offers some projections about the economy's future growth. The chapter then examines three inter-related policy concerns that directly affect Azerbaijan's ability to become a successful oil economy:

1. Prudent economic management to avoid major economic distortions characteristic of "Dutch disease"
2. Strategic investment decisions in the use of oil revenues that bring sustainable economic and social benefits
3. Policy and investment decisions that prepare for the post-oil era and put Azerbaijan on the path toward full integration in the globalized economy

3.2 Azerbaijan's Socio-Economic Past Performance and Projections

Azerbaijan's socio-economic performance since independence in 1991 falls into two distinct periods. The first period was associated with the break up of the Soviet Union when Azerbaijan, like other countries in the region, faced similar difficulties in abruptly transitioning to a market economy. This transition period was a time of dramatic economic decline with the economy losing almost 60 percent of its measured GDP in 1990 when compared to 1989, a marked deterioration in social services and infrastructure, and a sharp rise in poverty levels. In addition, armed conflict with neighbouring Armenia over Nagorno Karabakh from 1994 to 1998 led to an influx of over one million refugees and internally displaced people, as well as a disruption in key regional trade and transport links.

The second period started in 1995 when the government embarked on a program to stabilize the economy and instituted a series of key structural reforms. The program was launched shortly after the signing of Production Sharing Agreements (PSAs) with a consortium of major international oil companies for some US$ 7.5 billion of foreign direct investment (FDI) to develop hydrocarbon deposits in the Caspian Sea. These PSAs include the now-completed Baku-Tbilisi-Ceyhan oil pipeline and the Shah-Deniz gas pipeline. The reform programme included, inter alia, strengthening governance in the banking sector, improving transparency in the utility sector, creating a modern tax code, promoting a more transparent budget

[3] Quoted in Christine Ebrahim-zadeh, 2003, "Back to Basics," *Finance and Development,* International Monetary Fund, Volume 40, No.1

accounting and executing system, and strengthen internal and external auditing capacity. The reform program had the strong backing of the international donor community.

Based on the enacted reforms and continuing FDI, Azerbaijan was able to achieve double-digit real GDP growth in 2003, 2004, and 2005, and is on track to achieve a growth rate of more than 20 percent in 2006. Inflationary pressures that emerged in 2004 appear to have subsided to single digit rates for the present, but inflationary dangers remain a continuing threat. The table below highlights some of the key macro-economic indicators over the past three years:

Table 3.1:
Selected Macro-economic Indicators, 2003-2006
(in % changes unless otherwise specified)

Indicator	**2003**	**2004**	**2005 (estimated)**	**2006 (projected)**
Real GDP	10.4	10.2	24.3	26.2
Consumer Price Index	3.6	10.4	5.5	12.0
Total Government Revenue	21.2	22.4	24.0	31.8
Total Government Expenditures	23.0	21.4	21.5	23.2
Current Account Balance	-27.8	-30.0	-5.2	17.7
Gross International Reserves (US$ millions, end of period)	803	1,075	1,178	2,009
External Public Debt (% GDP)	19.7	18.5	14.3	10.6

Source: Azerbaijan Government and IMF, April 2006

Despite Azerbaijan's impressive economic growth in the last five years, Azerbaijan remains one of the lowest-income countries in Europe and Central Asia, with poverty continuing to be a major challenge. In 2002, some 47 percent of the population lived in poverty and 8.8 percent in extreme poverty. In 2003 unemployment, measured by ILO, was 10.7%. Recent surveys suggest some improvements in the poverty levels; however, economic and social differences between regions continues to be a major hurdle, manifested by the continuing rural to urban migration, with the greater Baku metropolitan area now home to some three million people, or 35 percent of the country's entire population.

The Government of Azerbaijan recognized the importance of addressing these economic and social disparities and prepared its State Programme of Poverty Reduction and Economic Development (SPPRED) for the fiscal years 2003-2005 which laid out a programme of action to address these problems. A second SPPRED has recently been formulated which draws on lessons learned from the first SPPRED and lays out a longer-term programme covering the 2006-2015 period. This time frame also reflects the government's commitment to fully meet the Millennium Development Goals (MDGs) based on distinct and relevant Azeri definitions of these Goals.

Given below is a summary of the most recent "snapshot" of Azerbaijan's socio-economic position using UNDP and World Bank data sources.

Table 3.2:
Azerbaijan Key Social and Economic Indicators

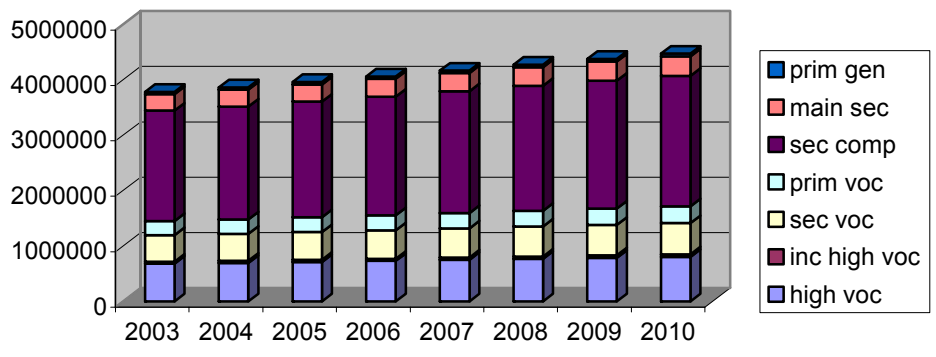
Indicator	
Human Development Index ranking	101/177
GDP per capita (Purchasing Power Parity [PPP] US$)	$3,617
Gini coefficient (as measure of income inequality)	0.36
Life expectancy at birth (years)	66.9
Adult literacy rate	98.8
% population living on less than $2/day (survey year 2001)	33.4
% population living on less than $1/day (survey year 2001)	3.7
Maternal mortality rate per 100,000 live births	94
Prevalence of child malnutrition % children under 5 (2000-2003)	6.8
Gender disparity ratio in primary and secondary schools	100

Sources: UNDP *2005 Human Development Report,* World Bank *2006 World Development Report*

Based upon projections of labour supply forecasts from the ILO and GDP forecasts from two scenarios, we have examined the future prospects of employment and unemployment by level of education. Full details are given in Annex B.

Graph 3.1 shows the labour force of Azerbaijan over the period 2003-2010. Starting from 3.78mn in 2003 (based upon the 2003 Labour Force Survey, LFS), the labour force will rise to 4.47mn by 2010. The results show, as expected, that the numbers in the labour force with secondary completed education continue to grow, and remain at 52% of the labour force until 2010. We could expect, given recent changes in educational policy and we hope helped by this project so far, that the numbers with skills would increase much more rapidly than those projected.

Graph 3.1: Labour Force Projections by Education Level (Source: ILO)

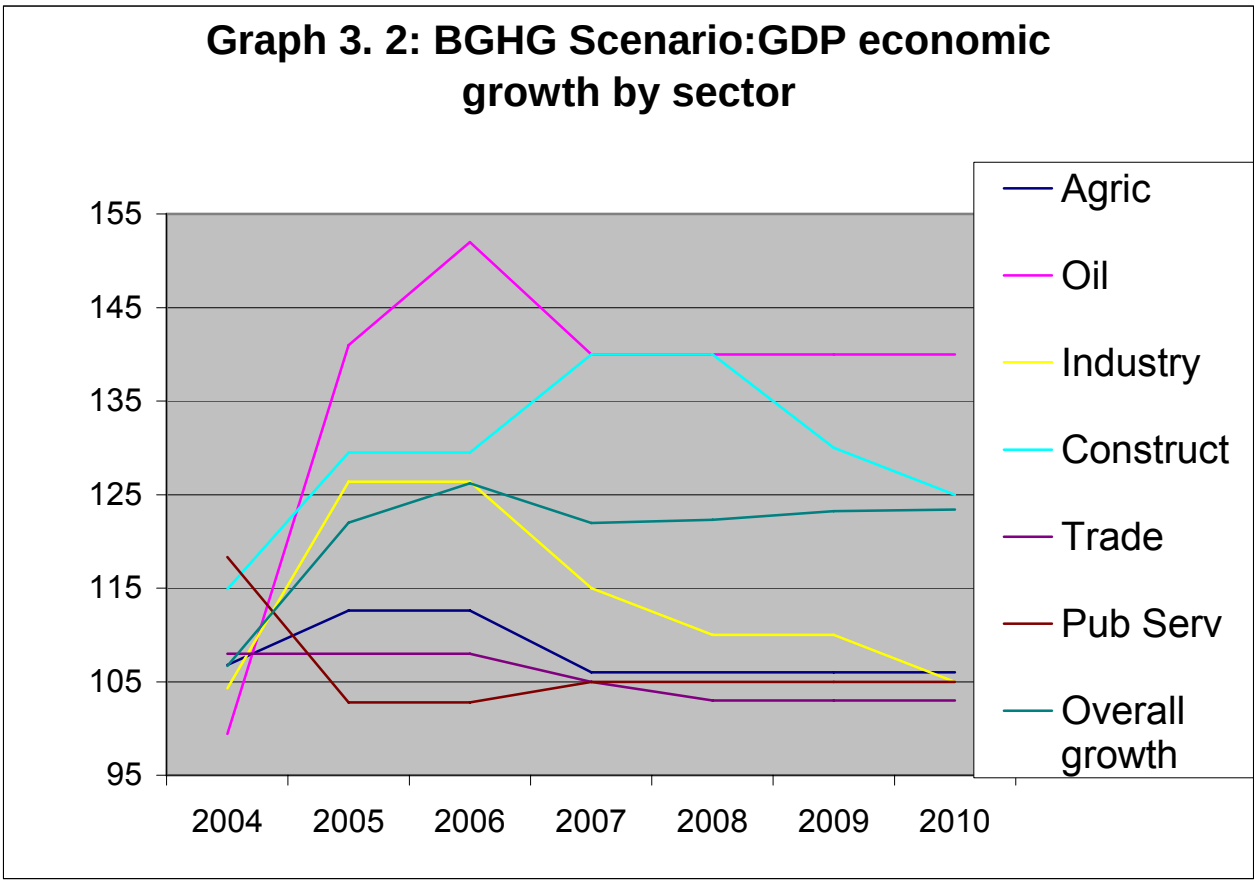


We have forecasted the demand for labour by economic sector and education level, based upon a number of projections of real GDP growth. These numbers are given in Table 3.3, and Graph 3.2. The remarkable GDP growth of Azerbaijan can be seen rising from 6.7% in 2004 to 22% and 26% in 2005 and 2006 respectively – all economic sectors have grown with the

sharpest growth seen at a huge 52% in the oil sector in 2006, followed by construction (29.5%), industry (26.4%)

Table 3.3 Real GDP projections by sector [base 2003, real manat bn] in growth rates

	2003	2004	2005	2006	2007	2008	2009	2010
Agric	4833.5	106.8	112.6	112.6	106	106	106	106
Oil	9093.6	99.4	141	152	140	140	140	140
Industry	10995.2	104.3	126.4	126.4	115	110	110	105
Construct	3345.1	114.9	129.5	129.5	140	140	130	125
Trade	6026.4	108	108	108	105	103	103	103
Pub Serv	4910.4	118.3	102.8	102.8	105	105	105	105
Overall		106.7	122.0	126.2	122.0	122.3	123.2	123.4



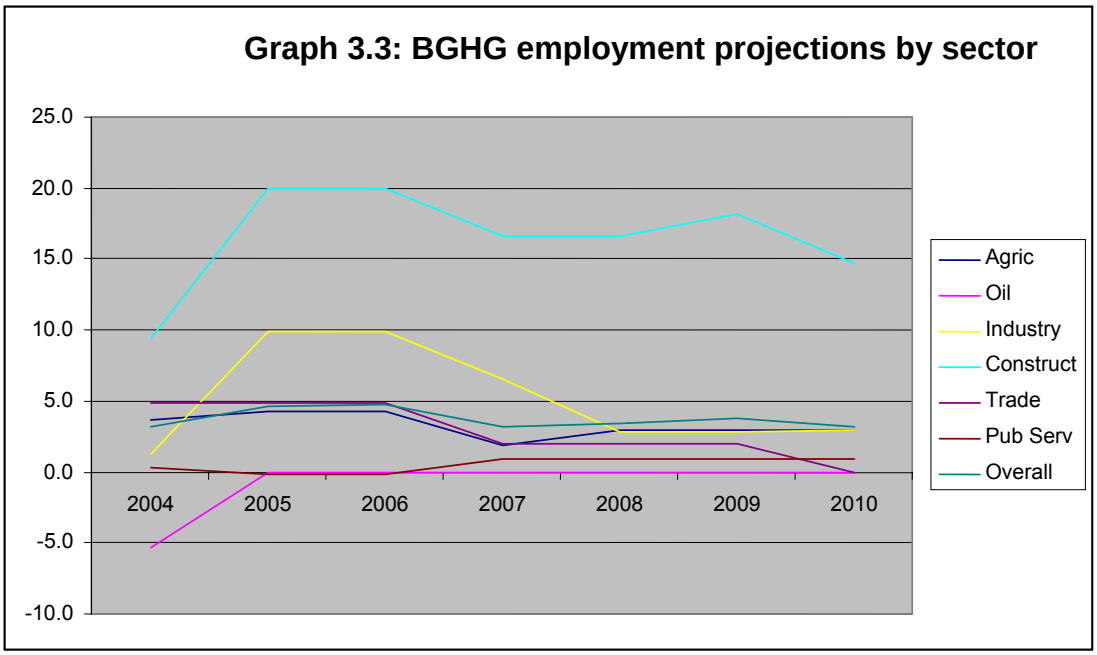
The growth rates projections in Graph 3.2 assume, over 2007-2010, that the oil sector will continue to grow strongly at around 40% a year in real terms, that construction will also rise sharply before dropping off toward the end of the projection period. It is assumed that industry is crowded out because of the oil boom coupled with Dutch Disease, as is trade. Public services are assumed to grow reasonably.

To obtain labour demand from these projected economic growth rates, we have made a number of assumptions about the growth in labour productivity. The growth rates in labour productivity were assumed, after 2004, to progress following assumptions that technological improvements would lead to growth in all sectors, with major increases in oil (a capital intensive sector in any case) and a gradual increase in construction as technology would start

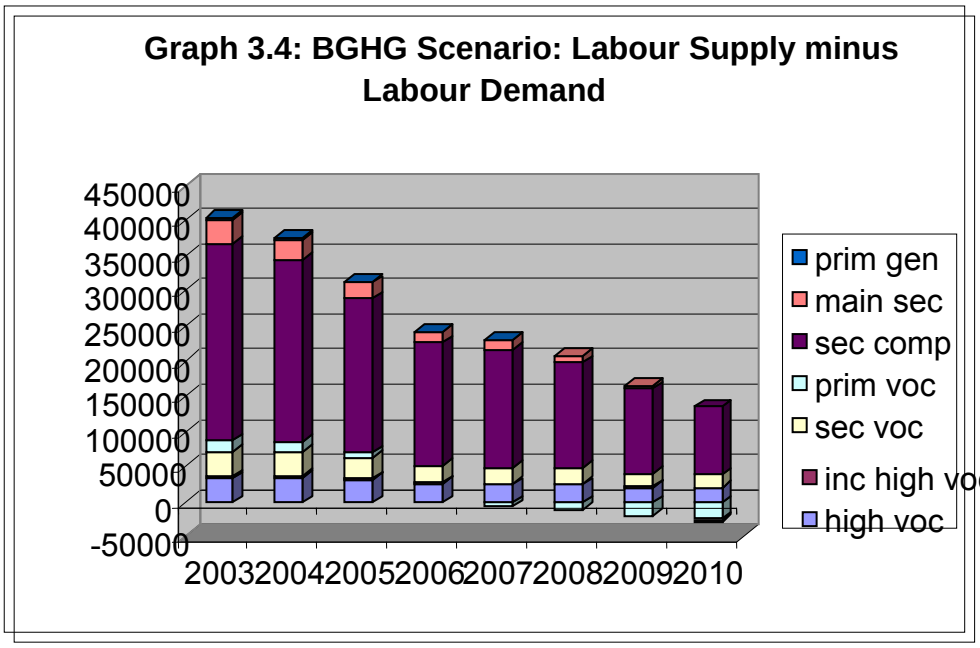
to replace labour simply because of the amount of construction would need improvements in technology as workers become harder to find.

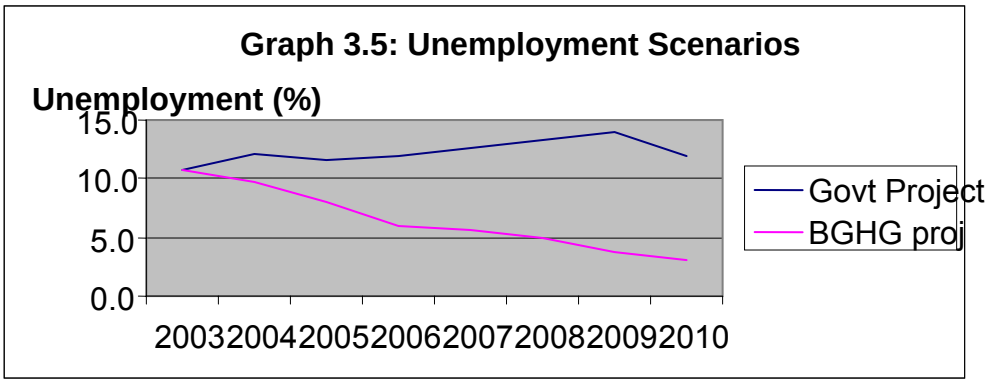
Nevertheless, our labour demand projections are very sensitive to the labour productivity assumptions and thus, obviously, a weakness in our approach. There is no easy way around this, perhaps to use the technology/productivity assumptions that can be found in more advanced countries. The resulting labour demand projections are given in Graph 3.3.

Graph 3.3: BGHG employment projections by sector



Comparing labour supply with labour demand by educational level gives us the pattern observed in Graph 3.4. The sharp rise in economic growth having a substantial impact on employment. In fact the economy is projected to run out of skilled labour by 2007. Yet, nevertheless, it seems very difficult to absorb all those with completed secondary education, and unemployment persists albeit at lower levels than those seen in 2003.





Finally, in Graph 3.5, we juxtapose results from two scenarios – one based upon the employment projections done by the MOED in the early part of 2006 (Govt. Project in Graph 3.5) and one based upon the very high growth rates seen in the early part of 2006 (BGHG proj. in Graph 3.5). The 'Government' employment scenario 1 continues to show unemployment, while the BGHG scenario 2 does show a decline in overall unemployment to around 3% by 2010. Striking, therefore, is that even with rapid growth unemployment will still remain simply because the unemployed do not have the skills demanded.

3.3. Dutch Disease and Azerbaijan

Dutch disease is a commonly used term and often used interchangeably with the term, "curse of oil." Azerbaijani policy-makers are well aware and have been taking steps to address the problem. But what is the origin of the term and what do economists mean by it?

In the 1960s, the Netherlands experienced a vast increase in its wealth after discovering large natural gas deposits in the North Sea. Unexpectedly, this ostensibly positive development had serious repercussions on important segments of the country's economy, as the Dutch guilder became stronger, making Dutch non-oil exports less competitive. Unemployment rose sharply, distribution of income worsened and inflation took off. This syndrome came to be known as "Dutch disease." Although the disease is generally associated with natural resources such as oil and minerals, it can occur from any economic episode that results in a large inflow of foreign currency to include foreign assistance and foreign direct investment.

Economic Theory

Why does a dramatic increase in wealth have this paradoxically negative consequence? The economic understanding for this dilemma was first discussed in 1982 by two economists, W.M. Corden and J. Peter Neary.[4] These economists analyzed the problem by dividing an economy experiencing an export boom into three sectors: the booming export sector (from oil or minerals), the lagging export sector (both two traded goods sectors) and the non-traded goods sector, which essentially supplies domestic residents and typically includes retail trade, services, and construction. Cordon and Neary argued that when a country catches Dutch disease, the traditional export sector, such as agriculture or manufacturing, gets crowded out by the other two sectors.[5] We discuss the theoretical application of Cordon and Neary's theories to Azerbaijan in Chapter 4 next.

This "crowding out" affect can be understood by looking at a country, like Azerbaijan, that discovers oil. A jump in the country's oil exports initially raises incomes, as more foreign exchange flows in. If, for example, the foreign exchange were spent entirely on imports, it would have no direct impact on the country's money supply or demand for domestically produced goods. But suppose the foreign currency is converted into local currency and spent on domestic non-traded goods. What happens next depends on whether the country's (nominal) exchange rate -- that is, the price of the domestic currency in terms of a key foreign currency -- is fixed by the central bank or is flexible.

Text Box 3.1

Danger Signs of Dutch Disease in Azerbaijan

Some common economic symptoms of Dutch disease include:

- Significant currency appreciation of the manat
- Uncontrolled inflation
- Output declines in agriculture and manufacturing
- Bottlenecks for skilled labour, infrastructure, utilities and real estate

With significant increased public investment, the quality of public investment deteriorates rapidly – government's inability to spend effectively (results) and effectively (least cost)

Exaggerated role of government in addressing problems at the expense of using policy and market mechanisms

Increasing difficulties in changing expenditure patterns over time if the mechanisms and policies for adjusting expenditures are not put in place at the outset

If the exchange rate is fixed, the conversion of the foreign currency into local currency would increase the country's money supply, and pressure from domestic demand would push up domestic prices. This would amount to an appreciation of the "real" exchange rate, i.e., a unit of foreign currency now buys fewer "real" goods and services in the domestic economy than it did before. If the exchange rate is flexible, the increased supply of foreign currency would drive up the value of the domestic currency, which also implies an appreciation in the real

[4] J Peter Neary and W Max Corden,1982, Booming Sector and De-industrialisation in a Small Open Economy, *Economic Journal*, 92.

[5] Since Cordon and Neary's original research, the failures of resource-led growth have been investigated extensively in economic literature. One of the most comprehensive empirical studies was done by Jeffery Sachs and Andrew Warner,1997, Natural Resource Abundance and Economic Growth, *National Bureau of Economic Research*, Working Paper 5398.

exchange rate, in this case through a rise in the nominal exchange rate rather than in domestic prices. In both cases, real exchange rate appreciation weakens the competitiveness of the country's exports and, hence, causes its traditional export sector to shrink. This entire process is called the "spending effect."

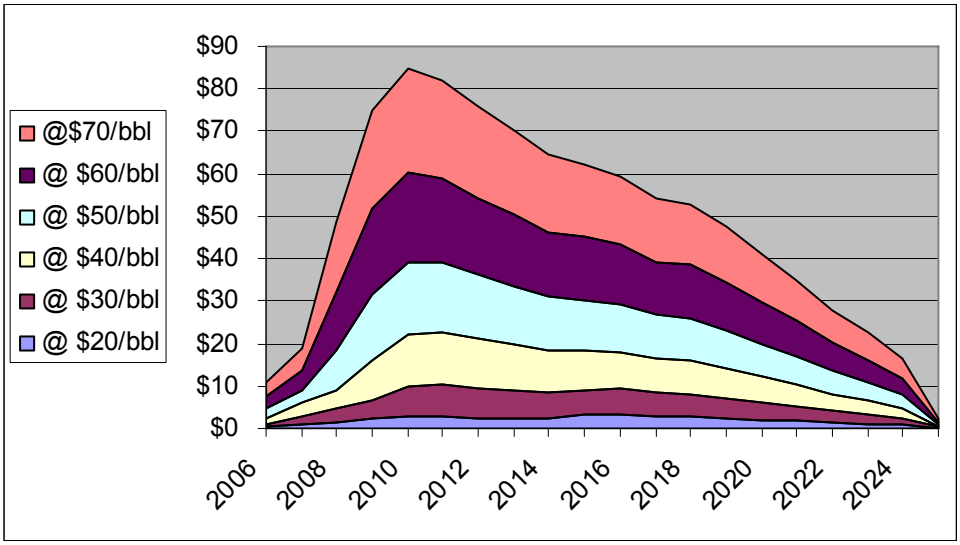
At the same time, resources (capital and labour) would shift into the production of domestic non-traded goods to meet the increase in domestic demand and into the booming oil sector. Both of these transfers would shrink production in the now lagging traditional export sector. This is known as the "resource movement effect."

These two effects played out in many oil-rich nations in the 1970s, when oil prices soared and oil exports rose at the expense of the agricultural and manufacturing sectors. And it is this problem that continues to beset single-resource economies thirty years later.

Azerbaijan's Challenge

To date, the Government of Azerbaijan has, by most measures, succeeded in avoiding many of the common symptoms of Dutch disease. However, as we show below signs are ominous since the oil boom is only just getting under way. Monetary and fiscal policy have kept inflation in the targeted single digit range, and currency appreciation of the manat has been less than many analysts had expected. Increases in government expenditures have so far been moderate in scope. The ongoing construction boom in Baku and other parts of the country is an early sign of the country's new found oil wealth, but this has not yet led to major distortions in the economy.

