



## THE RISING TIDE OF TRANSPORT FUEL COSTS: CAN LANDLOCKED DEVELOPING COUNTRIES STAY AFLOAT?

*The end of the era of cheap oil has dramatically increased transport costs globally. Oil is simultaneously a commodity and the means with which to move all other commodities. It is the world's single most traded good, whether by volume or value<sup>1</sup> and those that have it are clearly at an advantage over those who do not. Although costs are increasing for everyone, nowhere is the "economic distance" from markets felt more acutely than in landlocked developing countries (LLDCs) whose imports and exports must travel the farthest. The upcoming Mid-term Review of the Almaty Programme of Action in New York on 2-3 October represents an opportunity to consider the mounting concerns regarding spiralling fuel costs for transport upon which LLDCs rely heavily. This Information Brief will explore the key relevant aspects for consideration by landlocked and transit countries as the Almaty next five-year strategies are being developed.*

### I. The rising price of oil

1. On 11 July, 2008, oil reached USD 147.02<sup>2</sup>. The price has since fallen, but is currently at a level above the top of the inflation-adjusted price spike during the 1970's energy crisis, estimated at USD 92.49<sup>3</sup>. The conventional wisdom is that the yearly average price will not be returning to previous lows. One government source projects that crude oil will average USD 119 in 2008 and USD 124 in 2009<sup>4</sup>. While the change in transport costs due to the price of oil is

difficult to predict, what is known is that overland transport can be up to seven times the expense of transport by sea over the same distance<sup>5</sup>. A 2003 UNCTAD study revealed that LLDC transport costs can amount to almost 13 per cent of export value, which is 5 per cent more than that of coastal neighbours<sup>6</sup>. As the price of oil increases, export profit margins will erode further.

### II. Transport infrastructure of three LLDCs

2. Ultimately what matters for LLDCs is how well they are positioned to deal with fuel costs on the rise. Each country has its unique variables at the level of energy resource endowment, infrastructure, corridor regulation, and the type of goods being exported and imported, to name a few. LLDCs such as Azerbaijan and Kazakhstan, for example, are fortunate enough to be oil exporters. Even though they face long distances to reach ports, their energy resource endowment does not impact adversely on their options and, if at all, enhances them due to increased revenues. But there are many LLDCs who are net importers of oil. This brief will look at the profiles of three such LLDCs – Mongolia, Zambia and Paraguay – while focusing on their overland transport leg infrastructure as well as the composition of their exports. Their respective infrastructures dictate the mode of transport used and the mode determines one's exposure to rising fuel costs, which in turn impacts export competitiveness.

<sup>1</sup> US Department of Energy, [www.eia.doe.gov](http://www.eia.doe.gov)

<sup>2</sup> BBC online : <http://news.bbc.co.uk/2/hi/business/7501939.stm>

<sup>3</sup> 16 September 2008 oil price compared with previous spikes: [www.forbes.com/2008/05/13/oil-prices-1861-today-real-vs-nominal\\_flash2.html](http://www.forbes.com/2008/05/13/oil-prices-1861-today-real-vs-nominal_flash2.html)

<sup>4</sup> U.S. Energy Information Administration, [www.eia.doe.gov/steo](http://www.eia.doe.gov/steo)

<sup>5</sup> *Infrastructure, Geographical Disadvantage, and Transport Costs*, World Bank WPS 2257, December 1999, Limão, Nuno, and Anthony J. Venables,

<sup>6</sup> *Geography Against Development*, Chowdhury and Erdenebileg, 2006

## A. Mongolia

3. More than 85 per cent of imports and exports for Mongolia are transported by rail, with most of the remainder handled by road transport. The distance from Ulaanbaatar to Tianjin, China, one of Mongolia's main transit country ports is about 1,700 kilometres. Russian ports are the other option, but are more than 5,000 kilometres away. Variable cost increases from diesel fuel prices are rapidly passed on to Mongolian businesses. Despite obstacles and delays, such as transshipping at rail gauge changes, rail remains important in Central Asian supply chains, and as the price of gasoline and diesel rises, its role will likely increase.