Graph 3.6
Azerbaijan Oil Revenue Projections of Proven Reserves, 2006-2025
(in US$ billions)



Source: British Petroleum, with modifications by the authors

While macro-economic management has thus far been generally effective, the central dilemma now facing the government is that the oil revenues have only just now begun to impact the economy. 2006 was the first year in which the initial wave of oil revenue was paid to the government. Up to 2006, most of the early signs of future revenues were from foreign direct investment associated with oil infrastructure and pipeline construction. The problem now confronting the government is to ask if it is fully prepared to effectively manage the coming "tidal wave" of oil revenues that will begin to arrive in 2008/2010 and continue through

2020/2022. BP have forecasted State Revenues from ACG, BTC and SD Stage 1/SCP to be, over the years 2006-2024, $140 billion at $40/bbl and $230 billion at $60/bbl. In 2006, BP calculated Azerbaijan's oil revenues to be $2.9 billion (at $60/bbl, $1.2 billion in tax, $1.1 billion in oil profits and $0.6 billion in other related revenue). In short, as the graph above indicates, the really large inflows of oil revenue have not yet even begun to impact the economy[6]. Likewise, it is important to keep in mind that the above graph represents only proven reserves, with the highly likely prospect that more reserves will be found in the future. From this perspective, Azerbaijan is still highly at risk of catching Dutch disease.

Azerbaijani policy-makers thus face the critical challenge of still putting in place the policy and procedures which will control the staggeringly large inflow of oil revenues and effectively determining how they will be allocated in order to avoid the "curse of oil" and effectively and equitably use oil revenues for sustainable growth. Possible alternatives are discussed next.

3.4. Strategic Investment Decisions Using Oil Revenues

If Azerbaijan continues to be at risk of catching Dutch Disease, then additional attention is still required by policy-makers to ensure that economic policies and investment decisions avoid the disease and promote sustainable economic development. As noted in chapter 1, Azerbaijan's "Vision" of its future lays out the broad parameters for achieving this long-term objective, yet there remains the ongoing task of disaggregating the Vision into concrete policy and strategy components along with institutional mechanisms by which the Vision can be achieved.

Needless to say, part of the policy and strategy components are associated with the discipline to maintain strong monetary policies necessary to keep inflation and currency appreciation in tow. This task falls heavily on the shoulders of the Central Bank and the Ministry of Finance, but is not discussed here.[7]

Instead, this section looks more generally at fiscal policy, namely, the investment and resource allocation decisions that must be made to ensure effective and equitable use of oil revenues, and the institutional requirements for capturing the full benefits of these investments. Within this framework, there are three fundamental policy choices facing the Azerbaijan government:

1. How much should be saved (invested) or spent out of oil revenues, bearing in mind the potential for overheating of the economy and Dutch disease ramifications? Where should these savings be placed?
2. What are the long term priorities for spending oil revenues that put Azerbaijan on the path to become globally competitive in the non-oil sectors?
3. What is the role of government to increase competitiveness in the non-oil sectors?
    a. How much through direct government spending?
    b. How much through policy changes to create an enabling financial, regulatory and legal environment?

There is no simple formula or standard answer for addressing these policy questions. Ultimately, finding answers to these questions involves reaching a combination of technical and political consensus on the way forward, and on the recognition that policy choices and spending priorities will invariably change over time. What is important to stress here is that economic growth and investment decisions must be accompanied by significant institutional

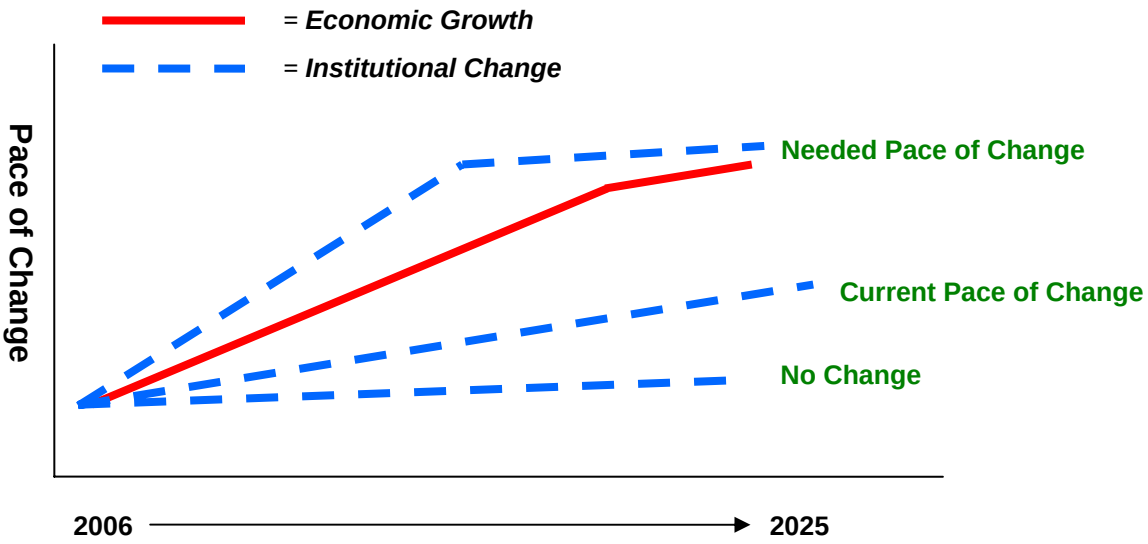
[6] Note that this graph does not include the October, 2006 announcement by BP of a 20% growth in their oil reserves.

[7] See, for example, the IMF Article IV Consultation with the Republic of Azerbaijan, March 27, 2006, Public Information Notice No. 06/44

change that is only just now under way. In chapter 2, we highlighted the five governance indicators in comparing Azerbaijan with Norway, Chile, Trinidad and Tobago, Kazakhstan and Nigeria. To move into the category of successful single-resource economy, Azerbaijan will need to follow through on making the kinds of institutional changes that Norway and Chile have already done and that Trinidad and Tobago is in the process of doing.

The diagram below attempts to capture this argument in a simplified manner. Azerbaijan may achieve considerable economic growth over the next two decades, but will it be equitable and sustainable? For growth to be sustainable and equitable, we believe that the required rate of institutional change must keep pace with the economic growth rate. Of course, the former rate cannot be measured conventionally, but implies that the sentiment must lead to rapid institutional change. To the extent that institutional change does not keep pace with economic growth, then the likelihood increases of having ineffective resource allocations, rent seeking and corruption, increased income inequality, and unsustainable economic growth in the non-oil sectors over the long term.

Graph 3.7
Twin Requirements of Economic Growth and Institutional Change

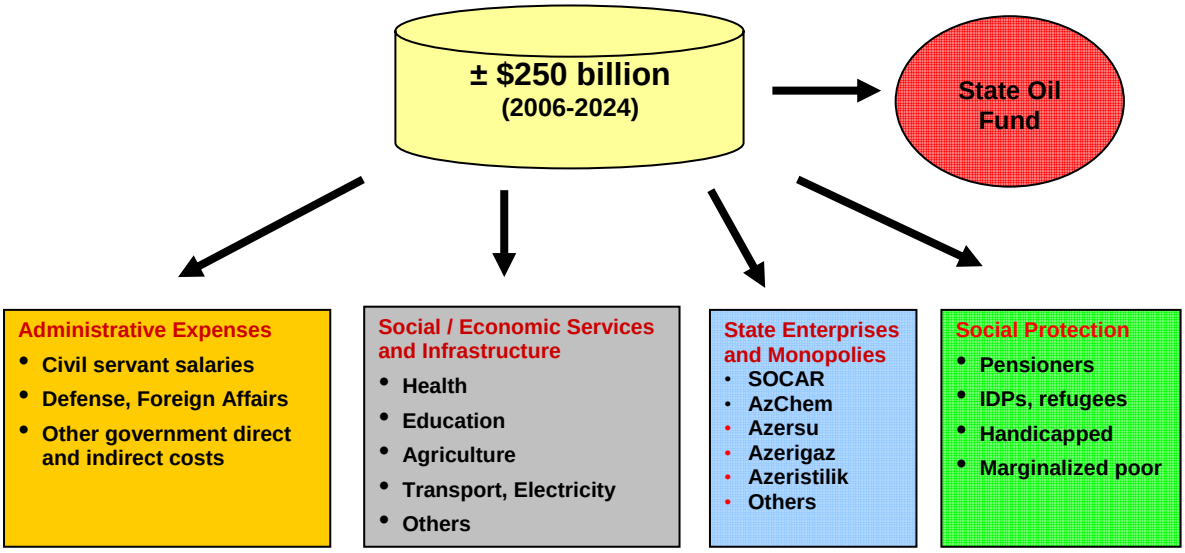


Assuming that the institutional change requirements are forcefully addressed, the government must still confront the investment allocation decisions for effectively and efficiently using oil revenues. Institutional change requires a continuing solid commitment from Government to address, as noted above, the main issues of effective resource allocations, rent seeking and corruption, increased income inequality, and unsustainable economic growth over the long term.

From our perspective, there are essentially five “funding windows” toward which oil revenues can be directed. Each window includes important, activities or mechanisms through which oil revenue may be channeled. Apart from the State Oil Fund, investments as well as policy reform and institutional change are required for each domain. Investments alone in each window will not be sufficient to achieve the expected returns our outcomes. Each window also has its own stakeholders or constituencies who will advocate for increased funding into their particular area, which is characteristic of the political economy process. The five windows are discussed below and shown in the following diagram:

Graph 3.8

Oil Revenue Allocation Choices



State Oil Fund

The State Oil Fund is already fully functional and represents one of the most important institutions within government for managing oil revenues. The Oil Fund has the three-fold responsibility of (i) sequestering oil foreign exchange earnings off-shore, so as to mitigate the potential Dutch disease effects of inflation and currency appreciation, (ii) serving as a long-term off-shore "savings account" so that oil revenues can be later invested into the economy at a later date, and (iii) overseeing specific activities using accumulated foreign exchange proceeds, such as the overseas skills training and scholarship programmes advocated in chapter 6. We would argue that the highest percentage of oil revenues should be placed in the Oil Fund – at least at the outset – to ensure the macro-economic mechanisms of government are first in place to handle the strain caused by oil revenues on the economy, and that the institutional systems within government ministries and agencies are capable of absorbing and effectively managing increasingly higher revenue inflows.

Government and Administrative Services

There are important requirements to upgrade the quality and efficiency of the basic administrative and organizational components of government services, associated with civil service reform; improved regulatory, financial and regulatory services; necessary foreign policy and national security requirements; as well regional and local government services. There is clearly pent-up demand among civil servants and parastatal workers for obtaining some share of the oil revenue pie, and government decision-makers will be under considerable pressure to manage expectations so as to balance actual performance-based needs against desired needs that don't meet national priorities as well as some form of cost-benefit analysis.

Socio-Economic Infrastructure and Services

This funding window is one of the most critical areas for moving the economy forward in a sustainable and equitable direction and encouraging the non-oil sector. There are readily apparent needs as well as existing programmes aimed at upgrading socio-economic services and infrastructure, many of which are the continuing legacy of the former Soviet era. However, this may be one of the dangerous areas where pressures will mount on government

decision-makers of trying to spend their way into effective and efficient socio-economic services and infrastructure. This danger may be particularly ineffective in such areas as spending for health and education infrastructure without corresponding investments in the staffing and services that must accompany the infrastructure investments. Large investments in transportation infrastructure are also at risk unless adequate provision is given to ensuring the means for quality control, ongoing maintenance, as well as staffing and support services.

State Enterprises and Monopolies

State enterprises and monopolies are a sensitive topic in Azerbaijan's political economy, in part because of the protection afforded them against both Azeri and foreign private competitors. Government is already under considerable pressure to use a share of oil revenues to support these enterprises and monopolies. We argue that government will want to support these enterprises at various levels of funding, provided that they can demonstrate in a transparent manner, using some form of performance-based metrics, and that they are moving their enterprises into an internationally competitive and economically sustainable position. Additionally, government will wish to consider supporting some state enterprises, such as SOCAR, in their efforts to clean up the environmental damages and threats caused by decaying, Soviet-era infrastructure. These sorts of environmental projects represent a form of hybrid investment which has both "public good" benefits of cleaning up the environment as well as benefits to the enterprise in question by freeing up capital to facilitate investments in modern technology and infrastructure.

Social Protection

Not all oil revenue investments should necessarily have solely economic benefits. Since independence, government has attempted to address the social concerns of many of its citizens who were caught by the transition to a market-based economy or by regional conflict and displacement. Some citizens -- the aged, handicapped, and disabled -- will require continued support, and oil revenues represent an opportunity to improve the quality, scope and reach of welfare transfer programmes. Similarly, oil revenue investments could provide opportunities for moving many recipients of current social safety net programmes into more economically and socially productive opportunities that allow the recipients to enter the mainstream economy.

Given the five different investment window options, what should be the portion of allocations going to each domain? It is not the purpose of this paper to make those sorts of recommendations. And, clearly, there are no easy answers or simple formulas for deciding what levels of funding should go into each of the fire areas. Nevertheless, we would argue, as discussed above, that the best initial option for allocating investments would be to significantly increase the flow of oil revenues into the State Oil Fund. There are basically two reasons for this. The first is for macro-economic reasons so as to ensure that the economy is less susceptible to Dutch-disease types of distortions and overheating. To the extent that more foreign exchange earnings are sequestered off-shore, then potential Dutch disease effects are diminished accordingly.

The second reason is that resources inside the Oil Fund can be introduced back into the economy at a measured pace as the ministries, agencies and state companies are able to demonstrate their institutional capacity to manage the increased flow of resources using clearly defined strategic plans, with well articulated targets and work plans for using these resources wisely. Contrary to current expectations, the use of oil revenues should not be considered a right or an entitlement, but rather a privilege and public trust which is demonstrated in well defined programmes based on transparent and accountable goals and targets that exhibit long-term socio-economic sustainability. In this sense, the State Oil Fund

can serve as a gatekeeper in the flow of resources into the economy and for investing foreign exchange earnings.

3.5 Azerbaijan, Oil, and Globalization

In this last section, we turn briefly to what we consider the underlying objective in Azerbaijan's oil management debate: how to ensure that oil revenues are used in such a way that Azerbaijan becomes a full participant in the global economy. This objective will become increasingly important even if the country's oil reserves last for several decades.

Being a major petroleum exporter does not mean that the Azerbaijan is fully integrated into the global economy. At best, having oil revenues only gets Azerbaijan only "one foot in the door" of globalization. Bluntly stated, exporting oil does not mean integration into the global economy. In fact, most emerging market countries that have done well in the global economy -- such as China, India, Malaysia, Singapore, Taiwan, Hungary, Poland, and the Baltic states -- have not had the benefit of significant foreign exchange earnings from natural resources to jumpstart their economies. Azerbaijan can be an intelligent exception by using its oil resources in a prudent and strategic manner to win what is the real "end game."[8]

The underlying theme of this report is that government policy must strive to facilitate the non-oil sector's entry into the global economy by making it competitive internationally. For it is in the non-oil sector where the vast majority of the Azerbaijan population lives and works, and those who must have the skills and opportunities to compete in the international economy.

It is perhaps useful to underscore what are some of the characteristics of those emerging-market economies that have successfully integrated into the global economy. The enabling environment includes:

- "Connectivity" lies at the heart of globalized economies – the free flow of investment capital and information back and forth across borders with minimal transaction costs.
- Capital investments are seen as secure and protected by financial, legal and regulatory systems – both for local and international investors
- International companies have minimal barriers to entry and operation.
- Competition is welcomed as a means to encourage investment, productivity gains and innovation.
- Foreign direct investment is not simply a source of capital but, more importantly, a means for technology and skills transfer.
- Global competitors have highly trained workforces with flexible arrangements for lifelong learning.
- Government policies help their globally focused companies ensure agility and speed in responding to new market conditions.
- Globalized economies don't just furnish commodities, but provide value-added goods and services.
- Globalized countries have forward and backward linkages in global supply chains, characterized by "speed to market."

A common threat in these characteristics is that globalized economies have become, in effect, "knowledge-based" economies that encourage and facilitate rapid change and adaptation to changing international market conditions and place high priority on skills formation.

[8] MOED's Centre of Economic Reforms is currently undertaking a project to examine the non-oil sectors to improve their export potential and international competiveness.

In looking at this range of characteristics, how does Azerbaijan stack up? It is no doubt safe to say that Azerbaijan's current economic environment does not demonstrate having many of these characteristics. To the contrary, significant policy and regulatory change is still required if Azerbaijan is to become a knowledge-based economy, if Azerbaijan is to fulfill its Vision and become the economic crossroads between Europe and Asia.

Clearly, the transition cannot happen overnight. At the same time, delaying the necessary policy changes and requisite investments decisions that are fundamental to the process will only become more difficult over time, as the flow of oil revenues picks up in the next few years. This is the double-edged sword of oil revenues. How oil revenues are used can either encourage the transition or, in fact, impede the transition. Paradoxically, Azerbaijan could technically succeed in avoiding the adverse effects of Dutch disease, but fail in the longer term goal of full integration in the global economy for its non-oil sector.

Chapter 4: Economic Theory and the Need for Human Capital Development

4.1 Dutch Disease

The "Dutch Disease" comprises three main effects :

- the macro-economic effect (where oil exports cause either an exchange rate appreciation or higher inflation or some combination of the two),
- the spending effect (where the increased income from oil leads to a boom in non-tradeables such as construction or retailing but not in tradeables), and
- the crowding-out effect (where the booms in the oil and non-tradeables sectors bid up domestic prices of land, labour and capital and, thereby, increase costs for non-oil tradeables.

As a result of extensive current and proposed future modelling efforts with respect to macro-economics in Azerbaijan it was decided that it was not advisable to duplicate these efforts. As a result this chapter has focused on labour market aspects of Dutch Disease.

From this point of view Dutch Disease is, therefore, very much a process of understanding how labour markets respond to a boom in some sectors (the oil boom and the secondary boom in non-tradeables) at the same time that other sectors contract (as a result of the loss of competitiveness in non-oil tradeables). In this sense the modelling component of the BGHG report is not just of potential use in understanding Dutch Disease but also in any situation where one sector is booming at the same time that another faces competitiveness problems. In particular this situation is likely to recur in the future. The most obvious case would be Azerbaijan's membership of the WTO. This would be likely to create a boom in non-oil export sectors (including those which do not yet exist) accompanied by contraction of uncompetitive import competing sectors.

4.2 Economic modelling

Economic modelling is, of necessity, a technical exercise. To avoid making this report too complex a full description of the economic modelling work is presented in the technical appendix. This chapter provides only a summary of the key issues and conclusions. It is, therefore, somewhat briefer than might be expected because most of the details are presented in the appendix.

For many people the term "economic model" would create an expectation of a quantitative model based on national data. From the point of view of the project this would be the best possible outcome. However, because of problems with data the range of models and issues that could be covered by such models is limited. The question then arises as to what should be done if currently available data is not suitable to support such a model.

The view here is that it is certainly desirable to work towards creating the capacity for such models to be developed in the future. However, if it is not possible to do so with currently available data it is highly undesirable to ignore key economic processes simply because it is not currently possible to measure them. That is, although current data for Azerbaijan is not really adequate to build a "national" quantitative model the issues involved are of such importance that it is not possible for them to be simply ignored either.

The approach here is, therefore, to try to understand the key processes by which Dutch Disease affects labour markets through two key routes. These are to develop:

- quantitative models which allow us to understand the key lessons of relevant economic behaviour from other countries, and
- theoretical models which assist by providing a useful conceptual framework for analysing Azerbaijan's current problems.

In both of these cases it is the explicit intention of this report that both strands provide a sound base for efforts to develop comparable quantitative models for Azerbaijan. That is, they are intended to provide (a) a useful analysis of current policy problems and (b) a first step to creation of quantitative models to be developed later.

To fulfil the objective of taking the first step to subsequent model building it is imperative that any future work on BGHG be conducted in the closest possible co-operation with local economists. For this (and other) reasons the modelling work has been undertaken in close collaboration with the Center for Economic Reforms (CER).

4.3 Broad Labour Market Effects – the Corden and Neary Approach

The Corden and Neary model was briefly discussed in Chapter 3 of this report and is presented in more detail in the Annex ?. Its key contribution is to show how, a result of an oil boom, labour is shifted from one sector to another in the long run. To summarise these effects they are :

- a direct switch of employment into the oil sector (which is unlikely to be substantial since oil extraction is not very labour intensive),
- an increase in employment in non-tradeables such as construction or retailing as a result of the secondary boom in non-tradeables (spending effect),
- an increase in wages (resulting from the increased demand for labour by the oil and non-tradeable sectors), and
- a reduction of employment in non-oil tradeables because of a loss of competitiveness resulting from (a) the macro-economic effect (exchange rate appreciation and inflation) and (b) the increase in wages and other costs resulting from the increased demand by oil and non-tradeables.

The strength of the Corden and Neary approach is that it makes very clear the long run effects of Dutch Disease on labour markets. That is, Dutch Disease must inevitably involve an increase in wages and employment in the non-tradeables sector in particular and a reduction in employment (and downward pressure on wages) in non-oil tradeables. It is possible that these effects could be mitigated by appropriate policies (see section 4.5 below) but not eliminated. Note also that this is not the only occasion when the economy of Azerbaijan will need to deal with a switch of employment between one economic sector and another. When Azerbaijan becomes fully integrated into the world trading system there will need to be a similar long run adjustment from employment in import competing activities to employment in export ones.

A key deficiency with the Corden and Neary model is that it deals with long run changes in employment. In the short run the transfer of employment from one sector to another involves considerable complications. In particular, labour markets tend to be "segmented" by human capital. That is, workers in non-oil tradeables possess skills (human capital) which are specific to that sector and which are not useable in the non-tradeable sector. Employment in the non-tradeable sector requires workers to possess different skills. This means that workers currently employed in the supply of non-oil tradeables lack the skills necessary to permit them to be employed in the (booming) non-tradeable sector. The following section considers the implications of this segmentation of labour markets by sector-specific human capital.

4.4 Dutch Disease Effects with Segmented Labour Markets

When we allow for segmented labour markets the effect on labour demands is essentially the same as in the Corden and Neary case. That is, the effects of Dutch Disease are in increase in the demand for the types of labour skills that are specific to the oil and, in particular, the non-tradeables sector (resulting directly from the oil boom and from the spending effect). This is accompanied by a reduction in the demand for the types of labour skills that are specific to non-oil tradeables.

The key difference is that in this version unemployment arises in the short run (which despite its title could be in excess of a decade). The reduction in demand creates an immediate fall in employment in non-oil tradeables because it is at least physically possible to close factories and to lay off workers. The increase in demand for workers in the non-tradeable sector can not create significant new employment quickly because available workers (and in particular those displaced from the production of non-oil tradeables) do not possess the requisite skills. The results are :

- in the short run most of the increase in the demand for skills specific to non-tradeables results in excessive wage increases rather than substantial employment increases because insufficient skilled workers are available, and
- as a result of decreased demand for the skills specific to non-oil tradeables there is both downward pressure on wages for these workers and unemployment.

To understand how policy could try to mitigate these effects it is first necessary to understand the process of human capital creation. In no small part this depends on the ability of educational and training institutions to meet the needs of skill development (an issue covered elsewhere in this report). But it also depends upon the willingness of individuals to acquire the skills. This can be modelled, at least theoretically if not empirically.

From the point of view of an individual the decision to acquire skills through training or education is an investment decision. It involves incurring a cost now or in the near future in order to acquire the skills. This cost may be in the form of money or in the less tangible form of time, difficulty and effort. However, individuals incur these costs in expectation of obtaining subsequent benefits. These may be in the form of higher wages, better employment opportunities or social benefits such as status.

This line of reasoning implies that both costs and benefits determine an individual's willingness to acquire skills. The following section discusses how these might be influenced. One important point is that it is in the nature of rational investment decisions that money spent or received now or in the near future is valued more highly than costs or benefits in the more distant future. Since the investment decision involves costs now in exchange for benefits later, reducing the costs of investment in skills (accessibility as well as monetary costs) is likely to have a disproportionately more powerful effect than an equivalent increase in benefits. That is, it is possible that making training easier and cheaper to obtain could be effective in persuading individuals to acquire skills.

4.5 Policy Issues

Demand

The demand for labour is what economists refer to as a "derived demand". That is, the fundamental cause of changes in the demand for labour arises from changes in markets for goods and services. In the case of Dutch Disease this is the development of oil extraction. An obvious route to influence labour demand is by influencing the demand for goods and services. Particular care is needed on this point. This is not at all to suggest extensive government intervention in markets for goods and services. On the contrary, for reasons of economic efficiency this could prove very harmful for employment.

One area in which the government could affect demand for goods and services is market access. Membership of the WTO would open export markets for both existing and potential new export activities but would also reduce demand for import competing activities. The pros and cons of the WTO are not discussed here and must be left to another, fuller, discussion.

Another area is somewhat more complex as it involves feedback effects between supply and demand. Investment in certain types of skill would tend to generate a potential comparative advantage (competitiveness) in economic activities which make intensive use of these skills. Suppose, for example, that the creation of a skilled workforce attracts investment to exploit these skilled workers. This increases the demand for these skills, causing an increase in wages and employment opportunities. This, in turn, provides incentives for more workers to acquire the skills. As more skilled workers join the labour force this further strengthens comparative advantage and generates yet more demand for the same skills. This is known as a *virtuous circle.*

The alternative to this is a *vicious circle*. In this a lack of skills creates a comparative advantage and specialisation in low skill activities. Investment is, therefore, attracted away from skill intensive industries. This lowers both employment opportunities and wages and, in consequence, the incentive to acquire skills. As the economy becomes even less skilled it becomes yet more specialised in low skill activities, lowering incentives to acquire skills even further.

The important point for policy is that it is essential to ensure that the economy starts on a virtuous rather than a vicious circle. Once a virtuous circle has been started the feedback effects between supply and demand will, in large measure, provide their own momentum. That is, a large initial effort to (a) create and (b) exploit a skilled workforce is likely to be much more successful than tinkering with human capital creation. Note also that both creation of skills and their exploitation are needed. For example, there is little point in creating a potential comparative advantage based on skilled workers if other policies deter investors from exploiting this.

Supply

There are two ways of looking at the problems created by Dutch Disease in labour markets. The first is to suggest that the root of the problem is that workers displaced by declining sectors (non-oil tradeables) lack the skills to exploit new employment opportunities in the expanding sectors (largely non-tradeables). This would then suggest that worker re-training schemes would help to mitigate the worst effects by allowing workers displaced in non-oil tradeables to take up new employment rather than to remain unemployed.

To some extent it is an inevitable consequence of Dutch Disease that spending will increase, leading to a boom in non-tradeables. Using re-training to facilitate the necessary shift in employment is, therefore, desirable. However, there are many reasons why the non-tradeable

sector should not be the only hope for the future. For example, diversification of economic activity within the tradeable sector is important for both economic security and for both social and regional reasons.

This suggests that some policies would need to be adopted to try to mitigate the loss of employment and downward pressure on wages in non-oil tradeables. Leaving aside the demand issues discussed above this would mean increasing the productivity of workers in occupations employed by non-oil tradeables. Increased productivity of workers in occupations specific to non-oil tradeables would tend to increase both employment and wages. There are three main ways to do this. These are by :

- increasing the amount of human capital per worker,
- improving economic efficiency through, for example, reduced monopoly power and better governance, and
- technological advance, for example by encouraging the application of new know-how through foreign direct investment.

4.6 Quantitative Modelling in Azerbaijan

Quantitative models are being prepared in two main areas. Firstly the staff of the CER are developing a factor content model for Azerbaijan. This model would help to provide some key insights on (a) how changing demands for goods and services lead to changing demands for different (broad) types of labour and (b) how changes in the skill composition of Azerbaijan's labour force could, if properly exploited, lead to changes in the goods and services that it provides. As a result of data limitations this analysis can only partly be based on national data.

Secondly, the BGHG recommends working with the CER to develop models of the decision making process of individuals in the acquisition of skills or education. These would help us to understand, for example, the comparative importance of different influences (potential employment, wages, costs of training) on this process in a way that should assist policy design. As a consequence of data constraints these will need to be estimated for other countries in the first instance with the intention of repeating the analysis for Azerbaijan once more suitable data are available.

Chapter 5. A Human Resources Development Strategy for Azerbaijan

5.1 Introduction

The foregoing analyses focus on the economic rationale for human capital development, and reasons why it makes sense to invest quickly and massively in the nation's most important resource, the capacities of its people. This chapter takes off from that proposition, and begins by reviewing recent assessments of current approaches to human resources development in Azerbaijan, and presents evidence of both education and training reforms as well as shortcomings. It takes the position that if Azerbaijan is to meet and exceed international standards for maintaining a competitive advantage in today's globalizing economy, it must foster accelerated skills development among large numbers of people – discussed in the next chapter. It must develop an effective occupational `radar system' for scanning the employment universe, permitting `read-back' data and information not only to educational planners, but to young people, parents and workers so as to facilitate personal livelihood choices . And, also discussed in the next chapter, it must identify urgent priorities for immediate and concerted action. Such action must avoid piece-meal separate and disconnected initiatives, especially across key ministries (e.g. MoED, MoE, MoL). There needs to be a coordinated, workable strategy for human resources development with a common set of goals that are shared nationally at all levels, and supported by the people.

The chapter continues by outlining the international, regional and national contexts within this strategy is considered, and ends with an outline of general structural and procedural principles.

5.2 Human Resources Situation

As described above, Azerbaijan has been primarily dependent on its burgeoning oil and gas sector for spectacular development since independence. However, this sector is capital intensive, and generates less than 2% of the country's jobs in an increasingly flexible labour market. Thus, in an effort to avoid pitfalls experienced by other countries (e.g. the `Dutch disease') the Government of Azerbaijan (GoA) has begun to implement its National Employment Strategy (prepared with almost the same MHCi team as this report and again with UNDP support over 2004/5) followed by the programme for converting the black gold of oil into Azerbaijan's most precious natural resource, the human gold of its people. The Black Gold to Human Gold (BGHG) approach seeks to assist GoA in outlining the scope and structure for a comprehensive human resources development (HRD) strategy, based on empirically determined occupational supply and demand, within a realistic macroeconomic context, and focusing primarily on the non-oil sectors. Major sources of data for this endeavour include the biennial Labour Force Survey (LFS)[9] as well as additional employer surveys for measures of occupational demand by educational level and occupation, and supply statistics from educational institutions and the Ministry of Education. It is recognized that these data are merely a snapshot at best, but constitute some kind of an approximate baseline for better information in the future.

Occupational demand data from the 2003 LFS show the total of economically active persons to be 3.78m, with just over 400,000 unemployed (a rate of 10.7%). Almost half of the unemployed are in the 20-29 year old age group, i.e. at the start of their working lives. A more recent survey of temporary work in two urban areas by the State Statistical Committee[10] found an unemployment rate almost twice as high (22.8%), and lower economic activity rates.

[9] Survey of the Economic Activity of the Population of Azerbaijan. State Statistical Committee Baku. 2004
[10] Pilot Sample Survey of Part-Time Employment. State Statistical Committee. Baku 2004

Distribution of employed persons by broad industrial or workplace category is included in Table 1. The majority are in the agricultural sector (38%), and education, health and social work, including community and personal services 20.7%); with the remainder mainly in wholesale trade, motor vehicle maintenance and domestic and personal goods ((17.2%).

Table 5.1
Employed Population By Main Workplace Or Industrial Category

Category	Percent
Total	*100*
Agriculture, hunting and forestry	38
Fishery	0.2
Mining & Quarrying	1.1
Manufacture	4.9
Electricity, Gas & Water Supply	1.3
Construction	5.6
Wholesale/Retail Trade, Repair of Motor Vehicles, Personal & Domestic Goods	17.2
Hotels and Restaurants	1
Transport, Storage & Communication	4.3
Financial Intermediation	0.6
Real Estate, Renting & Business Activities	1.2
Public Administration & Defense & Compulsory Social Protection	2.9
Education	9.4
Health & Social Work	4.1
Other Community, Social & Personal Service Activities	7.2
Private Households with Employees	0.8
Extra-territorial organizations/bodies	0.2

Source: 2003 LFS.

Broad educational levels[11] of the economically active population are shown in Table 5.2, and of the unemployed in Table 5.3.

Table 5.2.
Employment By Educational Level

Education Level	Number	PerCent
Total	*3377826*	*100*
Higher/Vocational	647349	19
Other Vocational	713400	21
Secondary	1978578	59
Primary or less	38499	1

Source: 2003 LFS.

[11] Aggregated from educational levels as defined in the Labour Force Survey.

Table 5.3.
Distribution of Unemployment By Educational Level

Education Level	Number	PerCent
Total	*404670*	*100*
Higher/Vocational	33456	8
Other Vocational	54612	14
Secondary	313527	77
Primary or less	3075	1

Source: LFS 2003

The evidence supports the hypothesis that Azerbaijan has maintained the generally high level of education of its workforce inherited from the former Soviet era, especially when compared with other countries with similar GDP per capita. Mean years of schooling, as a general indicator, has demonstrated a strong and robust net effect on industrial productivity in western economies[12]. Most Azerbaijanis complete at least ten years of education, providing at least a literate foundation for workforce participation[13]. These data are not disaggregated by gender in their original form other than for the unemployed, thereby missing the value-added of more gender-sensitive analyses.

A series of recent reports[14] have assessed various aspects of public and private education institutions in Azerbaijan, and while recognizing major strengths, have also documented serious problems. According to figures provided by the Ministry of Education, the primary school enrollment rate is 100% and secondary school enrollment rate is approximately 85% in Azerbaijan [15]. The problem as noted by SPPRED[16] is that enrollment rates decline notably as the level of education increases, illustrating lack of access opportunities at post-secondary levels. The UNDP Human Development Report 2005 ranks Azerbaijan at 101 in the medium human development range, and combines a gross enrollment ratio (for primary, secondary and tertiary schools) of 69%, or about the same as Iran, or Turkey by the same measure. However education levels of the *unemployed* indicate the majority (69.2%) have completed secondary education, which gives some cause for concern, since these may be termed `educated unemployed'. Furthermore, although educational reforms are clearly underway[17], there is much evidence of deterioration in the public education system, particularly in post-compulsory education[18] not only in physical plant and facilities/equipment[19], but also in

[12] Sakamoto A. Changhwan K. Estimating the Human Capital and Screening Effects of Schooling on Productivity in U.S. Manufacturing Industries, 1979-1996. University of Texas. September 2005. http://paa2006.princeton.edu/download.aspx?submissionId=60538
[13] As measured by mean years of schooling , which compares with >12 years at the highest level for the US.
[14] World Bank: Education Sector Development Project. Report # 25284. April 23. 2003.
Golladay F.L. Education Sector Assessment for the Republic of Azerbaijan. USAID Baku. November 2004.
MacConnell, D. Undergraduate and Graduate Level Economic/Business Administration and Public Administration Assessment in Azerbaijan. 2005
Isaxanli, G. Strengths & Weaknesses of Private Universities in a Transition Economy: a View from Azerbaijan. Khazar University. Baku 2005
[15] From comments provided by MoE on the Interim Progress Report of the BGHG project.
[16] SPPRED Progress Report 2003-4 p 42.
[17] Notably under the Education Sector Development Project supported by the World Bank
[18] Record of the Azerbaijan Delegation to UNESCO. Document Series ED/EPS/05.01. Division of Educational Policies and Strategies July 2005. p 5.
[19] According to SPPRED, although several hundred new schools have been constructed now under education reform efforts, 76% of general schools are situated in buildings not designed as schools, and 85% of schools do not have heating. Furthermore less than 5% of schools have access to Internet.

quality[20]. While the increase in test scores in higher education admission tests is encouraging[21], evidence suggests that teachers need more frequent opportunities for retraining[22]. Moreover, equipment and methods (particularly more modern teaching aids) need to be improved for *all*, and not just some schools. In addition, pervasive corruption in the education system threatens reform efforts[23], and raises doubts in the minds of both students and employers as to the objective value of their education[24]. 23% of respondents to a general sociological survey in 2005 cited education as their `greatest concern' compared with 13.4% in 2004[25].

Vocational education and training are especially under scrutiny, since these subsystems have been experiencing declining enrollments at secondary levels throughout the CIS region, but particularly in Azerbaijan[26]. An earlier study found `a serious mismatch' between labour market needs by employers and supply from .... educational institutions'[27]. The 2003 LFS found that only 10% of workers with written contracts had any vocational education or retraining[28].

Thus the focus of the HRD strategy must be on the interface between those coming into the workplace, their qualifications, competencies and skills as a function of their educational experiences, and the labour market demand.

Reviews [29,30] of educational expenditures, and educational institution's higher and vocational technical offerings, form an essential part of the documentary basis for this report. The collective conclusion from these studies seems to be a general consensus around three major issues:

- there is a critical need for re-assessment and reform throughout the entire education system from pre-school through higher education, while duly recognizing the benefits of strong traditions in education policy and practice;
- Azerbaijan's future depends on diversifying its economy beyond just the oil and gas sector, which calls for depth and diversity in workforce skills which at present do not exist; and
- although there are conspicuous exceptions, the vocational education and training (VET) facilities and institutions that should be providing these workforce skills are among the weakest in the system[31].

In 2005, there were more students in nursery/kindergarten (N=109,925) than in higher education (N=95,960), and over 1.6m were enrolled in primary, secondary and vocational education[32]. Thus many graduates of secondary education do not continue into higher or post-secondary education – we were not able to establish these numbers in detail. However, it does seem that workplaces do not accept all those graduating from secondary education.

[20] SPPRED Progress Report 2003-4 p. 44.
[21] See comments from Ministry of Education on BGHG Progress Report.
[22] SPPRED Progress Report p 45.
[23] Baimova, N. World Bank Education Project in Azerbaijan [1999 - 2004]. Workshop on the World Bank, Singapore, Septemb 2006.
[24] Chapman D. Corruption and the Education Sector. Sectoral Perspectives on Corruption. USAID/MSI November 2002.
[25] Friedrich Ebert Stiftung. Azerbaijan in 2005. Sociological Monitoring. Baku 2006.
[26] United Nations. Social and Economic Council. Economic Commission for Europe. Coordinating Unit for Operational Activities. CIS Forum on Youth: "Youth of the XXI Century: Realities and Perspectives" Kiev, Ukraine, 24-26 September 2003.
[27] Cummings I. Report on Employment Strategy for Azerbaijan through TVET, SMB Promotion and Social Protection for the Disadvantaged. Baku, August 2003.
[28] Survey of the Economic Activity of the Population of Azerbaijan. State Statistical Committee Baku. 2004. p. 34.
[29] European Training Foundation. Labour Market and VET Challenges and Perspectives in Countries to Engage in the European Neighbourhood Policy: Southern Caucasus. Draft 2. EECA. February 2006
[30] Fajfer. L. Outbrief: Vocational Education Assessment. USAID Baku. February 25, 2005.
[31] `The VET system is in crisis' Fajfer L. op. cit. 2005.
[32] UNESCO op. cit. 2005.

Evidence comes from the first Azerbaijan labour force survey that showed `high youth unemployment rates are quite alarming, especially among secondary school graduates'[33]. Almost 70% of unemployed are in the 15 to 34 year age group, and approximately the same percentage of the unemployed have completed secondary education[34]. This implies that

> `the system of higher and secondary vocational education should take into account... labour market requirements. Today, the economically active population is losing its skills. Lack of opportunities for formal employment ....means that an increasing share of workers with high education is either unemployed or engaged in informal activity or agriculture, and in terms of the requirements of a new labour economy, their skills have become out of date'[35]

It should be noted that, as found in institutions that we visited, teachers and administrators are often highly motivated, and many are doing an extraordinary job in difficult circumstances (e.g. outdated facilities and equipment). Young people, particularly females, are still training to be teachers (although many do not go on actually to teach despite a national teacher shortage), and there is a clear national commitment to education, illustrated for example by allocation of more than 15 billion AZM in 2003-4 for free textbooks in Grades I-V, the extension of this initiative to Grades I-XI in 2005, as well as upgrading of teaching plans and standards[36]. The World Bank Education Reform Project is contributing to the overall reform effort in several areas, including curriculum, teacher training, textbooks and reading materials, financial management, student assessment, and information systems for planning/monitoring[37].

Salaries of education sector employees have been raised by increments, as well as increases in the minimum wage since May 2003, with a recent raise of 25% in 2006, and criteria specified for performance-related salary enhancements. Yet the average monthly salary in the education sector 2005 was 64.8 AZN, little more than half the average national monthly wage[38]. This compares with an average of almost 500 AZN in the oil sector, and a high of over 1300 AZN in the private oil sector[39].

The Ministry of Education and State Program on Poverty Reduction and Economic Development (SPPRED) have identified nine priority areas: school construction; school equipment; computerization; teacher mobilization for remote areas; special needs students; heating systems; libraries; free textbook provision; and preschool improvements. Substantial resources are being allocated to each of these priorities, and much work has already been completed, for example more than 900 teachers were placed in remote schools in 2004-5[40]. In addition, Azerbaijan has pioneered the introduction of new curricular subjects (e.g. sustainable human development) into the 9th and 10th grade of general secondary schools[41]. Public-private sector cooperation is also evident with the building of seven new public schools by local businesses in several districts, with equipment and furniture also all donated.

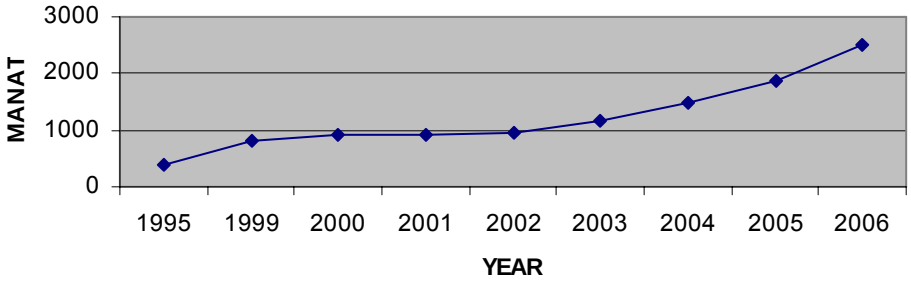
While education expenditures are no guarantee of quality, they provide a measure of public commitment. Education expenditure accounted for 17.8 percent of the State Budget in 2005 compared to 19.6 percent in 2004 and 19 percent in 2003. With the State Budget increase of 88 percent in 2006, education expenditure in 2006 exceeds that of 2005 in nominal terms

[33] State Statistical Committee op cit. 2004 p. 48.
[34] Ibid p. 41.
[35] Ibid p 42.
[36] SPPRED Progress Report 2005. p 94.
[37] Baimova op cit. 2006
[38] SPPRED Draft Programme Document 8 June 2006.
[39] Ibid p. 19
[40] Pers. Comm.. MOE 2006.
[41] Professor Urkhan Alakbarov, Arif Muradov. Human Development texts. 2003.

while its share in the Budget in 2006 is just 12.4 percent.

Commitment however can be viewed differently from the perspective of increasing budgets for education. Graph 5.1 illustrates increases in absolute expenditures on public education from the mid 1990s to today with data from SPPRED and MoE.

Graph 5.1. EDUCATION EXPENDITURES IN MILLION AZM



But the bottom line is, inescapably, that many young Azerbaijanis still are entering the labour force with inappropriate, or insufficient knowledge and skills. Moreover, employers demonstrate a lack of faith in educational/training qualifications gained in many Azerbaijani institutions. Addressing this will require a concerted strategy across all educational levels, but nowhere more importantly than in the vocational/technical domain.

In one VET institution, for example, because of lack of functioning computers, accounting students are introduced to the Windows operating system by use of a single page in colour illustrating a Windows screen. The page is plastic covered so as to protect it, since it is handled many times in one class.

A review of the VET system was recently completed (February 2006) by the European Training Foundation (ETF) as part of an overview of the southern Caucasus from the perspective of countries interested in engaging in European Neighborhood policies[42]. Major shortcomings were identified in the system, including:
- lack of reliable or timely data on either educational supply of, or occupational demand for, skilled workers,
- lack of coordination between educational level and skills requirements,
- and shortages of middle level qualified workers.

Furthermore, LFS data suggest that the higher educated tend to concentrate in public sector occupations, not a promising factor for diverse and sustained economic growth especially since the number of labour force entrants with higher education is increasing.

As part of the ETF review, a 2004 tracer study of 1100 VET graduates (from academic years 2000 to 2002) found 65% of respondents unemployed, and only 6% had pursued further training. Employability varied across groups, with the best employment rates experienced by those in care services, catering, tourism, sports, with those in technical, mechanical and construction occupations faring somewhat less well. Most telling however was the finding that *almost two thirds (60%) of employed respondents were working in a job completely unrelated*

[42] European Training Foundation. Labour Market and VET Challenges and Perspectives in Countries to Engage in the European Neighbourhood Policy: Southern Caucasus. Draft 2. EECA. February 2006

to their VET qualifications. Clearly the workplace rewards those who are entrepreneurial enough to seek (or create their own) jobs outside their qualification set, but these findings, while consistent with a wealth of other VET tracer studies in other countries[43], do not imply good returns on investment in current VET either for the GoA, or for the individual. Thus a crucial part of any future HRD strategy will be to develop better empirical information on relationships between schooling and work, based not only on the LFS but also on follow up studies of the work experience of VET graduates (e.g. length of time between graduation and employment, type of employment, job characteristics, and turnover statistics). These issues surrounding VET are further addressed in Chapter 7.

5.3 The International Context.

A central element in Human Resources Development is breadth and extent of educational opportunities (of high quality and relevance) that remain readily accessible and available to people who need them. Underpinning effective public education systems is also of course a latticework of rights-based, legislative, and regulatory support. In addition, articulation must be maintained with health and labour ministries to ensure that schools and other institutions are healthy and safe, and offering curricula that can help stimulate a productive workforce in secure and safe workplaces, increasingly throughout a lifetime of learning. Education is not the only important aspect of HRD policy, but it is the one we concentrate on here, especially as it relates to skills development for a more diverse economy.

For the last two decades, a number of important changes have impacted on education policy worldwide. All of these have specific relevance for the CIS region, the southern Caucasus, and particularly for Azerbaijan. **First,** success in enrolling more children in basic education is placing corresponding upward pressures on secondary and post-secondary schooling, and especially the interstices between education and work. According to UNESCO (2006), secondary enrollment has increased globally by more than 50% since 1990 (from 321m in 1990 to 492m in 2002). Furthermore, in middle-income countries, tertiary enrolment has grown by 77 per cent over the past decade, compared to 43 per cent in rich countries (OECD 2005)[44]. This upward pressure on education systems is giving *technical vocational education and training (TVET) well deserved fresh prominence*. This kind of job-oriented skills education/training represents for most people a cost-effective alternative to expensive university education in responding to effects of rapid technological change on what appear to be globally tightening job markets. According to UNESCO, countries worldwide are renewing efforts to promote technical and vocational education and training in new ways. The 2004 Bonn Declaration affirmed that `skills development leading to age-appropriate TVET should be integral to education at all levels, and can no longer be regarded as optional or marginal.' Furthermore, maintenance of a higher quality of TVET must be a matter of national urgency, and must be central to education policy.

Second, education can no longer be viewed as a simple linear progression in terms of human development, or as a process that people can complete entirely in their early years. Children can not be inoculated against ignorance solely by early educational injections. Employers in future **"**can no longer rely solely on new graduates or ...labour market entrants as the primary source of new skills and knowledge. They need workers who are willing and able to update their skills throughout their lifetime."[45] *Lifelong learning* is now more than just a slogan. It has become a necessity for everyone. In this regard, the community college model is receiving

[43] A traditional argument against VET has been that those who receive the training often end up employed in jobs outside their fields of training, although a similar study of graduates of 6 VET schools in the Ukraine found 80% working in fields in which they were trained. [Ukrainian Tracer Study: How Employable Are Your VET Graduates? ETF Newsletter No. 11, March 2006].

[44] The US still leads the industrialized world in spending 2% of GDP on higher education Wallace C. What Price Education? *TIME* Europe. August 30, 2006.

[45] World Bank 2003.

much new attention, both as a useful post-secondary provider and a second chance for adult learners. In many countries, as in Azerbaijan, the share of the working age population will begin to peak within five to ten years, meaning that less young workers will enter into the education-to-work streams. Not only will this place a premium on options for recycling older workers through education systems to upgrade their skills, but also will lead to lowering enrollments in early schooling, permitting higher per-student investments and possibilities for real reform.

Thirdly, *information and communication technologies* (ICTs) are opening up entirely new avenues for pedagogy, for inter-institutional networking around research, and for on-line and virtual learning. Access to the Internet allows for self-paced knowledge and skills acquisition. Prepared courses, even professional certification now can take place on-line, with adequate quality control and monitoring to facilitate individualized tutoring and graduated, step-by-step instruction and achievement. Schools, colleges and universities, as well as individual students (and faculty) can engage in networked academic activities across institutional, even national boundaries. We revisit this issue in the next chapter.

Finally, a change is also taking place in the ways that countries approach their strategies for *human resources development* (HRD). Prior to the 1990s, HRD meant training, typically at a given point in time, targeted towards specific skills, ideally for a lifetime job. More generally, in western academic literature, the middle word in `HRD' was in the singular form (i.e. human *resource* development), and typically referred to preparation and supply of generic `manpower' as a factor in human capital models of production. As gender concerns prevailed, along with a broader understanding of individual variety in human contributions to economic progress, the term `manpower' gave way to `human *resources*', in respect both of its complexity and of its individuality[46,47]. Furthermore, two additional changes occurred. The emphasis in national HRD policy and planning shifted towards analytical models of the `*demand*' side of the HRD supply/demand paradigm i.e. labour market characteristics, and empirical justification for developing general skills by occupational type and category. In addition, HRD definitions expanded to incorporate the concept of `livelihood', implying an intersectoral dimension beyond simply education for work (e.g. health, social capital, and non-income generating activities) and extending to skills needed for supporting and maintaining social relationships, families, and communities. In the mid 1990s, the UN system considered, and adopted this broader approach to HRD[48], and the International Labour Organization has explicitly acknowledged the intersectoral, as well as lifelong learning aspects of HRD strategies[49].

5.4 Regional/national context

The CIS countries, and especially the south Caucasus, present a special set of circumstances for human resources development. Having inherited generally high levels of education awareness and achievement throughout their former histories, institutions of learning enjoy much respect, and the processes of skills development are highly valued. Universal literacy, and acceptable opportunities for basic education have therefore been widely seen as achieved to international standards, (although there is disconcerting evidence of rising illiteracy, and school dropout rates, as well as substantial refugee populations in some CIS countries (UNFPA 2006).

[46] Lawrence J.E.S. HRD: An Integrated Approach. Journal of Economic Cooperation among Islamic Countries. Vol 12 Nos 1-2, pp 47-60 January-April 1991. http://www.sesrtcic.org/pubs/jec/jabsv12n12a02.shtml
[47] See UN Secretary-General's Report on HRD to General Assembly A/56/162 (2001)
[48] See Testimony to Second Committee, UN General Assembly, November 1977 Press Release GA/EF/2783 http://www.un.org/News/Press/docs/1997/19971103.GAEF2783.html
[49] Lifelong learning in the mechanical and electrical engineering industries, International Labour Office, Geneva 2002.

So the problems appear to be most pressing in the areas of secondary, post-secondary and higher education, and especially in vocational-technical education. For example, `practically all the CIS countries have experienced a dramatic fall in **vocational/technical** secondary enrolments with one of the largest decreases in Azerbaijan' (European Training Foundation 2006). In too many instances, institutional settings and educational administrations have found it difficult to keep up with the fast pace of change. Specifically, entrepreneurial skills and leadership are often lacking both in the processes and the products of education systems in the region.