4. The commodity composition of exports for Mongolia reveals that the highest value goods come from the mining sector<sup>7</sup>. Fortunately, the world price of minerals such as copper, molybdenum, coal, and gold has increased significantly. Because Mongolia has to import oil for transport, the question is, what will their price be relative to oil moving forward? Cashmere also holds an important role in the Mongolian economy.

5. Mongolia's biggest export market is China, the destination of approximately 68 per cent of all exports, followed by Europe at almost 11 per cent<sup>8</sup>. Lower value exports such as textiles, skins and hides, meat and scrap metal will be much more vulnerable to the price of transport fuels, and may reach a point in future where they are no longer sufficiently profitable, particularly if they are being shipped to far away markets.

## B. Zambia

6. For Zambia, and African LLDCs in general, trucking is the dominant transport method. Rail, although more efficient in its fuel consumption, does not have sufficient coverage and often has problems with delays and reliability that currently makes it unattractive to traders. Locomotives

have been known to simply run out of fuel, leaving trains stranded, or when being changed they are not well synchronised adding days to the predicted arrival time. To reach the port of Dar es Salaam, Zambia must rely on the Tanzania-Zambia Railway Authority (TAZARA) rail line, which is jointly managed by the two countries. On 1 July 2008 the TAZARA line raised its railway charges 30 per cent to offset the rising cost of diesel<sup>9</sup>. There are efforts underway to privatise the TAZARA line in the hopes that this will improve competitiveness and services provided while rehabilitating the locomotives, rail stock and rail bed. Zambia, an oil importer, is about 1000 kilometres from the sea. Even before the recent oil price spike, Zambian truckers were paying a staggering 50 per cent more than other regional countries for fuel largely because of government controlled fuel tax structures<sup>10</sup>. These factors make it increasingly difficult for Zambian businesses to compete on global markets.

7. Zambia's highest value exports, as is the case for Mongolia, are also minerals. Copper, cobalt and coal give it some buffer against being a net oil importer. Approximately 43 per cent of all exports go to Europe, 39 per cent to China and other Asian countries and 18 per cent makes it to the neighbouring Southern Africa Development Community (SADC) countries<sup>11</sup>. Because a large portion of Zambia's exports go to far away markets, it will be important to consider the effect of rising oil on the overland transport leg costs and the sea leg costs. Even though the sea leg of most transport is a much greater distance, for Zambia and the vast majority of LLDCs the overland transport leg represents half of the total transport costs<sup>12</sup>. Zambia's less valuable exports

<sup>9</sup> African Press International : 8 July 2008  
<http://africanpress.wordpress.com/2008/07/08/high-fuel-cost-pushes-tazara-railway-charges-up-by-30-per-cent/>

<sup>10</sup> The World Bank, News & Broadcast, *Landlocked Countries: Higher Transport Costs, Delays, Less Trade* 16 June 2008

<sup>11</sup> IMF, Zambia: Statistical Appendix 2008 SADC trading partners: Democratic Republic of Congo, Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania and Zimbabwe

<sup>12</sup> *Geography Against Development*, Chowdhury and Erdenebileg, 2006

<sup>7</sup> IMF, Mongolia: Statistical Appendix 2008

<sup>8</sup> Ibid

such as beverages, tobacco, animal and vegetable oils will become progressively more difficult to export, particularly in a region dominated by road transport.

### **C. Paraguay**

8. Paraguay's modest economic growth from 2003 to 2007, based in part on rising global demand and higher prices for commodities<sup>13</sup>, is threatened by rising transport fuel costs. On the positive side, Paraguay is fortunate to have good access to two rivers, the Paraguay and Paraná that directly facilitate transport to the sea port of Buenos Aires in Argentina. Navigability of these rivers, though, is restricted by depth and there are problems with night signalling facilities<sup>14</sup>, both of which limit the volume of goods that can be transported by ship and increase the time needed. Rail transport is neither extensive nor practical in Paraguay. There is one 376 kilometre line of poor quality between Asunción and Encarnación in the South, connecting it to networks in Argentina and Brazil. The difficulties associated with the limitations of waterways and rail infrastructure means that Paraguay relies on road transport for over 80 per cent of all domestic freight, just one road from Asunción to Brazil handles more than 60 per cent of all soy bean exports, its major commodity export<sup>15</sup>. Imports from far away China and the US<sup>16</sup> total approximately one third of all imports and these items are likely to become more costly with fuel cost increases.