There have been significant efforts to address these issues. For countries presently in, or aspiring to join the European Union, The Bologna Declaration of 19 June 1999 envisioned a common and transparent system of higher education by 2010. Framed around western concepts of three degree cycles, Bachelor, Masters and Doctorate. the Bologna process seeks to simplify grading, standardize quality assurances, facilitate credit transfer, and permit inter-institutional mobility among students, teachers and researchers. Not everyone has approved of this approach. Opposition has been expressed in Russia, for example, to perceived loss of institutional, pedagogical, and cultural autonomy. Yet the Bologna prescriptions seem to provide a pragmatic framework for improved quality, credibility, and interchange for a wide group of interested institutions.

There are several regional outgrowths from this new attention to post-secondary education. One is a focus on `twinning' and other forms of inter-institutional cooperation. The Russian Federation has established academic networks for TVET and sustainable development under the UNESCO/UNITWIN programme[50]. Romania has the UNESCO-Cousteau International Ecotechnie Chair/Network, formed in 1993 at the University of Bucharest. Other central Asian models of university cooperation include partnerships in Croatia, Macedonia, Uzbekistan, Ukraine and Georgia, focusing for example on municipal management, cooperative business arrangements, non-profit sector organization/management, and business communication.

Another productive outcome has been the regional interest generated by the US community college model, which some have characterized as the `engine' driving US economic growth. Among the major principles underlying community college administration are concentration on adult and continuing education (providing often lifesaving second-chance learning, as well as ongoing skills development), and `tuning' curricular offerings to shifting needs of labour markets. The Workforce Development Partnership Programme is an example of this kind of institutional collaboration. Several countries have adopted this post-secondary model, including Jordan and Yemen.

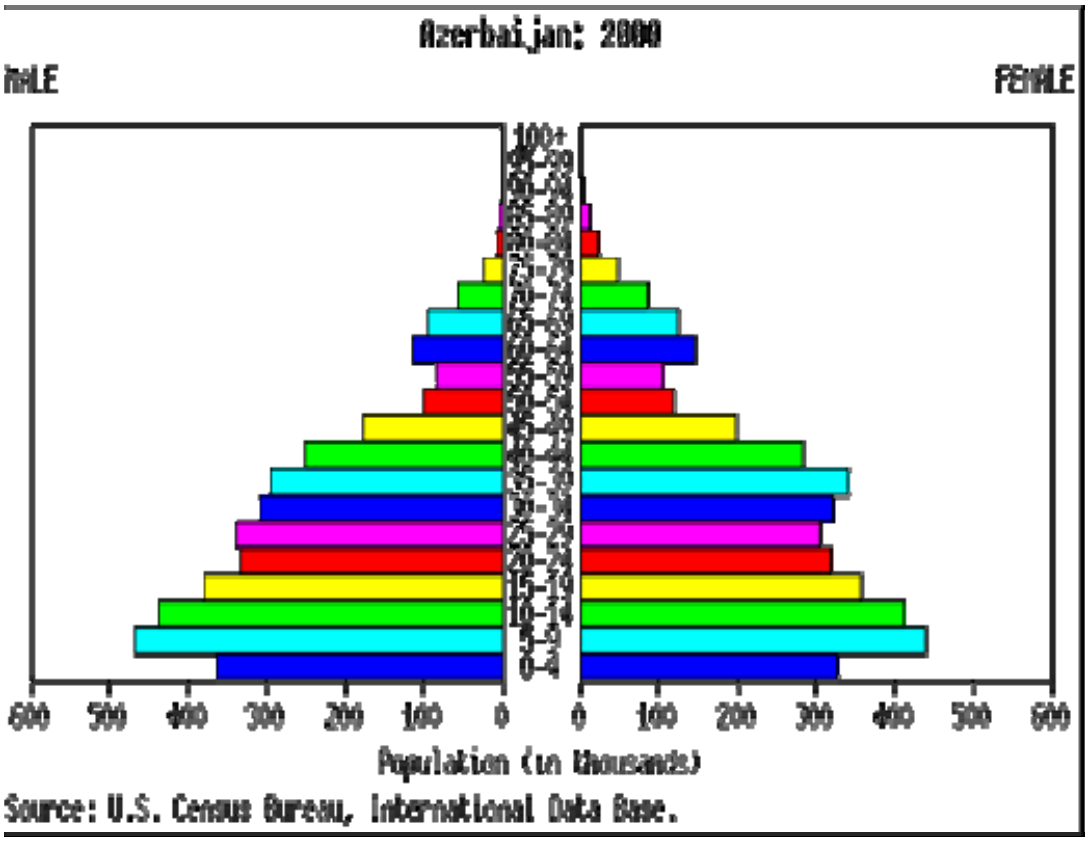
There is also increasing interest in virtual education opportunities, and distance learning at post-secondary levels. US-based institutions such as University of Phoenix, Isenberg, Babson and others have proliferated in this direction. Some of these are targeted towards professional upgrading such as nurses or engineers. The National Technical University, founded in 1984, and among the first US-accredited virtual universities, offers master degree certification in engineering for professionals who require ongoing re-learning. Links between Azerbaijani and US institutions include programs such as the joint MBA offered by Khazar and Georgia State universities. Furthermore, `online job-fairs' such as that held by the Economist in April 2006, open up new avenues for those seeking both training and employment.

The future for HRD however seems to lie predominantly in solving the problem of *large numbers* of people exiting secondary school, thus in the later secondary and early post-secondary education sectors, and specifically in the way that countries can re-configure their VET systems to meet fast changing labour market requirements. Population distributions, for example in Kazakhstan, show two notable trends that are characteristic for the region. The

[50] See http://www.unesco.org/csi/act/russia/rshu1.htm

first is the narrowing base), foretelling an imminent reduction in future labour force supply. The second is the concentration of majorities in the 15-29 age group, representing those mostly in early years of their work experience. Both of these factors are clearly indicated in Graph 5.2, the population pyramid for Azerbaijan for 2000[51], showing the bulk of young people less than 20 years old coming into an already packed, and inefficient education system. As the population thins out in the projections across to 2025, the `bulge moves up through to a characteristically aging workforce with less young workers coming into the labour force.

Graph 5.2.
Population Pyramid For Azerbaijan 2000



So, in general, HRD issues dominating in Azerbaijan parallel those of the region, with some key differences, primarily surrounding the urgent need to ward off effects of the `Dutch disease' which could result from disregarding historical evidence, and inappropriate policy decisions in face of the surge in oil revenues. Chief among these issues as discussed above are i) a deteriorating education system[52], with insufficient capacity for developing human resources most urgently needed during this important transition period in Azerbaijan's history, ii) not enough articulation between key HRD ministries and agencies, especially as regards a sound statistical base[53] for crucial, and timely information on occupational supply and demand patterns across (especially non-oil) employment sectors, and iii) the lack of an overall,

[51] See US Census Bureau data for 2000, 2005 and 2025 at http://www.census.gov/cgi-bin/ipc/idbpyrs.pl?cty=AJ&out=s&ymax=200
[52] Survey of the Economic Activity of the Population of Azerbaijan: Methodology and Analysis of the Labour Market Situation. State Statistical Committee. Baku, 2004 p. 48.
[53] SPPRED Progress Report 2005 p. 16.

integrated HRD strategy for Azerbaijan[54]. The following is a recommended approach for ensuring that Azerbaijan education meets and keeps abreast of international standards, and that its workforce has the necessary skills to meet the challenges of its rapid development progress.

5.5 A Human Resources Strategy for Azerbaijan

Interministerial Coordination

As noted above, education is by no means the only sector engaged in modern HRD policy and practice. The BGHG project was administered by the MoED, and the Advisory Board consists of a wide range of government and private sector organizations and agencies. The challenge is to identify incentives as well as mechanisms for effective coordination across the spectrum of common interest among these diverse partners.

Key actors in a concerted HRD strategy must be those with a role in human resources policy. Social agencies (health, education and labour/social protection) are important on the government side, as well as those engaged in technological and industrial development (industry and energy, ICT). Child health, nutrition, and an understanding of the impact of serious epidemics on HRD institutional functioning makes it imperative that health ministries/agencies are engaged in HRD policy-making at the highest levels. There does not seem to be much coordination presently between health and education sectors in the BGHG context despite the importance of good health as a pre-requisite for learning. Above all, the two key ministries (education and labour) are crucial in defining and implementing HR policy around empirical and well-grounded information that is sensitive and responsive to peoples real needs.

A pragmatic new `space' must be defined where these ministries can meet at the highest levels to seek out best methods for meeting common HRD goals. The MoED has provided a useful mediating influence in the SPPRED mechanism. The BGHG Advisory Board is a new inter-ministerial mechanism that emerged through practical necessity rather than formal mandate, and thus serves a special function in carrying forward and helping to guide and `operationalize' the BGHG slogan. The SPPRED working groups have formed an additional spontaneous outgrowth of the anti-poverty initiative which offer further opportunities for intersectoral action.

Successful HRD policy will require more cohesive public sector coordination, not only at national levels, but vertically also with regional and local constituencies. Non-governmental and private sector participation will also be essential, through employers and community organizations, in fostering outreach and engagement with business interests, and with the concerns of average citizens. In practical terms, this necessitates transparent and accessible procedures for listening to local people (surveys, interactive radio, e-discussions) and responding directly to their concerns in regards to education and training.

The Need for an Integrated HRD Strategy for Azerbaijan

Azerbaijan has recognized the need for broad education system reform, and has initiated action in ten priority areas[55]. Missing however is a concerted, rational strategy for linking these reforms at the national policy level within and across major component sectors, secondary, vocational-technical, higher education, labour-market information, employer skills

[54] `There is a growing recognition that education policy and labour markets remain separated worlds...instead of focusing on a wider approach [to[development with a cross-sector perspective where human resources development and education have a clear place, horizontally and vertically' ETF [op. cit.] February 2006 p. 8.
[55] SPPRED 2005 p. 93

needs, ICT, and local livelihood support systems (e-infrastructure, rural transportation/communication options). Fragmentation of educational reforms will hinder national development unless such reforms are well-articulated within a general policy framework for fostering human resourcefulness at all levels.

There are useful precedents for this more integrated approach in many world regions. As a result of the shift towards more integrated HRD in UN resolutions[56] during the 1990s, many countries have started moving in that direction, especially in Asia (e.g. the Philippines, Indonesia) and in the public sector. Some have focused on a single sector (e.g. Brazil)[57]. ILO and the Czech Republic embarked in 2000 on a project, the purpose of which was to "to formulate and present a national strategy, promote and support application of a strategic approach to human resource development". Wide intersectoral interest was solicited, with the view that the project should be "a contribution for all public and private organisations and institutions engaged in human resource development and interested in its support within the Czech Republic"[58] The current working document outlines the approach, which is intended to contribute to `a significant conceptual and systemic change in HRD support'[59] and is oriented toward sustainable development of an information and knowledge-based society. A government resolution formally approved the strategy in March 2003. Primary actors are the National Training Fund and the Ministry of Labour and Social Affairs, but a broader Government Council for HRD is proposed to bring wide public and private sector representation into an advisory and oversight function.

The Korean Ministry of Education and HRD has set out in 2001 a National HRD policy with broad public and private sector support[60]. An extensive web-based information support system supplies updated educational, training and career development options. Oversight and responsibility for setting mid-term and longer term HRD policy is vested formally in a Presidential Commission on Education and Human Resources Policy. The HRD strategy is now to be updated every five years by law. `For each of the policy tasks identified in the strategies, respective implementation plans are.. prepared by the responsible ministry, forming policy networks of relevant ministries, local governments, businesses and civic groups'[61].

None of these models are suitable to `cut & paste' directly into the setting in Azerbaijan, but they offer guidance, and illustrate the advisability of developing a national HRD strategy, and its workability in today's world.

Components of a National HRD Strategy

A national HRD strategy should be structured as flexibly as possible, to maximize efficiency, and accountable for clear actions across a specified timeframe. Key recommendations emerging from the BGHG assessments include new policy and action initiatives to be implemented immediately in line with current movements towards educational reform. Overriding these however is the conclusion that fragmented `quick-fix' projects are unlikely to build and sustain effective solutions over the longer term without institutional mechanisms in place to foster, manage, and monitor progress towards explicitly stated, targeted goals.

[56] United Nations. Human Resources Development ST/SG/AC.6/1995/L.7/Add.17 July 1995
[57] Becherel L. A Framework for Human Resources Development Strategy at the Macro-Level. A Situational Analysis of Tourism Human Resources in Bahia, Brazil. 2001
[58] International Labour Office. Human Resource Development Strategy for the Czech Republic. Prague. December 2000.
[59] National Training Fund. Strategy of Human Resources Development for the Czech Republic. Prague. February 2003.
[60] See http://www.nhrd.net/
[61] Korea Research Institute for Vocational Education & Training. National Human Resource Development. 2005

Azerbaijan needs a cohesive, integrated HRD strategy that is

-integrated and cross-sectoral, maximizing all the advantages of public/private cooperation already begun

-empirically-based, facilitating production of outputs, information and analyses from labour force and employer surveys as well as census data, arranged, classified and formatted in ways that education can planners can respond to, and with corresponding information on educational offerings and attainment that can inform entrepreneurs/investors on the availability of skills

-substantively relevant (information-based, building civic, economic, sociocultural and sustainability literacy)

-enhances lifelong learning by making information publicly available on adult education and training, and by supporting institutional initiatives that open up opportunities for adult `recycling' through appropriate post-secondary institutions, both public and private

-flexible/adaptable to changing national economic conditions

-contextually sensitive to, and well networked with regional and global labour markets and post-secondary educational institutions

-manageable, with strong leadership, and essential but minimal formal and institutionalized legislative, administrative, and fiscal structure to be effective,

-sustainable (cost effective, market orientated and built to provide continuity)

-socially assertive i.e. well supported at regional and local levels and `on the ground' with strong public outreach and accountability mechanisms

- has a well developed accelerated skill development programme along the lines developed in the next chapter

Such a macro-framework is evidently workable, given the cross-sectoral experience of MoED with its SPPRED working groups and BGHG Advisory Board. Greater integration in the area of human resources development has been repeatedly called for, for example in the National Employment Strategy, as well as the ETF 2006 Country Report. The following chapter details selected priority initiatives to be considered in parallel with this strategy development as proposed next steps for consideration by GoA.

Chapter 6: Accelerated Skills Development

6.1 Introduction – the need for an emphasis on skills

A key plank in the Government's plans is the development of skilled labour. The SPPRED ten year plan and the Employment Strategy both emphasise the key need for Azerbaijan to upgrade its skills. In fact, no country has become rich and stayed that way without two key dimensions. First, accountability, property rights and rule of law, which in combination provide low transactions costs so that markets can work effectively and efficiently. When these conditions are absent, a society faces corruption, instability and poor human rights. Investors, including domestic investors, flee such settings. The second part of the answer focuses on investing in the human skills needed to use modern technology. Taiwan and South Korea in the 1950s and 1960s, Indonesia and Thailand in the 1970s, Botswana in the 1980s, and Poland in the 1990s are all examples[62].

In Azerbaijan, as the ETF report documented[63], educational attainment and skills level are only moderately correlated. As noted in Chapter 4, though the population has enviable educational attainment, employers face difficulties with human resources. There is demand for personnel with middle level qualifications for industrial jobs, however such positions remain largely unfilled. In recruitment processes employers tend to ignore education certificates and diplomas, since these are known to give low guarantees of competence. In branches with processes sensible to quality and skilfulness, enterprises organise staff training in various forms, but public VET establishments remain largely out of these new developments, confined to their traditional audiences.

The young labour force has a very low share of people with middle level professional qualifications, against a growing share of people with higher education qualifications. This misbalance of skill mix of the young labour force is counterproductive in face of the features of labour market demand. Indeed, only a minor part of graduates from secondary general education are admitted in higher education (23-25 thousand per year); another minor group is admitted in vocational education (professional lizei and colleges / technikum) for vocational courses of duration between one to less than two years. This problem reflects the inadequate capacity (physical, quality, image) of the VET system to absorb youth for initial training for work, and the absence of policy and programmes to deal with the important and urgent questions of the transition from school to work. In the medium term this situation will affect the aggregate skills mix and the competitiveness of the emerging labour force.

The ratio 'number of graduates per 10,000 population' improved steadily from 1995 for all levels of formal education, except VET. A surprising finding: the ratio of graduates from higher education grew more than that of secondary VET (colleges), and at present the formal education system produces more graduates of higher education than of all VET levels together. Secondary general education demonstrates a steep growth (about 50%).

As a result of these trends, in 2005 in Azerbaijan the young generations of the labour force have basically either secondary general education or higher education. Contrarily, the layer with vocational qualifications fell critically in the first half of the 90s, a trend aggravated by slow recovery of this sector. Moreover, recovery trends in this sub-sector concern only secondary VET (colleges), while primary (preliminary) VET remains in a critically unattractive shape.

If we use the above information as a proxy on the skills mix of the young labour force, than we conclude that Azerbaijan faces growing misbalance, since the young labour force has a very

[62] See Peter Timmer: 'How Countries Get Rich'. Center for Global Development. February 2006.
[63] Labour Market and VET Challenges and perspectives in countries to engage in the European Neighbourhood Policy , Southern Caucasus , Country: Azerbaijan DRAFT 2 EECA February 2006

low share of people with medium level professional qualifications, against a growing share of people with higher education qualifications. This mix is counterproductive in face of the features of labour market demand (job queuing).

As a result, ETF reported that approximately 60-65% of the total cohort of those completing upper secondary general education is left in a precarious situation: either they enter the labour market without skills for an occupation and have therefore low employability perspective and get at best precarious / informal jobs; or a part waits and tries another chance to enter higher education.

The essential causes of the problem, according to the ETF report, can be summarised as follows:

1. *A lack of updated and comprehensive prospective information and analysis (and system) on the trends of the economic sectors, as well as of the labour market* to help build a strategy for HRD in line with the options for economic development of the country. The talk about diversification and focus on non-oil sectors and regional development is not based on well-grounded technical and economic studies of perspectives, constraints and measures to push forward the adopted options. The articulation of education / VET with the sector / cluster economies and with the poverty reduction strategy needs more than declarations and political plans. This formulation of new options and priorities is essential to make the VET system responsive and competitive within the i) new conditions of the market, ii) the rising elements of the knowledge economy and the iii) challenge of poverty associated with skills inequality and skills inadequacy.
2. *Dialogue and partnership with market players is poor and non-systemic:* insufficient co-operation of VET schools / institutions with enterprises / clusters and their associations. Social partnership in VET is practically non-existent. Furthermore, necessary linkages between the key Ministries of Education and Labour are fragmented and insufficient to address the challenges of integrated occupational supply/demand analysis, policy, and action.

   Likewise there is insignificant interaction or exchange of VET schools with State Employment Service offices to help students with job information and employers with data on available graduated per occupational area / qualification level. For example, employers in the booming construction branch are poorly informed on the output of VET schools in relevant study areas and graduates with these qualifications are only marginally employed in the sector.
3. *Financing:* as noted previously, public funding in VET fell in the years of transition, corollary of the general contraction of public resources and of the demand for leaning places in VET schools. The GoA allowed primary VET schools to develop other income generating activities, to improve the return on investment of the VET school system. These additional activities in general, had little relation to learning, didn't produce significant improvements in school learning infrastructures and capacities, and might in fact contribute to distract school management from more strategic focus on learning and training developments.
4. *Curricula, methods and infrastructure* in the VET system didn't receive the innovation / revision needed to accompany the changing demands of the emerging firms / economy.
5. *The development of the non-tertiary VET* system suffers from very low non-public participation in organised and recognised provision and remains rather monolithic in terms of conceptual approaches and rigid in pathways.

6. *There is poor student attendance* which is particularly serious in primary VET schools, where students tend to belong to poorer families, a lack of adequate didactic supports (including textbooks), and theoretical and memory based learning and assessment.
7. *Guidance and information* to help various target users' categories (youngsters, adults and enterprises) of the VET system to consult, identify and make decisions concerning the value of various VET options, are not available in a systematic and readily accessible way.
8. *In recent years impulses and demand for VET reform (institutional, structural, content and methods) originate outside the institutionally leading MoE*; but face difficulties linked with poor co-operation and open dialogue among relevant bodies due to diverging interests. VET reforms started in the mid 90s focused on inputs and survival of schools, rather than on reflection and reformulation of objectives and options; moreover, they remained largely incomplete. In Azerbaijan the VET reform problem is not due to lack of policy, but to its low relevance and poor implementation.
9. *Institutional setting and policy making* in the leading Ministry (MoE) in the areas responding for preliminary and secondary VET are divided, as are the VET schools under their tutelle.
10. *Institutional capacity:* exposure of VET sector decision makers and managers to new models and international practice have been very reduced due to concentration of international technical assistance in the areas of general education and of higher education. A majority of leading staff in the VET system are older generation persons, and not adaptable to a new vision of the system.

One the most visible findings of the LFS 2003 concerns the extremely high unemployment rate of the active Azerbaijanis with secondary general education, across age groups. This gap concerns various levels of competences: production operators, maintenance services, technologists, middle management; restaurant service skills, cooks, hotel service competences. In a word, both lower (operators) and middle qualifications levels are concerned; broadband occupational competences (needed across industries) are important but not developed in the VET offer.

We can further note that, of the $3bn State Budget in 2006, 0.5bn for targeted for education of which $22mn for VET i.e. only 5% of the Government's education budget was allocated for skill training and less than 1% of the Government's overall budget for an area critical for the future of Azerbaijan non-oil and employment.

In the previous chapter we looked at an overall strategy of HRD as well as the public education sector. Reforms of technical education are clearly needed yet these will take a decade or more simply because there is always inertia in a system that worked well before but, today, appears to be difficult to change rapidly. Our suggestions, therefore, are to use oil money not only to reform the public education sector but to use it to help the existing population to gain needed skills as rapidly as possible. The use of the oil money must be made offshore as far as is possible, as we have argued above in chapter 3. We have six main suggestions how this can be done – scholarship fund, private sector skills training, education park, ICT online skills training, community colleges and an educational radar system. These form an integral part of our suggested accelerated skills development progamme (ASD). Each is discussed next.

6.2 Black Gold Into Human Gold Scholarship Fund[64]

[64] This section, even more than other parts of the report, benefits from discussions and the writings of Marco Borsotti, David Eizenberg and Gyulshan Rzayeva of UNDP.

A major impetus to implementing this fund was given on 20 October 2006 when President Aliyev signed a decree on a State program for Azerbaijani youths to get an education abroad. In brief, it stated that the Ministry of Economic Development, Ministry of Education and other appropriate institutions must 'prepare the State program on Azerbaijani youths getting education abroad and present to the President within 3 months, for ensuring Azerbaijani youths education in popular foreign universities, and strengthening them for development of independent Azerbaijan'

Such a Scholarship Fund (SF) will provide Azerbaijanis with the opportunity to study abroad and gain a world-class education. On completion, these scholarship holders return home to fill jobs and also to create jobs for others since they make the country's economy more internationally competitive. A scholarship fund also provides a mechanism for investing the country's rapidly growing oil revenues in education and training without contributing to Dutch Disease since the money will be spent offshore to enable Azerbaijanis to study in accredited foreign Universities, technical training institutions and higher education institutions.

Consequently, a scholarship fund is one of the best ways of converting 'black gold into human gold'. How, though, can Azerbaijan ensure that people who obtain these skills return to Azerbaijan? Whatever scheme is devised will, inevitably, lead to leakages. But these leakages i.e. Azerbaijani's who stay abroad, are not necessarily negative. First, Azerbaijan will benefit by having an increased world Diaspora who, as many other countries have shown, will send remittances back home. Second, Azerbaijan will benefit through having well educated ambassadors located abroad. Third, when these Azerbaijani's eventually return to Azerbaijan, as many eventually will, they will bring the skills that can only be obtained through the type of on-the-job training that many will receive.

How to Ensure Return

The best way is to use a system of incentives – the carrot rather than the stick. Some countries have bonded such students through insisting they work for a minimum of two years in public service once they return home. This is a poor system since it could mean that many of the skills learned abroad would not be available for the non-oil private sector for at least two years and, further, de-skilling could take place as many skills are dissipated in make job type schemes. For instance, a World Health Report[65] noted that:

'The practice of bonding is widespread yet its effectiveness is poorly understood. Experience of bonding is mixed: it does ensure coverage, but it is strongly associated with low performance among workers and high turnover rates.'

A better way would be to ask each student to sign a contract, or bond, with the Government that simply states that they would return to Azerbaijan once their studies are completed for at least two years. On return they could perform whatever activity they wish. The bond would include the clause that should the person not return from their studies within six months of the study having been completed, then they would be responsible for full repayment of the cost of their study. Care must be taken that any sanctions invoked are not overly punitive. This is because the idea is to encourage Azerbaijani's to return and not to create a new criminal class. Thus sanctions should mean that repayment is carefully phased so that the loan can be re-paid over a certain reasonable time and linked to a person's income. Thus, on return within the six month period - a stamp in the passport will suffice – the loan is released unless the person again travels abroad for a period in excess of one month within the two year period.

[65] World Health Report 2006 p 8..*full reference to come*

Who

The scholarship scheme should be open to all Azerbaijani's irrespective of age or sex. Care must be taken that it is not only the elite who benefit since the idea is to improve the skills of Azerbaijani's right across the board. The fund should not prioritise specific skills. Since, if it did, the danger here is that the Government will be seen to be guessing the future needs of the private sector that may, in time, prove to be incorrect. Better to leave the decision to the individual to decide. To enable good decisions, the Government should provide information to potential students of future job prospects - the system used by Canada known as 'Job Futures' is a good model (details below).

However, a totally liberal scheme is likely to swamp the fund with applications. Hence there must be a selection procedure. Again, this should not be too cumbersome nor penalize the less articulate Azerbaijani's whose future skills will be, nevertheless, required. The most efficient way would be to organize a transparent lottery scheme through regular, say quarterly, competitions. Each potential applicant would be asked to write a short application on how they see their new skill being best applied in the future in Azerbaijan. Thus some screening would take place so as to reject the obviously fraudulent or unnecessary. This screening would only be for each scholarship offered – see below the cafeteria system proposed – and applicants would be judged on their merits as for any educational scheme i.e. plumbers would not necessarily receive a grant for going to Yale! The screening would also be transparent and those whose applications had been rejected would be publicly made available along with the reasons why. The lottery would apply after the initial screening had taken place. [Note that Chile's social fund invokes a lottery in a similar way to allocate its funds to worthwhile projects, and lessons could be learned from their approach].

What

The objective of the scholarship fund should be to provide training opportunities abroad in order to give people the education and skills they need to maximize the sustainable development of Azerbaijan.

Scholarships could be provided for one or more of the following categories:

- Undergraduate degree programmes (two to three years)
- Post-graduate degree programmes (one to two years)
- Doctoral programmes (subject to time limits)
- Longer term technical training
- Short-term skill formation courses (less than a year)

A scholarship will be comprised of the following components:

- Tuition fee
- Living expenses (e.g. accommodation, meals, local transport, etc.)
- Textbooks and equipment allowance (e.g. computer)
- Travel expenses (one economy-class return ticket a year)

Living expenses are generally estimated by the university or higher education institution. In case the living expenses are not specified, the UN stipend for fellowship can be considered.

How to Assess Priorities

There are potentially four analytical methods, and a combination thereof, that allows to assess the gap. These are:

1. Survey of enterprise demand for specific occupations
2. Examination of current salaries and unemployment level of specific occupations
3. Examination of future salaries and unemployment level of specific occupations
4. Interviews with employed and unemployed people of the types of training that has been successful for them or what they think could be successful in the future

An examination of each of these methods would provide some insight into the types of occupations and, perhaps, skills required. But each, if implemented, would be difficult to apply.

To begin with, and given the urgency with which the fund should be set up and used, and given that there are other, still small-sale, initiatives – such as the Heydar Aliyev Foundation[66], British Council[67], Khazar University[68], American Council of Teachers of Russian (ACTR)[69], American Council for Collaboration in Education and Language Study (ACCELS)[70]– it would be advisable to start a cafeteria system. This would be rather like a supermarket where all the possibilities for studying are displayed. The main difference would be at checkout when a number of conditions would apply before the items are allocated.

What items should the supermarket stock? Perhaps the best is for the SF to provide information on training and education courses throughout the world in both English and Russian languages and then allow the applicant to make the choice. These would range from relatively expensive, `high-end' options like Columbia University, Oxford University, and others in Europe, Russia and the US, to regional opportunities at collaborating institutions, to much cheaper skill intensive training including distance learning opportunities.

To avoid the possibility that applicants will tend to cluster around current popular subjects – this occurs when fashion or a period of high wages for particular skills occurs – and then find out after one or more years of study that wages have fallen and/or unemployment has risen in that profession information should be supplied to make the choice more efficient. A guide on what and how to produce such labour market information is given on the Canadian website known as *Job Futures*[71]. *Job Futures* profiles current and future labour market conditions in Canada by occupation and field of study. It provides helpful information on topics such as global labour market trends, the cost/benefits to education, and emerging labour and skill shortages that can lead to new employment opportunities. Azerbaijan does not have such a system and it would be very useful to establish one (see also Section 6.7 below).

How Many and How Much

There is no easy answer to this question. However, numbers should be significant in order to ensure a critical mass of new skills in the country that will encourage future growth. So we are talking about thousands rather than hundreds. The main economic rationale, of course, is how much the country thinks it can afford and how this money will be allocated among different types of courses – a US University would cost something like $30-50,000 a year in fees[72], travel and living costs, while a shorter two week course at, say, ILO's Turin training

[66] http://www.heydar-aliyev-foundation.org/s01_history/_history_e.html, accessed April 28 2006
[67] http://www.britishcouncil.org/azerbaijan.htm, accessed April 28 2006
[68] http://www.khazar.org/career/fpt/aboutus.html, accessed April 28 2006
[69] http://www.councilnet.org/pages/FrameACTRtext.html#Mission, accessed April 28 2006
[70] http://www.councilnet.org/pages/FrameACTRtext.html#Mission, accessed April 28 2006
[71] http://www.jobfutures.ca/en/home.shtml, accessed April 28 2006
[72] http://www.graduateshotline.com/usau.html, accessed April 28 2006

Centre in Italy would cost around $3-5000 per week[73]. The table below gives a rough idea of annual investment costs plus 13% overhead for administration.

Table 6.1
Scholarship Fund Estimates
(US$ '000)

Course Length (weeks)	Investment	Numbers of students				Annual Investment			
		A	B	C	D	A	B	C	D
52	50,000	500	1,500	5,000	10,000	25,000,000	75,000,000	250,000,000	500,000,000
26	35,000	500	1,500	5,000	8,000	17,500,000	525,00,000	175,000,000	280,000,000
13	20,000	500	1,500	5,000	3,000	10,000,000	30,000,000	100,000,000	60,000,000
6	15,000	500	2,000	4,000	2,000	7,500,000	30,000,000	60,000,000	30,000,000
3	9,000	1,000	3,000	6,000	2,000	9,00,000	27,000,000	54,000,000	18,000,000
	Total	3,000	9,500	25,000	25,000	69,000,000	214,500000	639,000,000	888,000,000
	Overhead (13%)					8,970,000	27885,000	83,070,000	115,440,000
	Grand Total					77,970,000	24,238,5000	722,070,000	1,003,440,000

The total investment, as the table illustrates, depends on the total number of students and the composition of the course selected in numbers of weeks. The unit costs in the table are based upon published figures from US Universities and the ILO training costs noted above. Both these latter costs could be smaller through choosing cheaper educational establishments in cheaper countries, but it is likely that cost reflects quality.

With the pattern of student demand shown, then 3000 students would need an investment of $US78.0mn, 9500 students $US242.4mn, and 25000 students $US722.1mn. Should the pattern of student demand change to a preponderance of University and/or longer courses then 25000 students studying abroad would cost $US1003.4mn (all figures include 13% management overhead).

Status

The scholarship fund could be managed similarly to the oil fund, with its own independent advisory board. The Director should be one of complete integrity, and well-known. He/she could even be a foreign national or assisted by one. Another location could be as part of the UN system in Baku because of its international reach and well-known probity. It is essential that the scholarship fund has high probity coupled with independent and publicly provided audits on a regular basis.

[73] http://www.itcilo.it/english/bureau/turin/training_calendar/, accessed April 28, 2006

Other Experiences

Kazakhstan has been operating a scholarship fund known as 'Bolashak' since 1993. As oil revenues have grown the programme has been greatly expanded and as of 2005, 6698 students applied for the scholarship of which 1756 were accepted - an increase of 45 times in comparison with the previous years' applicants. A State Commission known as the "Centre for International Programs" administers the selection process and since 2005, the scholarship is granted not only to Masters and Doctoral students, but also Bachelors students. In addition, the list of countries has been expanded and applicants may select such countries to study abroad as: the USA, Great Britain, Germany, Russia, Australia, Austria, Hungary, Denmark, Spain, Italy, Canada, China, Malaysia, the Netherlands, New Zealand, Norway, Poland, Singapore, Finland, France, Czech Republic, Switzerland, Sweden, South Korea and Japan.

As the number of scholars has risen, the main principles of the "Bolashak" program have not changed:

- excellent academic progress of the candidates;
- maintaining a positive image of the program within and outside the country
- transparent and fair selection process
- study in the leading world universities

The Bolashak programme appears to be working well, indeed a meeting of the Black Gold Into Human Gold project team with Dr. Andar Shukputov, the ambassador of Kazakhstan in Baku, showed enthusiastic support. However the programme is not without its critics – returning Bolashak students must, it appears, work with a public agency on return for five years thereby risking losing entrepreneurial skills gained. One reviewer[74], noted that the scheme was 'criticized in its early years of operation for abuses and lack of transparency in selecting participants although more recently the Education Ministry has taken some steps to improve procedures and criteria in selection of Bolashak candidates.' The same reviewer also pointed out a major weakness in that the programme had not been independently reviewed when he remarked '.. this program still lacks its performance evaluation tools, which should allow for assessing its effectiveness and impact including that on academic standards of local Higher Education (HE) institutions.'

The main difference between Bolashak and the proposal here is that we would also allow skill training to be included at any age, for people who could contribute even more productively to the Azerbaijan economy with from one to six months of skill training overseas[75].

[74] 'Public Policies in Higher Education of Today in Kazakhstan' Almaz Tolymbek, Kent State University, USA, http://www.personal.kent.edu/~atolymbe/public_html/Almaz%20Tolymbek%20Home%20Page_files/HE_Paper.htm accessed 18 July 2006

[75] Skill training can also be done onshore in Azerbaijan, by bringing trainers from abroad and/or creating new trainers in Azerbaijan and upgrading the skills of existing ones perhaps as part of the 'Education Park' suggested next. Equipment also needs to be upgraded, which is often expensive, and therefore may even be cheaper to send people abroad and/or to use distance learning and /or technical CD ROMs.

6.3 Private Skill Training

Private skill training is, of course, underway throughout Azerbaijan both informally and more formally through the large private companies such as BP. The fact that these training systems have been so well developed, in-country and on-site, by the private sector, illustrates that targeted skills development is possible, practical, and implementable. What is needed is public/private cooperation to bring these techniques into broader public institutions.

In a workshop organized by AzPromo and the Black Gold Into Human Gold project with around 20 members of the private sector is Azerbaijan, the following conclusions resulted:

1. Participants agreed that there exists a mismatch between the skills that the private sector required and what was available on the Azerbaijan labour market. This was due, in large part, to problems in the education system of Azerbaijan. It had not sufficiently adapted to the market requirements of the new Azerbaijan and was still steeped in Soviet era educational patterns.

2. Not all was bad with the education system but it was felt that the three bodies responsible for skill training – the Ministries of Education, Labour and Economic Development respectively, were not working together to resolve the problem of mismatch. Nor did they involve the private sector sufficiently in determining needs.

3. Many skills were lacking but the main ones were a general lack of business skills to cope with entrepreneurship as well as management skills necessary to run small and medium sized enterprises.

4. Many participants discussed the issue of sending people abroad to gain skills. One participant, a successful businessman, mentioned that he had gone to Germany in the mid 1990s for management training for 6 weeks and he had felt the benefit even up to today. Others felt that sending people abroad was costly, only a small number benefit and then they would not come back to Azerbaijan once training was complete. On the other hand others felt that there were not sufficient possibilities in Azerbaijan to create necessary skills.

5. The private sector was willing to fund skill training and was something they already did to a certain extent bodies – AmCham, Turkish-Azerbaijani Business group, ATA, a number of NGOs, etc. – had already started programmes and would be happy to work with Azpromo to develop wider spread programmes for business.

6. There was a need to create a systematic method to assess skills in Azerbaijan, both common skills as well as unique skills. A system was required to scan the market on a regular basis. One participant thought that such information, even that brought to the table by the workshop, should be made readily available to job seekers in schools and Universities. The Canadian Job Futures system was mentioned and Azerbaijan needed to take a serious look at implementing a similar system even though adequate data were still lacking. These data could be improved over time.

7. It was noted that the problem of mismatch existed in many countries – the Czech Republic for instance had struggled with this problem. One country that had used European funds wisely to invest in skills, when the EU expanded, was Ireland and its experience was often compared to that of Portugal where European investment had focused upon infrastructure construction. The experience of South Korea was also mentioned as a success although it had had teething problems in sending people overseas to be trained,

8. Finally the meeting agreed that it was not clear who in Azerbaijan was really concerned with the problem of mismatch.

Next Steps

Participants agreed that the workshop was useful and should be repeated from time to time with the same, as well as new, private sector companies. In a later discussion, Azpromo would explore whether it could, itself, organize a number of training and skill development courses for the private sector. These would focus upon presentation, management, communication and business skills that participants felt were severely lacking in Azerbaijan.

6.4 Education Park in Azerbaijan

The SF will provide attractive to many Azerbaijanis. There will, however, be many who do not wish to travel abroad for family and/or cultural reasons. Therefore, another system to accelerate education and skill learning would be to attract overseas institutions to locate in Azerbaijan in, say, an educational park and award qualifications that are at the same level as in the host country. Some expenditure would be overseas while some would be onshore – mainly construction should the overseas institutions and instructors be paid offshore.

Such a scheme has been created in Qatar, and is know as Education City, and could be a useful model for Azerbaijan.

Education City, inaugaurated in 2003, is a 2,500-acre campus which hosts branch campuses of some of the world's leading universities, as well as numerous other educational and research institutions. Supported by abundant residential and recreational facilities, Education City is a community of institutions that serve the whole citizen, from early childhood education to post-graduate study. Moreover, Education City is envisioned as a hub for the generation of new knowledge -- a place that provides researchers with world-class facilities, a pool of well-trained graduates, the chance to collaborate with likeminded people and the opportunity to transfer ideas into real-world applications.

Most of its students are citizens or residents of Qatar, but many come from other countries in the Gulf and throughout the Middle East. Some also come from the United States, New Zealand, South Africa and Bosnia. Faculty and staff are equally diverse.

Its first students will graduate this year but the facility is still expanding. By 2007, there will be a central library, a student center, a club for staff and faculty and a ceremonial entrance. Carnegie Mellon University in Qatar will be teaching classes and conducting research in its new building. Georgetown University's School of Foreign Service will have its own building, too.

It will also have a 350-bed, all-digital Specialty Teaching Hospital -- a world-class facility offering general care and specializing in women's and children's health.

Texas A&M University At Qatar offers undergraduate degrees in chemical, electrical, mechanical and petroleum engineering. With plans to offer graduate programs in 2006, Texas A&M University at Qatar has established itself as a regional leader in engineering education, with a mission to educate world-class engineers (see www.qatar.tamu.edu.)

Weill Cornell Medical College In Qatar offers a six-year, integrated program divided into a two-year, non-degree Pre-medical Program, and a four-year Medical Program leading to a Cornell University medical degree (M.D.). Each program has a separate admissions process (see www.qatar-med.cornell.edu).

Carnegie-Mellon University offers undergraduate programs in computer science and business. Its new campus will offer programs leading to Carnegie Mellon degrees based on the same admission standards and curricula's as its main campus in Pittsburgh, USA.

Georgetown University, of Washington DC will offer advanced educational opportunities to Arab and American students in the Middle East as well as students from the Far East.

Another advantage to Azerbaijan is that a high quality park will create competition in higher education that would, eventually, lead to increased skills in its own public education system

6.5 ICT Online Skills Training

Corporate HRD has now evolved to the point that increasingly, technical training programmes are conducted online. CISCO Systems for example has extensive Networking Academy Programs whereby global e-learning opportunities are available for students worldwide to pursue IT curricula through online instructor-led training and hands-on lab exercises[76]. Professional certification and re-certification is offered online for three levels of expert and technical specialties and associates. New and emerging occupational titles include internet work expert, security professional, and network associate among many others. Different tracks across these levels align with varying career needs. The variety of Specialist certifications reflects the need for recognized skills and knowledge in specific technologies, solutions or job roles, and new certifications are added to the list regularly.

This kind of flexibility and innovation in both access (geographical i.e. it matters less where the student/applicant is located) and substantive subject matter are hallmarks of e-learning technologies. The major private sector problem is assurance of quality across certifying institutions.

For public institutions in Azerbaijan, the difficulties arise not only in access (Internet penetration among the general population is still around 5%) but also in convincing teachers and administrators of the value of online learning. Asia and Latin America have provided several examples of new progress in bringing learning systems online in traditional societies.

Azerbaijan is a regional leader in ICT having inaugurated a national ICT strategy in February 2003[77]. The new Ministry of Communication and Information Technology replaced the former Ministry of Communication one year later[78]. The ICT strategy is directed towards building an advanced information society in Azerbaijan on the basis of national capacity and experience. Conditions are favorable for developing greater access to ICTs in all parts of the country, and the association with HRD is explicit [79]. The Strategy document cites the use of ICTs, for example, in the postsecondary education admission process, and the setting up of regional information-education centers. Limitations however include brain drain to more developed countries following transition, little awareness in the population at large about advantages/opportunities of ICTs[80], a rural/urban digital divide, low levels of computerization, and not enough well-trained professionals in the ICT sector.

[76] See CISCO Training site at http://www.cisco.com/web/learning/index.html
[77] Presidential Decree on the Adoption of National ICT Strategy (2003-2012) Feb 17th 2003
[78] Presidential Decree on Establishment of Ministry of Communication & Information Technologies, Feb 20th, 2004.
[79] National Information and Communication Technologies Strategy for the Development of the Republic of Azerbaijan 2003-2912. p. 5.
[80] Internet `penetration' rate is determined to be growing fast, but still low, at about 6% of the population in early 2006 (Hajiyev 2006)

Thus the strategy looks to enhancing human capacity in several ways[81]. A strong information sector will support a more enabling environment for disseminating educational and health care services, and through networking, connect Azerbaijan into the global `knowledge society'. Elimination of the digital divide will help to sustain more balanced economic growth, and permit all sectors to maintain information currency with all its advantages for personal livelihood choices. Modernization of education and training modalities are a high priority, requiring not only installation of the necessary equipment, but maintenance of infrastructural support, and training of national ICT staff, teachers and instructors.

The pace of growth of the ICT sector in Azerbaijan is now reported as having equaled the petroleum industry in terms of annual growth (approximately 32%)[82]. Its centrality in building human capacity implies a major role in strategic HRD for the nation, and further illustrates the need for a more coordinated inter-ministerial and holistic approach to HRD across both public and private sectors.

6.6 Community Colleges[83]

Facing a rapidly expanding economy following World War II, global competition from Europe, and the need for increased skills in the workforce, US educational planners recognized the need for more accessible post-secondary education for large numbers of people. More than 70% of high school graduates were not going on to college, partly out of reluctance to travel away from home to then widely-spaced universities. Some high schools had developed their own small post-secondary institutes (e.g. Joliet Central High School, Illinois) to provide post-high school training to some students, and a few small colleges had sprung up in response to these pressures, but there was clearly room for a major national initiative to fill the gap, for a large majority of high school students, between secondary and higher education.

During the 1960s, more than 450 community colleges[84] were created as part academic, part vocational/technical post-secondary institutions. Although their titles, scope and purposes varied, the principles behind this overall movement were committed to:

- local accessibility; sites were based geographically on this criterion
- strong local community support and private sector and business links
- maintaining currency with technological change
- small student populations and high faculty/student ratios
- faculty devoted exclusively to teaching, without research obligations
- opportunities for `second-chance' learning to high-school equivalency for adults, and
- transfer programs to four year academic institutions.

The two year college provides many options for `catch-up' general education development for adults, technical and vocational training, or a potential university track. The vision behind the open enrollment community college initiative has focused on a target group of the largely (educationally) neglected majority of young people emerging from secondary schools, but

[81] Lawrence, J E S and Alakbarov U. Rapid Progress of ICT in Azerbaijan: Information Technologies in the Public Service. In "Community Informatics and Community Networking in the CIS: Practical and Policy Implications" Gurstein M., Tischenko V. (Ed.) Editorial URSS. Moscow. 2004 see http://www.rranet.net/book_eng.htm

[82] Hajiyev 2006

[83] Sources for this summary are Parnell. D. The Neglected Majority. Community College Press. Washington D.C. 1985 , and American Association of Community Colleges. America's Community Colleges: A century of Innovation. Washington D.C. 2001

[84] Community College was defined in Sec 101 of the US 1965 Higher Education Act, in part, as `an institution of higher education that provides not less than a two-year program that is acceptable for full credit towards a bachelors degree'

without opportunities to take time or commit resources to go on to a four year academic degree. The college transfer programmes (through formal articulation with `twinned' four year degree programs at nearby universities) offer the chance for those wanting more than just a semi-professional or associate degree. Financial support for these institutions came from supplementary federal and state funding (particularly for construction), and local property tax revenues.

The continuing value-added of post-secondary education in the US, is cogently expressed in the following excerpt[85]:

> "In a twenty-first century economy that values critical thinking, problem-solving and communications skills, a college diploma represents an increasingly vital passport to individual economic self-sufficiency. Compared to high school graduates, the average college-educated worker earns about 73 percent more over a working lifetime and faces a 40 percent lower risk of unemployment. In addition, higher education is associated with better health and higher levels of civic engagement. In short, a college education opens up windows of opportunity, while leaving school before earning a postsecondary credential closes doors."

Arguments for the interstitial educational options offered by sub-baccalaureate colleges are therefore strongly supported in view of the flexible learning arrangements they provide. This model has been recently adopted in several developing economies. Modalities include extensions of US colleges overseas, or independent institutes functioning as national or local entities (e.g. Russia, Indonesia, Korea, South Africa, Korea, Yemen and Jordan). In addition, collaborative virtual programming is now widespread between post-secondary institutions[86]. Azerbaijan could initiate a `community college pilot' experiment in either a newly constructed facility, or in an adapted, existing one. It could be standalone, or part of the education park. It should be located outside Baku in one of the regions, with close ties to the private sector in that region.

[85] Sharkey A. Paying for Postsecondary Education: An Issue Brief on College Costs and Financial Aid. Center for American Progress. March 2005.

[86] Keates D.W., Beebe M., and Kullenberg G. Using the Internet to Enable Developing Country Universities to Meet the Challenges of Globalization Through Collaborative Virtual Programmes. First Monday. Volume 8. Number 10. October 2003.

6.7 An Educational Radar System

In 1976, Section 118 of the 1968 Amendments to the US Higher Education Act established (and forward-funded, and refunded eventually for thirty years until July 2006) an educational and employment data network consisting of
of

- at national level a National Occupational Information Coordination Committee (NOICC) , and
- at state level in all of the fifty states, a state counterpart (SOICC).

These initiatives constituted a form of HRD `radar scanning' which brought together key constituencies around a central electronic `oracle' that coordinated HRD information. The NOICC mission was to coordinate a nation-wide system of knowledge-based decision data on educational output and job openings and requirements. Such data were prepared in a variety of formats,

- for employers seeking either specific skills (outputs) or information inputs (on new skills needs) into education and training programmes,
- as career information for individuals making livelihood decisions regarding education or job choices
- for education and training planners and policymakers
- for teachers, instructors and administrators, and counselors, and as support for comprehensive career development programmes through services, products and training, and
- for legislators as evaluative evidence of public expenditures on education and training at all levels.

The structure of these systems was explicitly designed around 50 state committees formed of key human resources development stakeholders in both public and private sectors. Such committees were formed by states themselves to conform with local stakeholder priorities and business patterns. The strength of these committees lay in their responsiveness to specific local conditions, based on a vibrant combination of private interest and public policy. The NOICC served as a national clearinghouse of useful good practice and information sharing across the various experiences of states.

Adaptation has been the survival strategy of this approach, and there are strong efforts ongoing at present in the 2006 US Congress to continue support these state committees. Many are seeking additional revenues from private sector initiatives, including computer games as a means to attract young people to these services[87].

The value-added of this kind of systematic approach to HRD is analogous to a radar facility at a major airport. Routine periodic `scans' of the labour market (demand) and educational output (supply) are detected, and interpreted by trained analysts, and disseminated in different formats for each constituency. Changes in occupational movement, characteristics, and mass can be traced, and as with individual aircraft which make up the `pattern', specific sectors are identified and the system can track their trajectories. Employment data from several sources provide a rich variety of occupational information, such as average wages, job requirements, and regional disparities in work opportunities by economic sector. Educational program offerings (academic and vocational) are also made available, by institution and programme type, and where appropriate (e.g. professional certification, or TVET) can be linked to occupational requirements. Career guidance in high schools and universities can benefit also

[87] See SmartGame, RealGame as career development tools based on individual diagnosis of multiple learning styles

from these kinds of data. The US/BLS Occupational Outlook Handbook is a practical example of such information annually updated and accessible online[88].

A useful radar scanning model is the one used by Canada and known as Job Futures (JF)[89]. JF aims to improve Government policy, provide students, training institutes, career guidance specialists with information on available, and future, educational and occupational choices. Such information, also known as labour market signals, contains for each main occupation and field of study: earnings by age group (highest, average, lowest); work prospects currently and in five years time (good, fair, or limited); past unemployment rates with comparison to the overall level. The aim of this information is to increase labour market efficiency. An unusual aspect of JF is that it brings labour market information directly to the grassroots level thereby enabling individuals to increase their own choices in the labour market. The information is widely available though publications and on user friendly web sites.

JF could provide Azerbaijanis with information on current and future market conditions in order to make, or advise others in making, effective and informed career and education choices. Being aware of current or future labour market conditions is a crucial exercise required at various intervals throughout a person's life. The use of timely and reliable labour market information (LMI) is a key step to improving the efficiency of the decision-making process for the Government, educational institutions, vocational training establishments, employment services, students, new entrants into the job market, existing workers, and private and public businesses and corporations.

But any programme is only as good as the information on which it is based. The labour market in Azerbaijan is likely to change considerably in the future and keeping abreast of these changes from a wide array of sources is critical to ensure that Azerbaijanis have the right set of skills and knowledge required to compete effectively in the labour market.