9. The direction of Paraguayan export trade is largely regional: in 2002, over 58 per cent of exports were with its MERCOSUR neighbours and Chile, whereas only 13 per cent went to its next biggest partner, Europe<sup>17</sup>. In comparison with Mongolia and Zambia, the lack of high value mineral ore exports means that Paraguay is at a relative disadvantage.

Paraguay's heavy dependence on soy bean exports, combined with trucking transport leaves it particularly vulnerable to rising transport fuel cost.

### **III. Diversification: energy sources and infrastructure**

10. It seems likely that the best options for LLDCs to directly address and mitigate the rising cost of fuel in general will be long-term ones that will require significant funding and time. Infrastructure and investment along clearly defined corridors remain difficult but of increasing importance. Those countries which are investing in rail infrastructure will benefit from rail's generally accepted 2 to 1 fuel efficiency advantage over trucking per tonne kilometre<sup>18</sup>, and rail has the additional flexibility of being operated by electricity. Although electrifying a rail system is impractical if not impossible in the short run, the rising price of fuel implies that diversification from near total reliance on petroleum-based fuels will provide some protection from oil's stranglehold. Rail rehabilitation projects should at least consider the future possibility of electrification and what might need to be done now to keep this option open.

11. Mongolia currently purchases 95 per cent of its petroleum-based products and a large amount of electricity from neighbouring Russia, which leaves it vulnerable to price fluctuations determined externally<sup>19</sup>. Diversification of sources could help. Neighbouring China is part of the Kazakh-China oil pipeline that came online in 2006<sup>20</sup>, and could become a potential second source for oil-based fuels as refinery output increases. Kazakhstan, with its significant proven reserves, is poised to become a major world exporter

<sup>13</sup> CIA -The World Factbook

<sup>14</sup> *Geography Against Development*, Chowdhury and Erdenebileg, 2006

<sup>15</sup> Ibid

<sup>16</sup> Ibid

<sup>17</sup> IMF, Paraguay: Statistical Appendix 2003

<sup>18</sup> Fédération des Routes Suisses, Etudes récentes de l'utilité des transports et compte des coûts des transports *Les avantages pèsent plus lourd que les coûts*, Berne, mars 2007

<sup>19</sup> [www.cia.gov/library/publications/the-world-factbook/print/mg.html](http://www.cia.gov/library/publications/the-world-factbook/print/mg.html)

<sup>20</sup> BBC news: <http://news.bbc.co.uk/2/hi/asia-pacific/4530426.stm>

of oil<sup>21</sup>. Although diversification of sources generally will not help cushion against world oil price increases, it does at least reduce the risk that Russian oil price increases, for whatever reason, will affect Mongolia.

12. Mongolia has coal and uranium deposits<sup>22</sup> which are being pursued for their much needed energy potential and add important diversification to the Mongolian energy portfolio. The fact that Mongolian transport relies heavily on railways might be an advantage as rail offers the additional possibility of being run by electric locomotives should electric rail infrastructure become possible in future.

13. Although Zambia has coal deposits and exports electricity, neither of these can currently be used by the transport industry. In Zambia's case, the best option would be to make improvements in existing rail reliability and predictability in order to become more attractive to traders. Some of this can be alleviated through the acquisition of more locomotives and with better wagon management techniques<sup>23</sup>. Zambian rail transport connects to the rail systems in Zimbabwe, Tanzania and Mozambique, some of which are not of the same gauge. Efforts to rehabilitate the rail networks should be strengthened, as it represents one way in which transport might be diversified effectively.