JF could build this knowledge society through increasing the efficiency of the labour market, i.e. reduce the gap between skills required by industry, commerce and the public sector and those skills that are being produced by the various educational establishments, informal learning and on-the-job training. This gap, as we have already noted, is also known as the *mismatch* between skills on the labour market. Efficiency of the labour market could be enhanced by JF and unemployment reduced because:

- Government policy makers would be able to better attune educational establishments to the needs of the labour market
- People would have information on their job prospects and likely earnings for their current educational level and occupation they are preparing for and thus would be able to change their career trajectory when they see that their job and/or earnings prospects are poor or that other prospects are good
- Educational and vocational establishments would be able to offer alternative curriculums to suit better future labour market needs
- The enormous waste whereby job seekers do not have the necessary skills and capacities sought by job providers would be substantially reduced
- Unemployment, a key measure of labour market inefficiency, would be reduced as labour supply becomes more closely attuned to labour demands.

[88] US Bureau of Labor Statistics Handbook 2006-7 at http://www.bls.gov/oco/
[89] See Job Futures/Emploi-Avenir at http://jobfutures.ca/

Chapter 7: Conclusions and Recommendations

The preceding chapters have sought to explore some of the issues associated with the Government of Azerbaijan using its new oil revenues to successfully achieve long-term sustainable economic growth in ways which benefit all segments of Azerbaijani society. The chapters have explored the broad strategic landscape in which policy and investments decisions must be understood and implemented to ensure that Azerbaijan can achieve sustainable and equitable growth.

We have argued that Azerbaijan cannot simply spend its way into sustained economic growth. There are inherent dangers in too rapid a rate of investment without the supporting institutional capacity to use resources effectively and efficiently, as well as significant policy and regulatory reforms. It can be noted that the impressive levels of FDI in Azerbaijan in recent years have largely been in the oil sector. The overriding concern, especially for the non-oil sector, must be one of investment prudence and understanding the expected benefits, potential risks, and long-term implications of different kinds of investment decisions and spending alternatives.

We have further argued that being a major petroleum exporter does not mean that the Azerbaijan is fully integrated into the global economy. At best, having oil revenues only gets Azerbaijan "one foot in the door" of globalization. An underlying theme of this report is that government policy must strive to facilitate the non-oil sector's entry into the global economy by making it competitive internationally. For it is in the non-oil sector where the vast majority of the Azerbaijan population lives and works, and those who must have the skills and opportunities to compete in the international economy. Paradoxically, Azerbaijan could technically succeed in avoiding the adverse effects of Dutch disease, but fail in the longer term goal of full integration in the global economy for its non-oil sector.

In this context, the report places considerable emphasis on using oil revenues to significantly expand human capital development and skills formation as a means to dampen the effects of Dutch disease, promote growth in the non-oil sectors, and reduce poverty and income inequality. Taken together, this component of Azerbaijan's oil revenue strategy can have major dividends in achieving the country's future vision and promoting Azerbaijan's fuller integration in the global economy over the medium and long term.

In addition to these broad conclusions, we would highlight six other observations drawn from our analysis.

1. For the immediate future, as much of the new oil revenue monies as possible should be allocated to the State Oil Fund until the Government is clear on how it wants to use these revenues and can ensure that deployed revenues will be used in a cost-effective manner.

2. The public education system is creating a large number of secondary educated young people who find it very difficult to obtain jobs. They lack the necessary skills, but at the same they cannot easily find jobs even with the skills they do have. More coordination, information and analysis are required to better understand and address the supply of educated labour and its current and anticipated demand.

3. There is a need for more strategic, inter-ministerial cooperation and coordination, particularly between Ministries involved in skills formation, and

between public and private sectors, parents and students in charting a new course for human resources development for Azerbaijan.

4. There is general consensus that skills development has been subsumed into a discredited public vocational education system. The Government has realized that much more must be done to achieve a more integrated response requiring public/private cooperation, supply and demand analyses, in addition to more flexible technical-vocational-educational training (TVET) to rapidly raise skills so as to make the non-oil sector competitive internationally.

5. The Government, through its acceptance of the scholarship fund idea, has seen the need to use oil revenues offshore so as to raise domestic human capital. They have also seen that skills development, i.e. the supply side of the labour market, is a necessary but not a sufficient condition to develop the non-oil sector. Prudent economic management is also required on the demand side. We would also recommend that a much wider use of the Scholarship Fund should be considered to reach a considerably larger target population and a wider set of skills.

6. Human resource development can play a leading role in creating self-sustaining economic development (a virtuous circle). The experience of countries that have successfully employed such a strategy, such as the Republic of Ireland, strongly suggests that creating a skilled work force is a necessary pre-condition. However, human resource development alone is *not* sufficient for success. It is necessary to ensure that competitive export industries are to able to spring up and ensure the employment of the skilled workers that have been created. This requires creating economic conditions where potential investors are not deterred by, for example, lack of access to export markets, entrenched monopolies or governance problems. Of course, failure to ensure a suitable environment for such employment to be generated could result in the creation of a skilled work force with only poor prospects of employment.

In exploring potential next steps, we have sought to limit our recommendations to four inter-related component areas that touch the central question of converting "black gold into human gold." These areas represent what we call the "BGHG Principles" which serve as the framework for defining next steps. To date, the BGHG work has been coordinated by an inter-ministerial and inter-sectoral Advisory Board. We recommend that this Advisory Board be continued into the future to oversee some, or possibly all, of the recommendations made in this report.

The components of BGHG Principles embody two longer term macro goals associated with economic policy management and the formulation of a human resource development strategy. The other two areas entail more tactical goals to address current needs and lacunae.

The four component areas are listed in the *'BGHG Strategic Principles: pProgramme of Action'* matrix below as:

- Human Resource Development Strategy
- Macro-economic Issues
- BGHG Tools
- Cross Country Learning and Cooperation

The second column in the matrix, 'Diagnosis,' pinpoints some key issues in each of the four Key Components. The third column, 'Actions,' suggest a number of conclusions which imply actions that the Government could take to give momentum to the BGHG Principles. The fourth column then suggests a number of immediate next steps that would start the process of implementing concrete actions to address each component. We have put these next steps into a 12-month timeframe.

The fifth and last column notes the longer-term outcomes that we believe will occur if the identified next steps are carried out.

BGHG Strategic Principles
Programme of Action

COMPONENT	DIAGNOSIS	ACTIONS	NEXT STEPS (1/1/07 - 31/12/07)	OUTCOMES
Human Resource Development Strategy (HRD))	Black gold multiplies opportunities for enhancing human gold Using as much oil revenue offshore as possible for HRD will have very important macro-economic benefits Skills gap must be closed quickly Managing effective HRD will require unprecedented public/private sector cooperation	Prepare National HRD Strategy Undertake Accelerated Skill Development (ASD) programme as part of overall HRD Strategy to meet urgent labour market requirements	Identify agency responsibilities and management structure for design and implementation of HRD strategy Create task force on ASD. Task force to examine options related to: <u>In the Public Sector</u>: • Upgrading technical education and link it more to empirical indicators of demand <u>In the Public-Private Sector</u> • Extending Scholarship Fund to widen target population • Creating Education Park • Twining Azerbaijani Institutions with Reputable Foreign Institutions • Using ICT for training • Exploring feasibility of community college model	• Improved Skills Match • More responsive HRD system • Much improved labour market (eg high productivity, high efficiency, flexible, highly motivated, highly skilled)
Macro-economic Issues	Government mechanisms to efficiently allocate oil revenues need considerable strengthening Need to move government institutions to advanced country governance performance levels	Increase disbursement to State Oil Fund until improved revenue allocation mechanisms are in place Establish independent M&E unit within Office of the President to monitor effectiveness of oil revenue investments similar to UK OFT	• Establish task force within Office of President to examine options for improving oil revenue allocation processes • Prepare TOR for M&E Unit	• Balanced and equitable growth • Improved oil revenue allocations

	Danger of creating non-competitive non-oil sector	Invest in ASD urgently	• Link to HRD above	• Competitive non-oil sector
BGHG Tools	Need improved social data sets	Perform regular Labour Force Surveys	• Create statute/decree to enable SSC to carry out bi-annual labour force surveys and associated analysis (immediate decisions required)	• Much improved understanding of labour market and its trends
	Socio-economic modeling tools need to be harmonized and simplified	Link data and analysis to users (students, HRD planners, job seekers etc.) based upon Canadian Job Futures Model	• Perform feasibility study of applying Canadian Job Futures model, or similar, to Azerbaijan	• Improved technical training based upon identified market needs • More efficient allocation of resources as users better informed of opportunities
		Harmonise existing economic modeling work Use modeling frameworks to identify data gaps Use modeling for policy analysis	• Create inter-agency technical task force on modeling (immediately then to meet every six months)	• Improved understanding of socio-economic policies and their impact on future living conditions of all the Azerbaijani population
Cross-Country Learning and Cooperation	Azerbaijan could benefit from experiences of other oil-exporting countries that have previously addressed similar policy challenges	Identification of component elements or topics where cross-country experiences would be beneficial	• Inter-Ministerial team to assess target countries for comparison with Azerbaijan and deduce lessons learned	• Improved oil sector management and human resources development garnered from other countries' experiences
	Azerbaijan could share its 'lessons learned' with newer, less experienced oil-producing states	Explore options for sharing Azerbaijani experiences with newer oil-producing states	• Prepare and host international conference for oil countries to share experiences	• Azerbaijan achieves high visibility with newer oil-producing states based on its willingness to share its own experiences and lessons learned.

Annexes

Annex A: Single-Resource Economy Country Comparisons

Table 1:
Economic Comparisons

Country	Resource	GDP Per Capita 2005 (UNDP)	GDP Per Capita 1999 (UNDP)	% Change in GDP Per Capita 1999/2005	Average Annual Growth Rate GDP (PPP) 1995-2006 (IMF)	Average Annual Inflation Rate 1995-2006 (base 2000) (IMF)	Ratio Export of fuels or minerals / GDP US$ 2004 current prices (WTO)	Ratio Exports of Fuels or Minerals / Total Exports 2004 (WTO)
Algeria	hydrocarbons	$ 6,107	$ 4,460	37%	2.20	4.12	37.2	99.9
Angola	hydrocarbons	$ 2,344	$ 1,430	64%	5.62	158.00	29.6	43.1
Azerbaijan	hydrocarbons	$ 3,617	$ 1,550	133%	8.93	3.76	35.4	85.0
Bahrain	hydrocarbons	$ 17,479	$ 16,527	6%	1.80	0.48	60.7	88.8
Boliva	hydrocarbons	$ 2,587	$ 2,880	-10%	0.51	4.17	14.4	59.0
Botswana	diamonds	$ 8,714	$ 7,690	13%	4.32	7.48	35.0	80.0
Brunei	hydrocarbons	$ 19,210	$ 29,773	-35%	-0.02	0.49	63.9	78.9
Cameroon	hydrocarbons	$ 2,118	$ 1,890	12%	1.17	2.47	8.1	51.8
Chad	hydrocarbons	$ 1,210	$ 970	25%	3.53	2.99	42.0	81.0
Chile	copper	$ 10,274	$ 12,730	-19%	2.75	3.53	18.3	53.9
Congo	hydrocarbons	$ 965	$ 1,620	-40%	-2.06	107.02	--	--
Congo, Dem. Republic	copper, cobalt	$ 697	$ 880	-21%	0.83	3.22	--	--
Ecuador	hydrocarbons	$ 3,641	$ 4,940	-26%	1.09	23.02	14.0	54.9
Equatorial Guinea	hydrocarbons	$ 19,780	$ 1,817	989%	24.07	5.04	91.8	91.7
Gabon	hydrocarbons	$ 6,397	$ 7,550	-15%	-1.20	1.37	30.2	63.2
Guinea	bauxite	$ 2,097	$ 1,880	12%	0.84	9.24	7.2	39.1
Indonesia	hydrocarbons	$ 3,361	$ 3,490	-4%	1.60	12.26	6.3	22.2
Iran	hydrocarbons	$ 6,995	$ 5,817	20%	3.52	14.81	23.4	85.2
Kazakhstan	hydrocarbons	$ 6,671	$ 3,560	87%	6.21	10.32	37.5	80.6
Kuwait	hydrocarbons	$ 18,047	$ 24,314	-26%	-1.27	1.74	47.6	92.7
Libya	hydrocarbons	--	$ 6,697	--	1.34	-0.65	36.1	52.2
Mauritania	iron ore	$ 1,766	$ 1,730	2%	3.16	6.32	13.8	59.8
Mexico	hydrocarbons	$ 9,168	$ 8,370	10%	1.96	10.06	3.7	13.6
Niger	uranium	$ 835	$ 850	-2%	0.38	2.19	3.8	30.7
Nigeria	hydrocarbons	$ 1,050	$ 920	14%	1.68	12.23	33.1	75.7
Norway	hydrocarbons	$ 37,670	$ 24,450	54%	2.02	1.86	22.2	69.0
Oman	hydrocarbons	$ 13,584	$ 9,960	36%	2.13	0.23	44.7	83.2
Papua New Guinea	copper	$ 2,619	$ 2,654	-1%	-2.02	9.34	39.3	58.8
Peru	hydrocarbons	$ 5,260	$ 4,680	12%	1.66	3.86	7.9	42.9
Qatar	hydrocarbons	$ 19,844	$ 20,987	-5%	3.97	2.80	56.9	86.7
Russian Federation	hydrocarbons	$ 9,230	$ 4,370	111%	4.07	21.84	18.6	60.0
Saudia Arabia	hydrocarbons	$ 13,266	$ 10,120	31%	0.97	0.00	42.1	84.0
Sierra Leone	diamonds	$ 548	$ 410	34%	-0.32	11.98	7.8	91.5
Suriname	bauxite	$ 6,123	$ 5,161	19%	1.69	22.04	20.8	28.7
Trinidad & Tobago	hydrocarbons	$ 10,766	$ 6,840	57%	7.31	4.27	20.7	42.9
Turkmenistan	hydrocarbons	$ 5,938	$ 2,109	182%	6.74	38.71	14.6	52.7
United Arab Emirates	hydrocarbons	$ 22,420	$ 19,115	17%	-0.76	3.01	21.5	27.1
Venezuela	hydrocarbons	$ 4,919	$ 8,860	-44%	-0.01	26.42	30.3	86.0
Zambia	copper	$ 877	$ 960	-9%	1.38	21.27	11.2	41.8
Comparator Countries								
Costa Rica	agriculture	$ 9,606	$ 6,650	44%				
China	manufacturing	$ 5,003	$ 3,130	60%				
Hungary								
Korea, Rep. of	manufacturing	$ 17,971	$ 13,590	32%				
Malaysia	manufacturing. services	$ 9,512	$ 8,140	17%				
Thailand	manufacturing, services	$ 7,595	$ 6,690	14%				
Singapore	manufacturing	$ 24,481	$ 28,460	-14%				

Sources: UNDP, World Bank, IMF, World Trade Organization, Bank of France, authors' estimates

Table 2
Social Comparisons

Country	Resource	Total Population in Millions 2005 (UNDP)	HDI Ranking 2005	HDI Ranking 1999	Change in HDI Country Ranking (+/-)	Life Expectancy at Birth 2005 (UNDP)	Adult Literacy Rate 2005 (UNDP)
Algeria	hydrocarbons	31.9	103	109	6	71.1	69.8
Angola	hydrocarbons	15	160	160	0	40.8	66.8
Azerbaijan	hydrocarbons	8.3	100	103	3	66.9	98.8
Bahrain	hydrocarbons	0.7	43	37	-6	77.3	87.7
Boliva	hydrocarbons	8.8	113	112	-1	64.1	86.5
Botswana	diamonds	1.8	131	122	-9	36.3	78.9
Brunei	hydrocarbons	0.4	33	25	-8	76.4	92.7
Cameroon	hydrocarbons	15.7	148	134	-14	45.8	67.9
Chad	hydrocarbons	9.1	173	162	-11	43.6	25.5
Chile	copper	16	37	34	-3	77.9	95.7
Congo	hydrocarbons	3.8	132	135	3	52.0	82.8
Congo, Dem. Republic	copper, cobalt	54.2	167	141	-26	43.1	65.3
Ecuador	hydrocarbons	12.9	82	72	-10	74.3	91.0
Equatorial Guinea	hydrocarbons	0.5	121	131	10	43.3	84.2
Gabon	hydrocarbons	1.3	123	124	1	54.5	71.0
Guinea	bauxite	9	156	161	5	53.7	41
Indonesia	hydrocarbons	217.4	110	105	-5	66.8	87.9
Iran	hydrocarbons	68.2	99	95	-4	70.4	77.0
Kazakhstan	hydrocarbons	14.9	80	76	-4	63.2	99.5
Kuwait	hydrocarbons	2.5	44	35	-9	76.9	82.9
Libya	hydrocarbons	5.6	58	65	7	73.6	98.5
Mauritania	iron ore	2.9	152	149	-3	52.7	51.2
Mexico	hydrocarbons	104.3	53	50	-3	75.1	90.3
Niger	uranium	13.1	177	173	-4	44.4	14.4
Nigeria	hydrocarbons	125.9	158	146	-12	43.4	66.8
Norway	hydrocarbons	4.6	1	2	1	79.4	--
Oman	hydrocarbons	2.5	71	89	18	74.1	74.4
Papua New Guinea	copper	5.7	137	129	-8	55.3	57.3
Peru	hydrocarbons	27.2	79	80	1	70.0	87.7
Qatar	hydrocarbons	0.7	40	41	1	72.8	89.2
Russian Federation	hydrocarbons	144.6	62	71	9	65.3	99.4
Saudia Arabia	hydrocarbons	23.3	77	78	1	71.8	79.4
Sierra Leone	diamonds	5.1	176	174	-2	40.8	29.6
Suriname	bauxite	0.4	86	64	-22	71.1	88.0
Trinidad & Tobago	hydrocarbons	1.3	57	46	-11	69.9	98.5
Turkmenistan	hydrocarbons	4.7	97	96	-1	66.9	98.8
United Arab Emirates	hydrocarbons	4	41	43	2	78.0	77.3
Venezuela	hydrocarbons	25.8	75	48	-27	72.9	93.0
Zambia	copper	11.3	166	151	-15	37.5	67.9
Comparator Countries							
Costa Rica	agriculture	4.1	47	45	-2	78.2	95.8
China	manufacturing	1296.5	85	98	13	71.6	90.9
Hungary							
Korea, Rep. of	manufacturing	48.1	28	30	2	77.0	97.9
Malaysia	manufacturing. services	25.2	61	56	-5	73.2	88.7
Thailand	manufacturing, services	62.4	73	67	-6	70.0	92.6
Singapore	manufacturing	4.3	25	22	-3	78.7	92.5

Sources: UNDP, World Bank, IMF, World Trade Organization, Bank of France, authors' estimates

Annex B: Technical Paper on Labour Market Scenarios

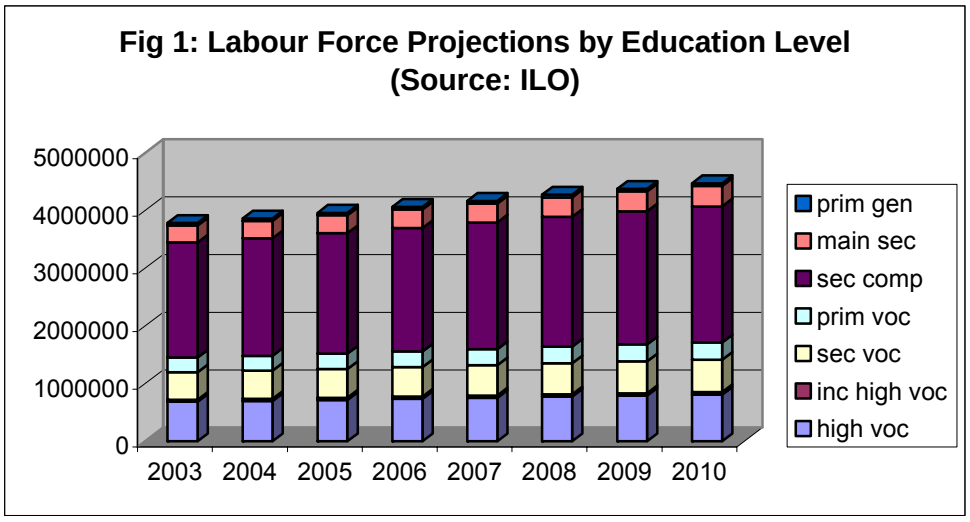
The purpose of these projections is to provide an idea of how the labour market by main education level and economic sector is likely to behave over the coming decade.

Labour supply by educational level

First, labour supply by educational level was projected forward using the labour force projections (medium variant of population) found on the ILO Statistics web site (www.ilo.org) for Azerbaijan. The data are given in Table 1, and the graph in Figure 1. The data in Table 1 have been adjusted to equal the 2003 Labour Force Data. The growth rate is not affected by this transformation, and the labour force is projected to grow at 2.42% per year over 2003-2010. The proportion of the labour force having different types of education – according to the categories given in Table 1 – was calculated simply by applying the labour force by education level proportions (coefficients) for 2003 to each subsequent year. There are no other recent data available, as far as could be judged. Of course one could make the projections more sophisticated by changing the education coefficients according to assumptions on how the education system was going to behave over 2003 -2005. Indeed there may well be data for the period 2003-2005 that would give a more accurate picture of changes at the beginning of the period.

Table 1: Labour Force Projections by Education Level

	2003	2004	2005	2006	2007	2008	2009	2010
tot	3782496	3862562	3959371	4060345	4165197	4272643	4375300	4471323
high voc	680805	695216	712640.4	730814.5	749686.8	769025.8	787502.8	804785.8
inc high voc	36777	37555.48	38496.74	39478.51	40497.98	41542.68	42540.8	43474.42
sec voc	476748	486839.6	499041.4	511768.2	524983.9	538526.5	551465.4	563568.1
prim voc	254487	259873.9	266387.2	273180.7	280235.2	287464.2	294371	300831.4
sec comp	1994937	2037165	2088223	2141478	2196779	2253447	2307590	2358233
main sec	297168	303458.3	311064	318996.9	327234.5	335675.9	343741.1	351285
prim gen	41574	42454.02	43518.06	44627.88	45780.33	46961.28	48089.6	49145



The results show (Figure 1), as expected, that the numbers in the labour force with secondary completed education continue to grow, and remain at 52% of the labour force until 2010. We could expect, given recent changes in educational policy and we hope

helped by this project so far, that the numbers with skills would increase much more rapidly than those projected. A more sophisticated projection could also disaggregate the labour force by main occupation, but the data although available for this exercise from the 2003 LFS, are not available for the labour demand side.

Labour Demand Projections

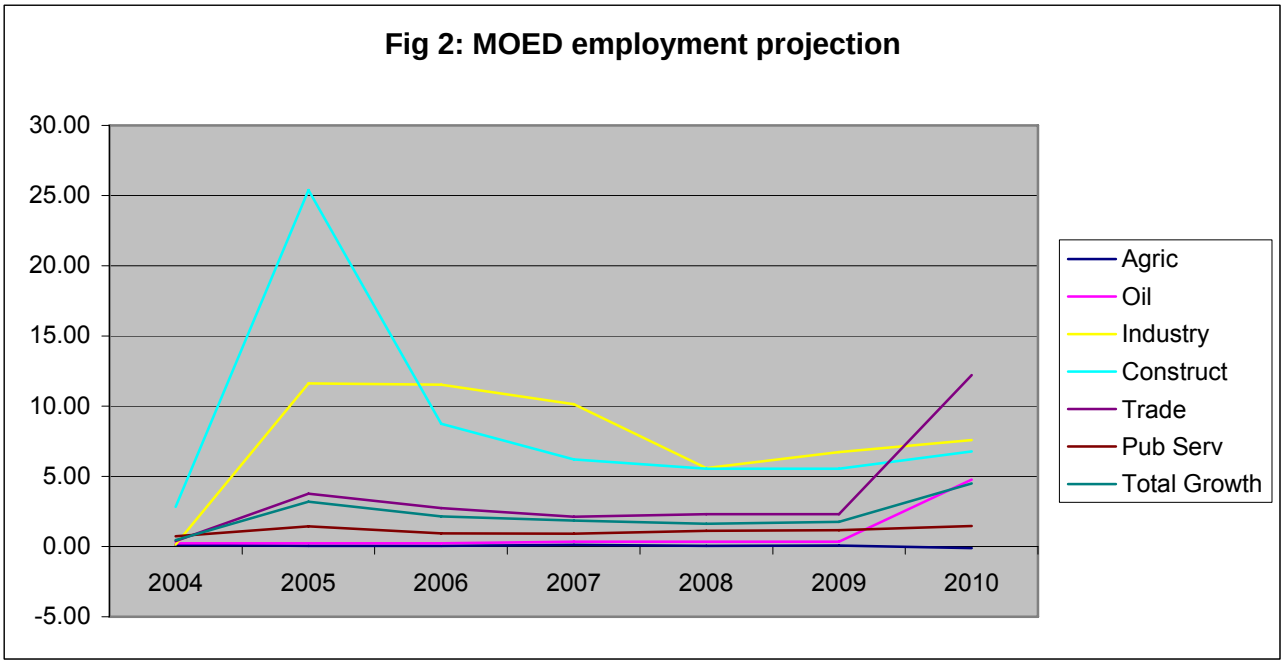
The main determinant of these projections is economic growth by economic sector. We have used two labour demand projections – one based upon the MOED's own labour demand projections and one on observed, real, economic growth rates over 2003-2006 plus our own projection to 2010.

The former projection for labour demand is given in Table 2, and Figure 2.

Table 2: Employment projections from MOED 2003-2010

2003	2004	2005	2006	2007	2008	2009	2010
1290393	0.11	0.05	0.05	0.12	0.05	0.06	-0.11
36654	0.24	0.24	0.24	0.35	0.35	0.35	4.76
210207	0.14	11.62	11.52	10.14	5.59	6.74	7.58
188682	2.83	25.39	8.75	6.22	5.56	5.56	6.79
823239	0.39	3.77	2.75	2.12	2.30	2.31	12.21
828651	0.73	1.44	0.94	0.91	1.12	1.16	1.47
3379829	0.46	3.19	2.14	1.85	1.62	1.75	4.49

Fig 2: MOED employment projection



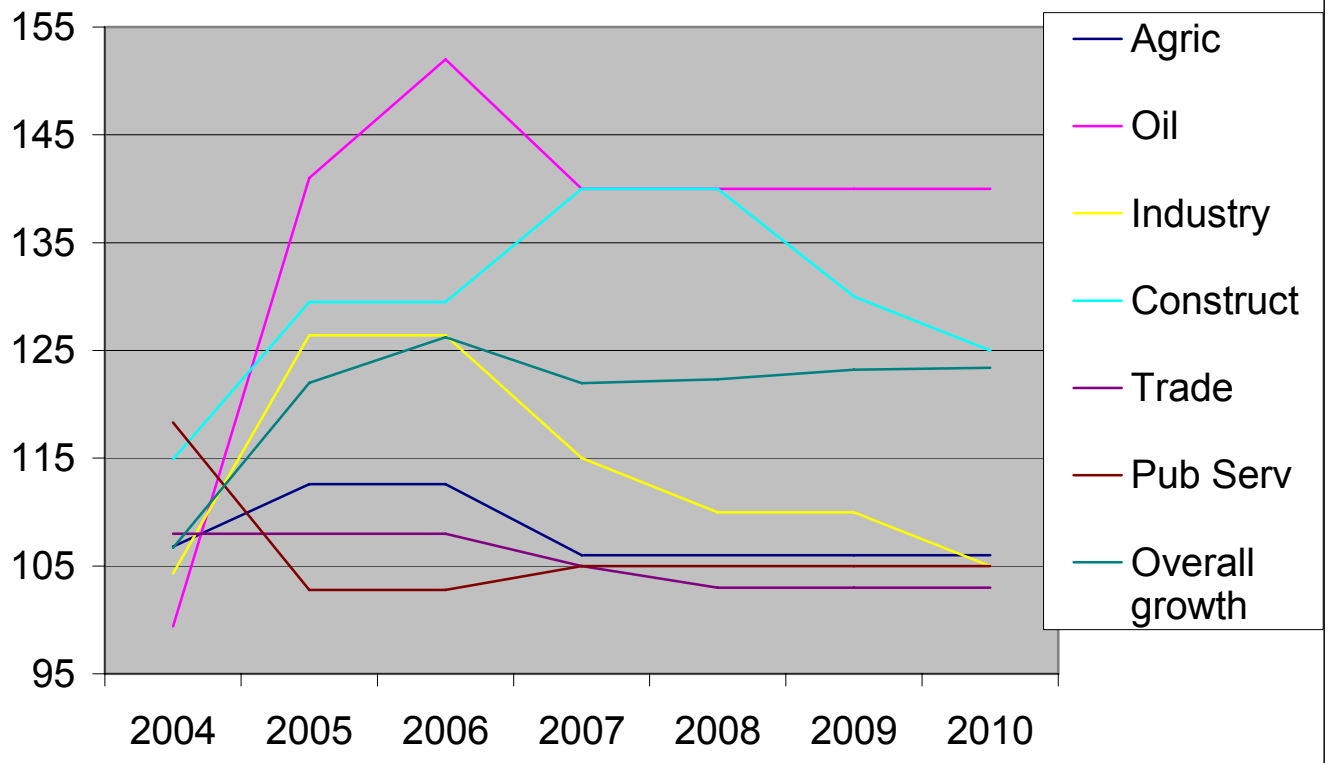
It is not clear how these above projections were made but it does seem that there is no interaction between the various economic sectors, nor has account been taken of more recent and higher economic growth figures.

Our own economic growth projections for GDP are given in Table 3.

Table 3 Real GDP projections by sector [base 2003, real manat bn] in growth rates

	2003	2004	2005	2006	2007	2008	2009	2010
Agric	4833.5	106.8	112.6	112.6	106	106	106	106
Oil	9093.6	99.4	141	152	140	140	140	140
Industry	10995.2	104.3	126.4	126.4	115	110	110	105
Construct	3345.1	114.9	129.5	129.5	140	140	130	125
Trade	6026.4	108	108	108	105	103	103	103
Pub Serv	4910.4	118.3	102.8	102.8	105	105	105	105
Overall		106.7	122.0	126.2	122.0	122.3	123.2	123.4

Figure 3: BGHG Scenario:GDP economic growth by sector



The growth rates in Figure 3 assume, over 2007-2010, that the oil sector will continue to grow strongly at around 40% a year in real terms, that construction will also rise sharply before dropping off toward the end of the projection period. It is assumed that industry is crowded out because of the oil boom coupled with Dutch Disease, as is trade. Public services are assumed to grow reasonably.

To obtain labour demand from these projected economic growth rates, we have made a number of assumptions about the growth in labour productivity. These are given in Table 4 and Figure 4, the initial condition (for 2003) was calculated by dividing GDP by

sector by employment by sector as it was in the 2003 LFS. The growth rates in labour productivity were assumed, after 2004, to progress following assumptions that technological improvements would lead to growth in all sectors, with major increases in oil (a capital intensive sector in any case) and a gradual increase in construction as technology would start to replace labour simply because of the amount of construction would need impro0vements in technology as workers become harder to find.

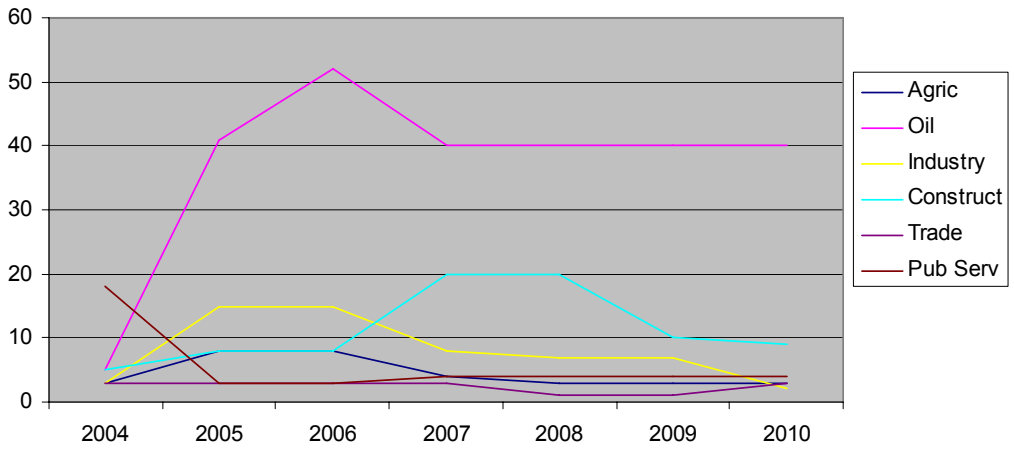
There is a logic to the choice of labour productivity growth rates. Clearly, oil sector growth will be high if output growth is high since few, if any, more workers will be hired. For agriculture, it is often difficult to raise productivity sharply without massive investment in equipment plus in people – both probably unlikely right now. Construction productivity is likely to be quite high in the first period of the oil broom, as equipment is brought in to aid rapid growth and, because, skilled labour will be increasingly difficult to find. In summary, our labour demand projections are very sensitive to the labour productivity assumptions and is, obviously, a weakness in our approach. There is no easy way around this, perhaps to use the technology/productivity assumptions that can be found in more advanced countries.

Table 4 Employment productivity projections by economic sector

	2003 (avg Prod)	2004	2005	2006	2007	2008	2009	2010
Agric	0.004	3	8	8	4	3	3	3
Oil	0.248	5	41	52	40	40	40	40
Industry	0.052	3	15	15	8	7	7	2
Construct	0.018	5	8	8	20	20	10	9
Trade	0.007	3	3	3	3	1	1	3
Pub Serv	0.006	18	3	3	4	4	4	4

Source: BGHG estimations

Figue 4: BGHG Scenario: Average Productivity growth rates

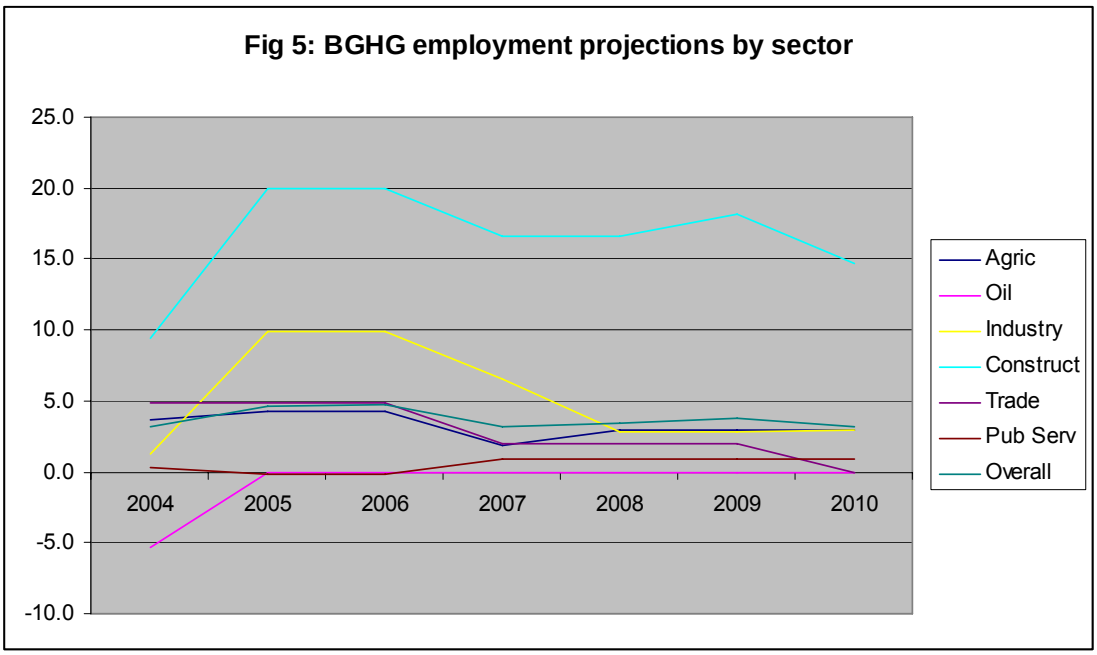


The resulting employment projections from the above assumptions are displayed in Table 5 and Figure 5 next, for Scenario 2.

Table 5: Employment projections by economic sector (%)

	2003	2004	2005	2006	2007	2008	2009	2010
Agric	1290393	3.7	4.3	4.3	1.9	2.9	2.9	2.9
Oil	36654	-5.3	0.0	0.0	0.0	0.0	0.0	0.0
Industry	210207	1.3	9.9	9.9	6.5	2.8	2.8	2.9
Construct	188682	9.4	19.9	19.9	16.7	16.7	18.2	14.7
Trade	823239	4.9	4.9	4.9	1.9	2.0	2.0	0.0
Pub Serv	828651	0.3	-0.2	-0.2	1.0	1.0	1.0	1.0
Overall	3377826	3.2	4.6	4.8	3.2	3.4	3.8	3.1
Jobs created		108164.8	159482.9	174221.8	120498.6	135767.6	153439.6	132523.6

Fig 5: BGHG employment projections by sector



To obtain labour demand by education levels, we simply apply the economic sector by education level proportions found in the 2003 labour force survey to each economic sector. Adding over economic sectors leaves us with the educational demand projections. If we subtract the labour demand by education projections from the labour supply by education projections – note we have two scenarios – MOED Scenario 1: the MOED labour demand, and BGHG Scenario 2: the BGHG labour demand projections, we obtain Figures 6, 7, and 8 below.

Fig 6: MOED Scenario: Labour Supply minus Labour Demand

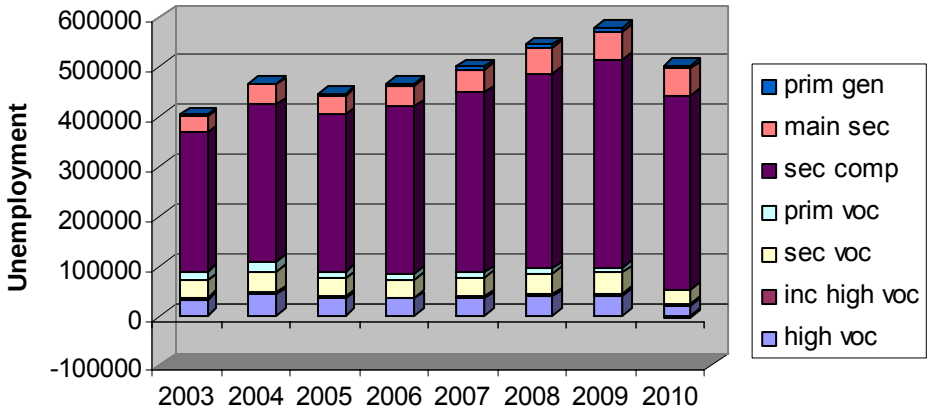


Fig 7: BGHG Scenario: Labour Supply minus Labour Demand

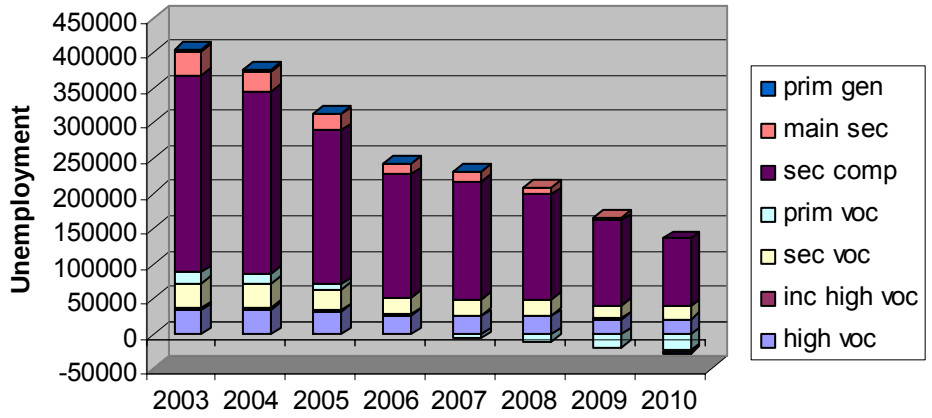
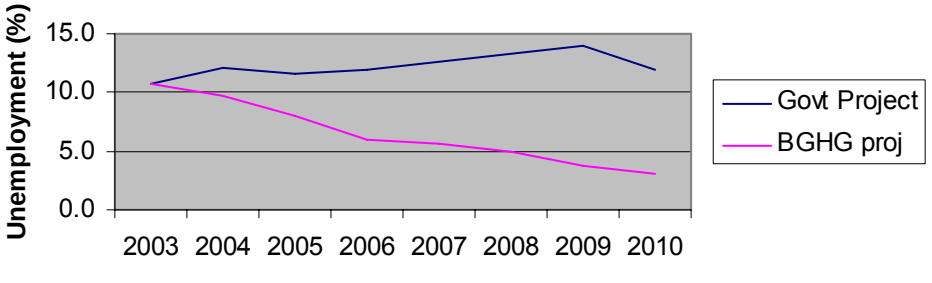


Fig 8: Unemployment Scenarios



Note that in the projections we do not allow substitution of shortages in one economic sector from another, hence we can get negative employment figures which in other world

implies unsatisfied demand for specific educational levels. Unsurprisingly, there is excess demand for vocational skills in both scenarios while graduates with only secondary skills remain difficult to place, even in the much higher growth BGHG scenario.

Finally, note that the Government employment scenario 1 continues to show unemployment (Figure 8), while the BGHG scenario 2 does show a decline in overall unemployment (it does not include excess capacity as employment by the way) to around 3% by 2010. Striking, therefore, is that even with rapid growth unemployment will still remain simply because the unemployed do not have the skills demanded. It is anticipated that this, and other projects, will have their recommendations more or less accepted and, as such, the skill deficits will disappear as will unemployment.

Annex C: Technical Paper on Modelling Aspects of BGHG

1. INTRODUCTION

As a result of the recent meeting of the Project Advisory Board for the Black Gold into Human Gold (BGHG) project it was decided that the modelling component of the project would focus on labour market aspects of Dutch Disease. It has also been agreed that, since the Center for Economic Reforms (CER) is already working on closely related issues, the modelling component of the BGHG project would need to be undertaken in very close co-operation with them.

The purpose of this technical paper is to set out a series of recommendations as to how this work should be undertaken. Firstly, it repeats and builds upon the theoretical basis developed under the modelling component of the BGHG project. Secondly it provides a brief summary of the factor content analysis currently being undertaken by the CER and, finally, it produces a proposed programme of action on these issues.

There are, however, several key principles with respect to this work which it is worth clearly emphasising. These all arise from the lack of suitable data in Azerbaijan. That is, in order to fully convert the economic concepts into working quantitative models a set of reliable data are required. In the most part the necessary data either does not exist or is unavailable. Where it does exist it is often reliable.

Where data problems exist (i.e. for almost all of the subject material covered by this paper) the approach follows the following three key premises.

Premise 1 : Even if there are no suitable data a purely theoretical model is better than no economic model at all. A purely theoretical model would lack the support of evidence but nonetheless still provides a rational framework for thinking about economic issues and one which draws upon the existing body of economic knowledge.

Premise 2 : Where there are no suitable data for Azerbaijan it is still possible to learn useful lessons from other countries. In its totality Azerbaijan is indeed unique. For example, there must be very few small, oil exporting, transitional economies. But this does not preclude the lessons of, say, other (non-oil) transitional economies or of other (non-transitional) oil exporters being of importance.

Premise 3 : Even where a particular model can not be implemented with either local or national data we should not necessarily ignore it. The BGHG project was always intended to include some capacity building. If necessary, it is better to create a capacity – say using fictional data – to be able to implement key models when suitable data are available than to do nothing at all.

The remainder of this paper is written with these three premises in mind.

2. THEORETICAL FOUNDATIONS

2.1 General Issues

Dutch Disease has traditionally been regarded as comprising three main effects. These are the :

- ***Macro-economic effects*** – the increase in oil exports leads to a substantial balance of payments surplus which leads directly to an exchange rate appreciation (which would normally be deflationary) and inflation arising from the large net inflow of money generated by the surplus.
- ***Spending effect –*** the additional wealth created by the inflow of money generates a spending boom, which creates a secondary expansion of non-tradeables but not tradeable goods. Exportables are not affected because the boom is in domestic rather than foreign spending. Domestic production of import competing goods is not able to exploit increased domestic demand because it can not compete with imports.
- ***Crowding out effects*** - the boom in the oil sector an the secondary boom in non-tradeables increase the demand for labour, capital and other factors of production. This increases costs across the economy.

The overall consequences of an oil boom are unambiguous for non-oil tradeables. All three effects serve to reduce the ability of producers of other tradeables to compete effectively. Producers of non-tradeables are not really affected by a loss of international competitiveness (since, by definition, they do not compete internationally) but do benefit from the spending boom.

2.2 Inter-Sectoral Allocation of Employment

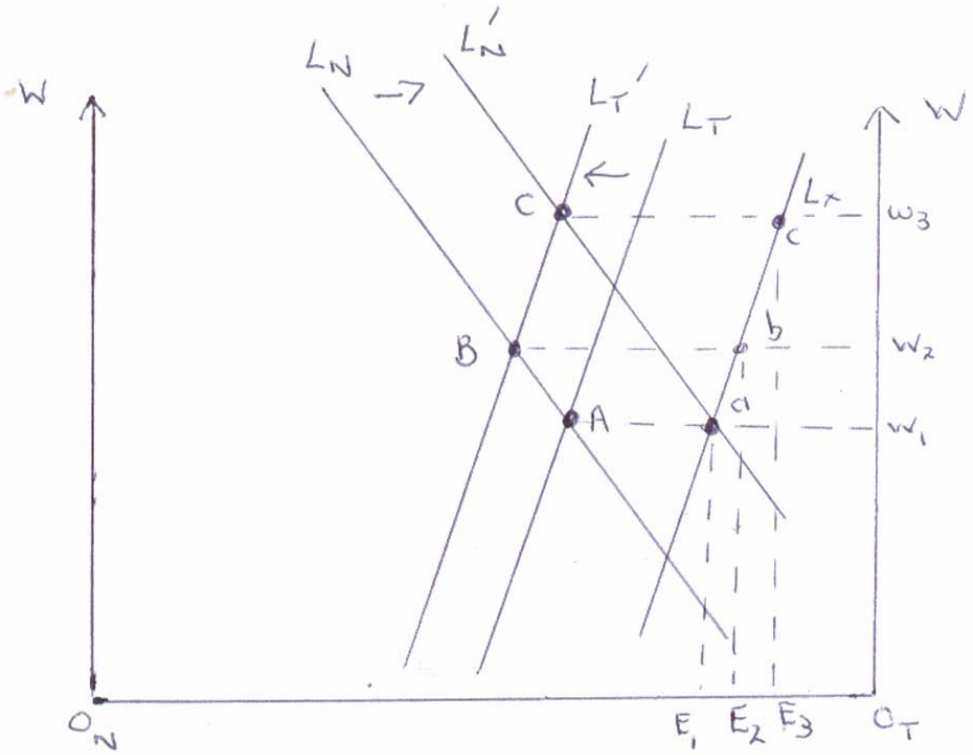
The following is an adapted version of a model first proposed by the economists W Max Corden and J Peter Neary[90] in 1982. It is possible to produce a considerable number of different versions of this model. The one presented is, therefore, far from being the only possible version and should be treated as a suggested starting point. It is proposed as a useful way of analysing the effects of Dutch Disease on labour markets. In consequence it focuses on the spending and crowding-out effects rather than on the macro-economic issues.

Neary's original model is represented in Figure 2.1 below. Wages (w) are represented on the vertical axes. The horizontal distance from 0_T to 0_N represents the total available labour force to Azerbaijan. Employment in the tradeable sector (oil and non-oil) is measured from right to left and the demand for labour by the tradeables sector is given by L_T. Within the tradeables sector the demand for labour in non-oil tradeables is given by L_X. Note : this is a component of the overall demand for labour by the tradeables sector.

[90] Corden, W Max & Neary, J Peter, 1982. Booming Sector and De-Industrialisation in a Small Open Economy, *Economic Journal*, Royal Economic Society, vol. 92(368), pages 825-48, December

Employment in non-tradeables is measured from left to right and the demand for labour by the non-tradeables sector is given by L_N.

Figure 2.1



The initial boom in the oil sector shifts out the demand for labour by the tradeables sector from L_T to L'_T. This results in a rise in wages from w_1 to w_2 and a reduction in employment in non-oil tradeables from E_1 to E_2. This is the effect of "crowding out" of labour by the oil boom.

The spending effect is shown by an increase in the demand for labour by the non-tradeable sector from L_N to L'_N . This results in a further increase in wages from w_2 to w_3 and a further reduction in employment in non-oil tradeables from E_2 to E_3. The original Neary model, therefore, predicts an unambiguous reduction in employment in non-oil tradeables and an ambiguous effect on employment in non-tradeables.

For our basic model it is proposed that we make several modifications to this framework. Firstly, it is assumed that because the oil sector (a) employs comparatively few workers and (b) earns economic rent that it is able to pay a premium to its workers. From the point of view of the oil industry it is rational to pay above average wages for "job market signalling" reasons. That is, by paying above average wages, it is able to attract the brightest and best workers and the higher productivity of these workers at least covers the additional cost of employing them.

In consequence the job market is divided into a two tier one. The oil sector, because it can pay a premium, simply selects the best workers. Those workers not employed by the oil sector must then seek employment in the other sectors of the economy. The initial crowding out effect of the oil boom stays essentially the same as before but it is no longer represented in the diagram (although it can easily be restored) which now focuses on the spending effect.

Secondly, it is assumed that this model applies to some but not all occupations. Some occupations (for example those with specialised construction skills) are specific to only one of the three sectors – oil, non-oil tradeables and non-tradeables. These need to be treated as separate, "segmented" labour markets. The model, therefore, applies only to those occupations for which employment in either non-oil tradeables or non-tradeables is realistic.

Finally, the modified model considers the situation when Azerbaijan is more fully integrated into the global economy. Firms, as usual in economics, are assumed to be profit maximisers. This, in turn, implies that :

$$W_A = MP_{LA}.P_A \qquad (1)$$

where W_A is the wage in Azerbaijan, MP_{LA}. the marginal product of labour in Azerbaijan and P_A the price of the good in Azerbaijan. If the wage is less than the right hand side of expression 1 it implies that the firm could increase profits by hiring (the returns from another worker exceed the cost). If the wage is greater then it could increase profits by firing (the last worker cost more than he or she earned). It is only when equation 1 is satisfied that the firm can no longer improve profits – i.e. when they are maximised.

Note that in terms of proportionate changes (denoted by lower case letters) the proportionate change in wages is given by :

$$w_A = mp_{LA} + p_A \qquad (2)$$

This suggests that the percentage change in wages has two components – the percentage change in the marginal product and the percentage change in the product price.