14. Paraguay is rich in hydropower and also exports electricity. This offers Paraguay some options for developing its rail transport infrastructure. The lack of existing and adequate rail infrastructure means that an almost totally new installation of electric powered rail network would first need to be constructed in order to benefit from its hydropower resources.

15. Perhaps more realistic for Paraguay would be a switch to using

natural gas powered trucking<sup>24</sup> for domestic and international transport. Although natural gas requires its own infrastructure to become an effective alternative to diesel fuel, its use and technology is growing quickly. Neighbouring Bolivia has proven natural gas reserves, and Paraguay's location may bring benefits as the price depends in part on how far it has to travel to reach the importer.

#### IV. Lowering transport costs

16. Unfortunately, a significant portion of the cost of LLDCs exports is unrelated to the price of fuel. However, gains made in any of the Trade Facilitation areas that follow will help improve LLDC export competitiveness, and are therefore worth pursuing despite known difficulties.

##### A. World Bank findings

17. According to World Bank findings<sup>25</sup> presented at the 8-9 July 2008 Global Preparatory Meeting on the Midterm Review in Geneva, cost increases in transport come about because of: 1) *dweltimes in ports (delays)*, 2) *rent-seeking activities*, 3) *governance problems including in LLDCs themselves*, 4) *regulation protecting LLDC trucking services*, and 5) *bad private sector practices (customs brokers, importers, etc.)*. In particular, a focus was brought on the issue of port dwell times as a problem area that might offer quicker resolution than the others. Issues such as rent-seeking activities at border crossings, which plague much of LLDC transport, must be creatively financed out of the supply chain equation in order to make way for cost-saving reforms. How to do this was not specifically addressed. On a positive note, Lao PDR was given as an example of a country that reduced its transport logistics costs by 30 per cent by

<sup>21</sup> U.S. Energy Information Administration [www.eia.doe.gov/cabs/Kazakhstan/Background.html](http://www.eia.doe.gov/cabs/Kazakhstan/Background.html)

<sup>22</sup> LLDC Profiles: [www.unohrrls.org/en/lldc/39](http://www.unohrrls.org/en/lldc/39)

<sup>23</sup> The World Bank, WPS 4258, The Cost of Being Landlocked: Logistics Costs and Supply Chain Reliability Jean-François Arvis, et al.

<sup>24</sup> *Development of LNG-Powered Heavy-Duty Trucks in Commercial Hauling*, 1998

<sup>25</sup> *The need for a new approach to tackle the cost of being landlocked*, Gaël Raballand, July 2008, For more information search for « WPS 4258 » or [http://r0.unctad.org/ttl/ppt-2008\\_0708to09/gpm\\_almatyp02\\_en.pdf](http://r0.unctad.org/ttl/ppt-2008_0708to09/gpm_almatyp02_en.pdf)

removing protectionist regulation over domestic trucking services.

### **B. UNCTAD's corridor/ cluster-based approach**

18. Synchronising the transport operations between transit and landlocked developing countries is gaining recognition as one method to increase trade competitiveness. UNCTAD has piloted a creative corridor- and cluster-based trade and transport facilitation project<sup>26</sup> in which government agencies and private-sector operators from both landlocked and transit countries work together. In simple terms, the "cluster" of players involved work on improving the conditions of specific transport corridors to increase the amount and ease of traffic. Interestingly, the private sectors (e.g. trucking service operators) of transit countries are in many cases turning out to be the drivers of improvements because it is in their business interest. Exact cost saving potential is difficult to quantify, but UNCTAD's South America project estimated 30 per cent savings on total transport costs for shipping a 40-foot refer container from Asunción, Paraguay to St. Petersburg, Russia. Finding such areas of synergy will be increasingly important. UNCTAD will be publishing the results of three case studies this year that may be of interest to regional transit corridors.