Once Azerbaijan has integrated into the global economy it will be forced to either trade at world prices (in the case of exports) of trade at prices that are related to world prices (in the case of imports). For exports Azerbaijan will be forced to trade at world prices, P_w (simply swap P_w for P_A in equations (1) and (2)). For imports, suppose that Azerbaijan maintains protection, where t is the rate of protection. Thus:

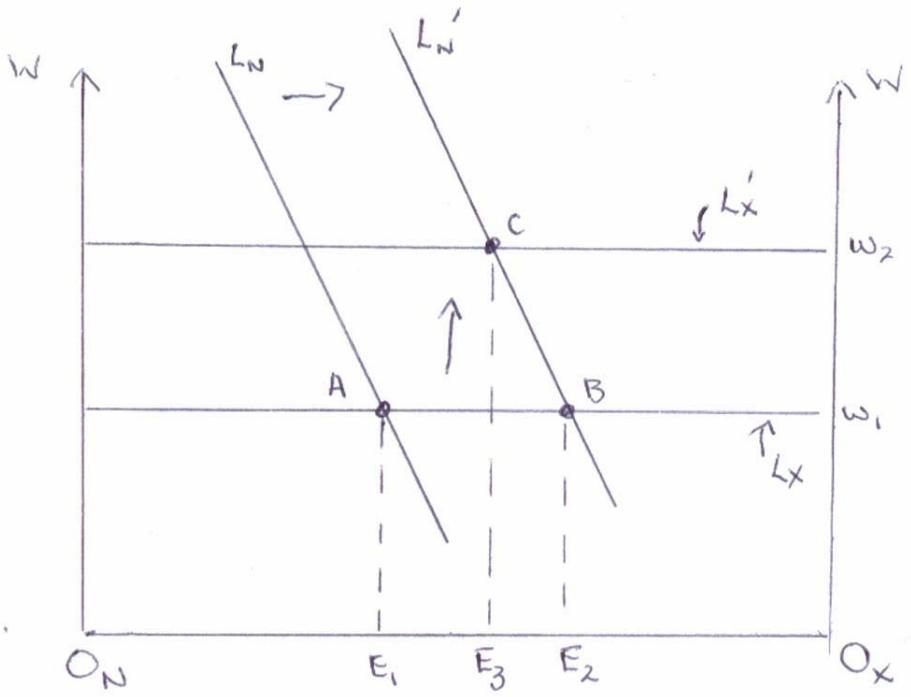
$$P_A = (1+t).\ P_W \qquad (3)$$

Although it is fairly common for governments to employ protective measures, such as import tariffs, it is very rare for these measures to be frequently changed or modified. That is, unless the government constantly adjusts protective measures we can treat t as a constant. The implication of this is that equation 2, linking percentage changes in

wages to that in the marginal product and the product price, also applies where there are constant barriers to trade.

Figure 2.2 sets out the modified version of the Neary model. The overall demand for labour by the tradeable sector (L_T), including oil, is now excluded. That is, the crowding out effect of the oil boom is much the same as in the original model but, because the oil sector has first pick of the labour force, this effect is assumed to have already occurred. The demand for labour by non-oil tradeables (L_X) is now a horizontal curve. It is now a horizontal line, because the change in wages, for a given marginal product, is now wholly determined by changes in world prices. In consequence, for given world prices and a given marginal product the firm can only choose one wage.

Figure 2.2



In figure 2.2 the spending effect is again represent by the rightward movement of L_N to L'_N. As before this reduces employment in non-oil tradeables from E_1 to E_2. Note that the switch in employment between sectors does not result in any long term increase in wages because wages, for any given marginal product, are linked. to world product prices.

If, in this modified version of the Neary model, wages are not permanently affected by the expansion of the non-tradeable sector how can wages and employment in the non-oil tradeables sector be increased ? Consider, in figure 2, the upward shift of the labour demand curve for this sector from L_N to L'_N. This has the result of increasing wages for both sectors and raising employment in non-oil tradeables from E_2 to E_3. The key question, then, is what could cause this demand curve to move upward ? Given that changes in product prices are driven only by changes in world prices this must be a result of an increase in the marginal product.

There are three main ways this can be achieved. These are :

- improvement in technological efficiency such as “catch-up” effects,
- greater productivity through increased economic efficiency, for example by reducing monopoly power or through better governance, and
- increased human capital per worker.

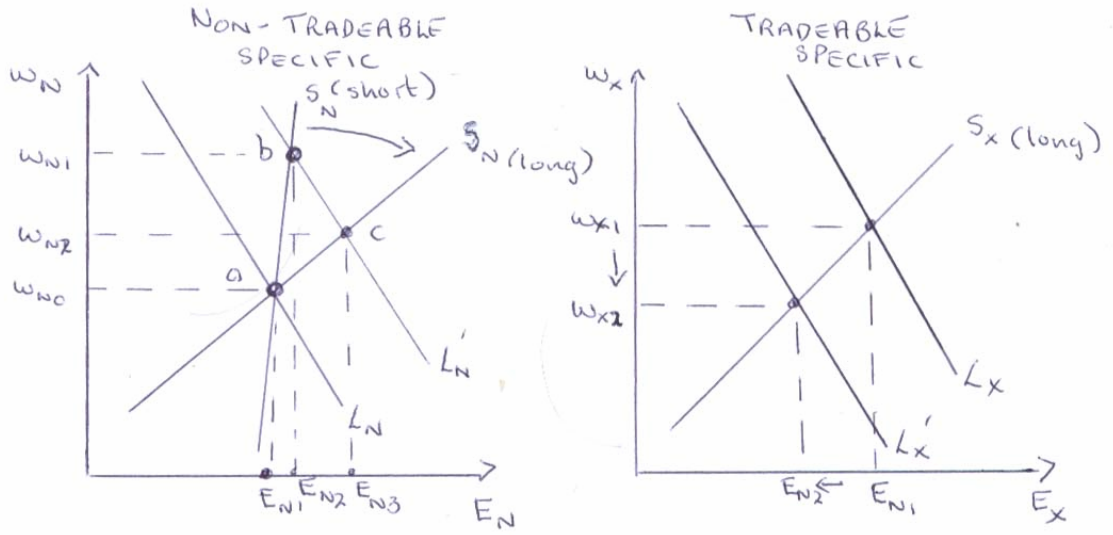
The relevance of this type of thinking to the overall project should be obvious. It is, therefore, recommended that we develop this model further.

2.3 Dutch Disease with Segmented Labour Markets

Figure 3 considers the situation where labour embodies different types of human capital. Thus, one non-tradeable activity might be construction which employs workers (say, bricklayers) whose skills are specific to the construction sector and can not be used by other sectors. The left hand diagram in figure 3 represents the demand and supply of the type of labour specific to the construction sector. Likewise the tradeable sector may employ workers (for example, carpet makers) whose skills are specific to that sector and can not be used elsewhere. The supply and demand of this type of labour is represented in the right hand portion of figure 3.

Note that the demand for the type of labour specific to the tradeable sector in figure 3 is shown as downward sloping. This is intended to reflect the current situation in Azerbaijan (where goods prices are not closely linked to world prices) and the not the future when Azerbaijan is more fully integrated into the world economy (and, hence, where goods prices are closely linked to world prices).

Figure 3



In the left hand diagram the effects of Dutch Disease on the types of labour specific to non-tradeables are shown. The macro-economic effect (exchange rate appreciation) has no direct effect because this type of labour is specific to goods which are not

internationally traded. The spending effect, however, increases the demand for this type of labour, shown by a shift from the labour demand curve L_N to the new labour demand curve L'_N.

In this diagram we differentiate between the short run supply of this type of labour – the curve S_N(short) and the long run supply curve S_N(long). Specifically, the short run labour supply is shown as a steeper curve than the long run labour supply. In the short run the supply of labour has some capacity to respond to increases in wages. For example, existing workers could work more hours. But the reason that the labour used in non-tradeables is different from that used in tradeables is because it embodies some human capital that is specific to the sector. This means that, in the short run, the number of workers is more or less fixed – that is, the number of workers can only be significantly increased by training or education. This process takes time and, in consequence, the long run labour supply is more responsive to increased wages and employment opportunities than the short run.

Note the following implications of Dutch Disease for occupations specific to non-tradeable activities like construction, real estate and retailing. The spending effect should lead to both higher wages and higher employment for these occupations. The effect on wages is likely to be more or less immediate but the effect on employment should take time. The full increase in employment will take as long as it takes to train new workers. If this is a slow process then there will be a prolonged period when the benefits of the spending effect are felt by the smaller number of existing workers, who each will benefit from wages increases in excess of that merited by long term conditions.

In the right hand diagram there is no need to differentiate between short run and long terms labour supply (redundancies can be accomplished immediately whereas increases in the labour supply require human capital creation).. For the tradeable sector there is a reduction in the demand for labour from L_x to L'_x. This reflects the macro-economic effect – the exchange rate appreciation makes domestic tradeables less competitive, thereby reducing exports and increasing imports. The effect is to reduce both wages and employment in the tradeable sector. The tradeable sector does not benefit from the spending effect since any increase in domestic spending goes largely on imports.

Note that the combined effects of the two imply a period of unemployment. The macro-economic effect implies a reduction of both wages and employment in those occupations which are specific to tradeables. Although the spending effect implies a long term increase in those occupations specific to non-tradeables this can only take full effect once workers have been trained (or re-trained). This means that there will be a period of time during which the Dutch Disease result in a net loss of employment and, hence, in unemployed workers. This period of time will be longer the less effective and the less accessible the opportunities for training. Given the current deficiencies of both training and education in Azerbaijan it is difficult to see how anything other than the maximum effect on unemployment is likely to result.

There are two important aspects of this analysis that need to be made explicit. Firstly, the Dutch Disease is not the only set of circumstances in which Azerbaijan is likely to encounter the growth of one or more economic sectors accompanied by the contraction of others. Even if Azerbaijan did not have oil it would still need to become integrated into the world trading system, for example by joining the World Trade Organisation. This would create an economic boom in existing and new export sectors and a contraction of the less competitive import-competing sectors. As with Dutch Disease this would increase the demand for labour for occupations specific to the booming (export) sectors and a reduction in demand for occupations specific to the contracting (import-competing) sectors. This will again tend to create 'temporary' unemployment as workers need to

acquire the human capital necessary for the booming sectors. If the provision for training and re-training remains very limited in quantity and quality the problem of unemployment would again be substantially more extensive and more persistent than is necessary.

The second key point relates to empirical application of this type of model. Data on wages and employment by occupation is often more difficult to obtain than employment and wages by industry. To the extent that labour is specific to certain sectors it is possible to, for example, estimate labour demand by industry rather than by occupation.

2.4 Policies to Mitigate Dutch Disease Effects in Labour Markets

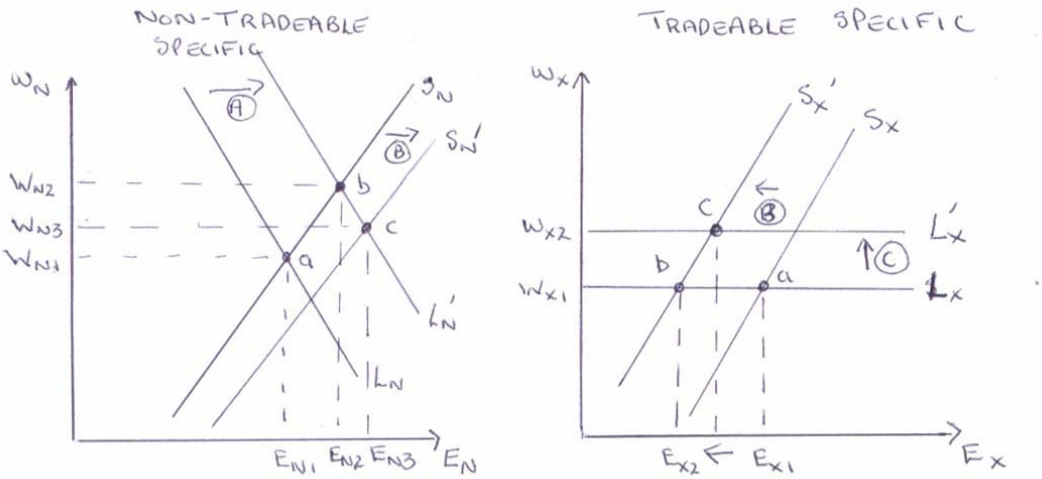
The problem of Dutch Disease is in a sense not "how do we cure it ?". The "cure", in the sense of removing the problem at source, is to simply not to extract oil. What we really mean by these questions is "how do we treat the symptoms of this disease ?". That is, the key issues in labour markets are to find ways of offsetting the two main effects described in the preceding sections – (a) the reduction in economic diversification and that of employment resulting from adverse effects on non-oil tradeables and (b) unemployment.

To answer the first of these we need to understand how changes in goods markets are likely to feed through into changes in labour markets. This is the subject matter of section 3 (below). In this section we propose looking at issues related to unemployment. In section 2.3 it was argued that, in essence, changes in employment involving reductions in employment in one sector and increases in employment in another sector are an inevitable consequence of not just Dutch Disease but also of operating within a global market economy. The key is not to prevent these changes happening (since they could bring substantial net benefits to Azerbaijan) but to try to reduce their adverse effects. In the case of labour markets this means trying to ensure that the labour supply responds quickly and effectively to changes in labour supply. Inevitably this means looking at education, training and re-training.

To understand the possible role of education and training figure 4 presents an analysis similar to that of figure 3. That is there are the supply and demand of two categories of labour – one specific to the non-tradeables sector (left hand diagram) and the other specific to the non-oil tradeables sector (right hand diagram). There is, however, one key difference. The demand for labour for the occupation specific to tradeables is shown as horizontal. This is essentially for the same reason as in the discussion of the Corden and Neary model. The analysis is intended to be forward-looking and considers the case when Azerbaijan is fully integrated into the world trading system. Since goods prices are determined in relation to world prices wages can only change if productivities change

Figure 4 is not intended to represent the effects of Dutch Disease - this was covered by figure 3. It is intended to show how the labour market effects of Dutch Disease could be mitigated by appropriate policies.

Figure 4



For occupations specific to tradeables the analysis is relatively uncomplicated. Dutch Disease increases the demand for labour (L_N to L'_N). With no increase in human capital the increase in demand result only in limited employment increases (E_{N1} to E_{N2}) but a substantial wage increase for existing workers (w_{N1} to w_{N2}). If, however, it is possible to increase human capital the supply is shifted out (from S_N to S'_N). This results in higher levels of employment in the non-tradeable sector but lower wages than without a human capital increase. That is, increasing human capital for occupations specific to non-tradeables results in a broader distribution of the benefits of the spending effect. In short, a failure in the creation of human capital would mean that the spending effect of Dutch Disease creates substantial benefits from a comparatively small group of workers. Human capital creation would share these benefits more widely.

For occupations specific to tradeables redundancy (and one of re-training, skill down-grading or permanent exclusion from the active labour force) is not the only possible option. Any increase in the productivity of occupations specific to the tradeable sector would have the effect of increasing the demand for such labour – shown in the diagram by the upward shift of the labour demand from L_x to L'_x. This, in turn, results in both increased wages (relative to those with no productivity change) and higher employment.

There are essentially two main ways that productivity can be increased – (a) through better technology (for example, through technological "catch-up" with other economies) or (b) through increased human capital. From the point of view of employment and wages in occupations specific to both non-tradeables and to tradeables there are essentially two main possible policy directions. These are :

- increased technological efficiency (for example, by encouraging the local application of foreign "know-how" through inward foreign direct investment), and
- improved human capital through training, re-training and education.

These are, of course, not mutually exclusive. Section 2.5 below focuses on human capital aspects and technological issues are discussed further in section 3.

2.4 Modelling the Decision of Individuals to Invest in Human Capital

In the previous section it was concluded that the development of human capital is a key possible policy response to the challenges of Dutch Disease in labour markets. This is

not to say that the economic modelling component should focus on institutional or human resource development issues. These form the main part of the BGHG project and are, therefore, covered by the project elsewhere. Where the economic modelling component can make a contribution to these issues is by providing some insights into the behaviour of individuals with respect to their acquisition of human capital. That is by focusing on the ***supply*** of labour by looking at the ***demand*** for education or training.

Standard rational choice theory in economics suggests that the decision by individuals to undertake education or training has a similar structure to an investment decision. That it is requires the individual to incur "costs" now or in the near future in order to reap benefits over the longer term. Note that, in this respect, neither costs nor benefits are wholly pecuniary but can, for example, include considerations such as status or effort. As usual with an investment costs incurred (or benefits received) now receive greater weight in the decision than benefits received (or costs incurred) in the future because of the process of discounting (which recognises that because money spent now could have earned interest elsewhere).

For any individual acquiring training or education there will be a period of time under which this human capital acquisition is undertaken. Denote the start period as 0 and the completion of training at time t1. For each period the individual faces three types of cost. These are :

- w_a is the wage that the individual foregoes in order to undertake training. If training is "on the job" this is, of course, zero but if the individual is in full time training then this is the best available wage in an "untrained" occupation.
- f is the direct financial cost of training per period of time.
- z is a vector of non-pecuniary costs (effort, difficulty, unpleasantness etc)

However, it needs to be recognised that the individual has no guarantee of finding employment in an alternative occupation. This means that w_a needs to be replaced by the statistical expectation of w_a – $E(w_a)$ – that is the wage multiplied by the probability of finding (or keeping) employment in this occupation.

Over the period of training the costs {C} are therefore given by :

$$C = \int_0^{t1} [E(w_a) + f + z\ ]\ e^{-rt}.\ dt$$

(4)

where e^{-rt} is the discount factor (which "discounts" future returns because expenditure on costs could always have earned interest). This expression, in effect, states that to calculate the total cost of training take the total (discounted) cost of training in each time period and add these up across all the time periods during training.

The benefits from successful completion of training comprise two main elements – pecuniary and non-pecuniary (status, pleasantness, camaraderie etc). Let w_b be the wage per time period from the occupation after human capital has been acquired. As before the possibility that employment can not be obtained or sustained means that this should be adapted to the statistical expectation (probability of employment multiplied by wage) – $E(w_b)$. Let y_b be the vector of non-pecuniary benefits from the "trained" occupation (b) and y_a the vector of non-pecuniary benefits from the "untrained" occupation (a). These should also be expressed as statistical expectations using the probability of employment in each occupation.

In each time period of employment in the trained occupation (b) the net benefits (β_t) are given by :

$$\beta_t = [E(w_b).- E(w_a)] + [E(y_b).- E(y_a)]$$

(5)

That is the net benefits (pecuniary and non-pecuniary) are, in each time period, the difference between the benefits from the "trained" occupation (b) and the "untrained" occupation (a).

Putting this over the expected working life from time t1 (completion of training) to time t2 (retirement) this means that the total benefits from training (β) are given by :

$$\beta = \int_{t1}^{t2} \beta_t . e^{-rt} dt$$

(6)

For an individual the net present value (NPV) of training is, therefore, given by :

$$NPV = \beta - C = [\int_{t1}^{t2} \beta_t . e^{-rt} dt] - [\int_{0}^{t1} [E(w_a) + f + z] e^{-rt}.dt]$$
(7)

For training to be undertaken it is necessary (but not sufficient) for NPV to be positive – that is it is necessary for the perceived benefits from training to exceed the perceived costs. However, it is also necessary to recognise that the potential trainee may face several different options with respect to the acquisition of skills. In this case they would choose the option that yields the highest NPV.

It is, of course, the case that very few (if any) people perform such complex mathematical calculations in making career decisions. However, it is also true that the trajectory of a ball through the air can be represented by a series of complex equations in physics. It is also true that no one makes these complex calculations when catching a ball. It is, therefore, probably fair to suppose that the main elements of this mathematical representation do indeed enter most peoples decisions but not in a way that is so precisely articulated.
For the purposes of Dutch Disease this line of reasoning has some important implications for policy. The increase in wages and employment in the non-tradeable sector provide automatic incentives for workers to seek training for occupations specific to non-tradeables (e.g. construction trades, sales occupations). Likewise the decline in wages and employment in occupations specific to non-oil tradeables provides incentives for potential future workers to choose alternative skills to acquire.

Note, however, that costs and benefits incurred during the training period are weighted much more heavily than costs and benefits during the subsequent period of employment. This is because the discounting procedure weights current costs and benefits more heavily than future ones. It is, therefore, possible that reducing the cost or difficulty of obtaining training would have a disproportionately powerful effect on this decision. It is, therefore, a potentially powerful policy tool.

It is also likely that, for some occupations, the cost and difficulty of training are much higher than might be imagined. Suppose, for example, that there is no training available in Azerbaijan for instrument makers. The cost of obtaining such training abroad could

easily be sufficiently high as to make the net returns for employment as an instrument maker not worthwhile.

This theoretical model has been successfully developed into an empirical model in a substantial number of academic studies, usually dealing with the private returns to education (but occasionally with respect to training). The advantage of such models is that it gives some guidance as to the importance of improving access to training (or lowering its costs) in relation to the incentive effects of wage and employment changes.

For Azerbaijan it is highly likely that the quality and availability of local data would not be adequate to allow for econometric estimation. In consequence it is recommended that the project undertake some econometric estimation for other countries where suitable data are readily available. This would serve two purposes :

- to allow evidence from other countries to be used (i.e. some information on human behaviour is better than none, even if it is drawn from very different countries), and
- to create the capacity in the CER to estimate such models for Azerbaijan when suitable data become available.

3. FACTOR CONTENT MODEL

3.1 Overview

Under the CER/DAMP project the CER is currently undertaking a factor content analysis of Azerbaijan's international trade. The factor content model, in essence, converts observed trade in goods into the implied trade in the services of the factors of production (land, labour, capital etc) that made them. This provides useful information on which factors of production are sources of comparative advantage for Azerbaijan.

Modern trade theory and empirical studies of international trade suggest that the most important patterns of specialisation in international trade and production are according to different types of labour. For example, studies of the UK and US suggest that their pattern of specialisation is according to highly educated labour and that they tend to import those types of goods and services which make intensive use of manual labour.

The key element of a factor content study is an "A" or " factor requirements" matrix. This has some similarity to an input-output table and normally takes information from one. However, it measures the value of the services of each factor of production needed to produce one monetary unit (i.e. one Manat or one $) of output. This is then used to convert trade in goods and services into implied trade in the services of the factors of production that made them.

For certain versions of the factor content model it is theoretically acceptable to use an A matrix from a foreign country in addition to or in place of a national A matrix.

3.2. Initial Expected Outputs

It was initially hoped that it would be possible to construct and use A (factor requirement) matrices for both Russia and Azerbaijan. These would have enabled the analysis to produce results which performed the most basic function of the factor content model – to determine which factors of production are the strongest sources of comparative advantage. That is, what types of labour (and other factors) does Azerbaijan rely on to generate its non-oil export earnings ?

It is fairly straightforward to move from these results to a basic appraisal of Azerbaijan's future potential. Suppose, for example, it was found that Azerbaijan's exports were specialised in goods and services which make intensive use of semi-skilled manual labour. It is then fairly straightforward to use information from other countries to identify those industries which do not yet exist in Azerbaijan but which also make intensive use of semi-skilled manual labour. In this way, the factor content analysis was intended to provide a broad and crude appraisal of the potential for competitive non-oil production using its current strengths in terms of factors.

By using foreign a well as domestic (or technically similar country) A matrices it would also have been possible to make some assessment of the difference in techniques of production between, say, the UK or the USA and Azerbaijan. This would give some sense of the extent to which "catch-up" in techniques of production is possible and could yield potential benefits for Azerbaijan.

The results from the factor content analysis were also expected to allow for two further possibilities. These were :

- to identify what the labour (and other factor requirements) would be of developing specific new sectors (e.g. what types of skilled and educated labour would be needed to support a potentially competitive and successful financial services sector ?), and
- to show how strengthening certain types of skill might translate into changes in the types of goods and services in which Azerbaijan specialises (eg if Azerbaijan substantially invests in skilled manual labour which industries would be most likely to be able to exploit these new opportunities ?)

Unfortunately, the ability of the CER project to make full use of these techniques has been severely restricted by a lack of availability or access to the data necessary for Azerbaijan. It must be emphasised that this has not in any way been the fault of the CER or ant of its staff. This is also not to say that the work under the CER project will be of little or no use – results are expected and these will be of real potential use. These are described in the following section.

3.3 Likely Available Results.

The factor content analysis undertaken by the CER/DAMP project will result in estimates of the factor content of Azerbaijan's international trade using the A (factor requirements) matrices for (i) the USA and (ii) the UK. Although this might seem an unusual procedure it is one that has been applied in many other countries and has some theoretical foundation. However, the results do not directly reveal the implied trade in factor services for Azerbaijan. What they do tell us is whether or not Azerbaijan is exporting goods and services intensive in one type of labour when factor intensity is determined according to US or UK production techniques. That is, if Azerbaijan used similar techniques would its pattern of exports rely on, say, semi-skilled manual labour or some other type of labour.

The results will also allow comparison between Azerbaijan and a sample of other countries (Iran. Kazakhstan, Russia, and Turkey). So, for example, it will be able to identify which types of labour (and other factors) are sources of strength for Azerbaijan in comparison to these neighbouring countries. These results can be shown to be theoretically valid despite making use of UK or US factor requirements matrices.

These results would allow some if the forward looking aspects of the analysis to be used. It will, for example, still be possible to try to identify potential new industries which make intensive use of existing sources of strength. Likewise, it will also be possible to gain some insights as to how developing a particular type of labour (say, skilled manual workers) would be likely to affect Azerbaijan's future pattern of specialisation in production and in international trade. What, however, will not be possible is to gain any real sense of the potential for technological "catch-up" by comparing a factor requirements matrix for Azerbaijan with one for the UK or US.