### **V. Paradigm shift**

19. Given the reasonable assumption that oil prices will increase over time, it will become increasingly important for LLDCs to re-examine which markets they are targeting as well as which imports and exports are most vulnerable to oil price increases for the given market. The future promises much more of an economic focus at regional levels than it does at the global level as longer transport distances will simply erode competitiveness more quickly than it has in the past. Only higher freight value items should merit export to far away markets. LLDCs such as

Mongolia and Zambia which have mineral wealth are fortunate that global demand and price for their ores has increased greatly. Apparel goods, on the other hand, will have to find closer markets simply because their profit margins will not pay for the longer transport. It is becoming less viable to import and export bulk goods over long distance. For example, the recent rise of both cereals and oil prices globally has made importing grains expensive for some LLDCs, particularly if they are subsidised. For those countries that have the productive capacity to do so, adopting a strategy of import substitution of high value fertiliser for low value grains and growing them domestically instead will make more sense now. Higher transport costs mean that imports will increasingly come from less distant trading partners. Following the 1973 OPEC shock, for example, US imports from Europe and Asia dropped an impressive six per cent, while imports from neighbouring Caribbean and Latin America rose by an almost equal amount<sup>27</sup>.

### **VI. Almaty 2008 – 2013**

20. What can the Almaty Programme of Action do in the next five years to deal with this? Obviously it must continue to draw attention to the unique obstacles faced by LLDCs, but it must now also draw the issue of the escalating price of oil into the centre of discussions. The time is now to include a keen focus on the question of rising transport fuel prices particularly where they intersect with infrastructure (Priority 2), otherwise future initiatives will have no chance of combating them. The World Bank or other partner organisations could be approached for country specific, in-depth analyses on which exports and imports will be the most vulnerable as the global price of oil increases over time. Even creative tools such as scenario planning may be of value to help LLDCs envision and plan for a future with higher oil prices. Trade Facilitation efforts should also be redoubled, as this is the one area

<sup>26</sup> *The Global Enabling Trade Report, 2008 World Economic Forum* www.weforum.org

<sup>27</sup> CIBC StrategEcon, *Will Soaring Transport Costs Reverse Globalization?*, Rubin and Tal, May 2008

that has the biggest chance of making a real difference in the short term.

## VII. Conclusion

21. The high cost of transport is a *de facto* tariff that LLDCs will be burdened with more than ever before. The Canadian Imperial Bank of Commerce estimates that transport costs from Asia to the US were equivalent to a 3 per cent tariff on merchandise when oil was just USD 20 per barrel and would be about 11 per cent at USD 150 per barrel<sup>28</sup>. LLDCs should therefore explore which exports and imports as well as which trading relationships can survive oil's strangling embrace the best and invest or divest locally and regionally accordingly. As mentioned earlier, import substitution of fertiliser for cereals which are now much more expensive to import will offer net gains for those that have the productive capacity to grow grains domestically. Mongolia, Zambia and other LLDCs with valuable mineral ores such as copper are better positioned for rising fuel costs than those that rely more heavily on the export of lower value bulk goods. Furthermore, if the direction of trade is to and from far away markets, LLDCs should count on increasing exposure to rising fuel costs. Cultivating trade relationships with growing markets that are closer to home will help LLDCs mitigate the negative effects of oil prices on the rise, especially for those who have no viable alternatives and are heavily dependent on oil. The upcoming Midterm Review of the Almaty Programme of Action in New York comes at a critical juncture. Transport costs are threatening to erase the hard-earned gains of LLDC exports while a question remains in the background: where will the price of oil be next year?

## Acronyms

AFT	Aid for Trade
COMESA	Common Market for Eastern and Southern Africa
DFID	Department for International Development (UK)
LLDC	Landlocked developing country
MDG	Millennium Development Goal
MERCOSUR	Common Market of the South ( <i>Mercado Común del Sur</i> )
ODA	Official Development Assistance
OPEC	Organization of the Oil Producing Countries
PRSP	Poverty Reduction Strategy Paper
TAZARA	Tanzania-Zambia Railway Authority
TIR	International Road Transport convention
UNCTAD	UN Conference on Trade and Development
UNECE	UN Economic Commission for Europe
UNESCAP	UN Economic and Social Commission for Asia and the Pacific

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<sup>28</sup> [www.cbc.ca/money/story/2008/05/27/cibc.html](http://www.cbc.ca/money/story/2008/05/27/cibc.html)