Review of Progress made in structural economic transformation in Euro-Asian landlocked developing countries (LLDCs)

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Draft report prepared by Zulfan Tadjoeddin[1] (consultant) for UN-OHRLLS and UN ESCAP as a background document to support the Euro-Asia regional review meeting on the implementation of the Vienna Programme of Action for the Landlocked Developing Countries for the Decade 2014-2024.

[1] Email: z.tadjoeddin@westernsydney.edu.au

1. Introduction

The Vienna Programme of Action (VPoA) for land locked developing countries (LLDCs) is an important international advocacy to empower the LLDCs in overcoming their development challenges related to their unique geographical nature. This paper reviews progress made in structural economic transformation (Priority 5 of the VPoA) of LLDCs in Asia and Europe. It covers 12 (Afghanistan, Armenia, Azerbaijan, Bhutan, Kazakhstan, Kyrgyzstan, Lao PDR, Mongolia, Nepal, Tajikistan, Turkmenistan and Uzbekistan) Asian and 2 (Macedonia and Republic of Moldova) European LLDCs.

Structural transformation and diversification are seen as synonymous with development. Structural transformation has been commonly understood as a process of shifting "share of output and the distribution of employment from low- to high-value-added economic activities" (ESCAP, 2015, p. 5). Various means of promoting structural transformation have been advocated such as 'industrialisation'; 'export diversification'; 'strengthened productive capacities' and 'changes in the structure of economies, such as in the composition of production or foreign trade'.

In operational terms, structural transformation is popularly measured as the shift output and employment from agricultural to manufacturing. That is, during the process of structural transformation, the share of agriculture declines while the share of manufacturing increases. Then as the economy continues to progress toward maturity and advancement, the share of manufacturing should decline as in agriculture and the share of modern and high productivity services continues to rise.[2] This is a normal process of positive de-industrialisation as experienced by most of developed countries.

However, several caveats apply to this general narrative of structural transformation in the context of LLDCs and LDCs. *First*, the application of a general framework of structural transformation has to be country specific, especially for geographically unique LLDCs. For example, in Mongolia, a resource rich LLDC of only 3 million people covering a very large geographical area, the push for industrial development might not be an immediate need, given its productive capacity, manpower and market access (domestic and international). With its characteristics, Mongolia might need to concentrate more on capitalising enhanced value added and benefit from its primary sector, while investing in domestic capacity for the development of secondary sectors in the future.

Second, the discussion should consider the fact that most of the Asian and European LLDCs are transition economies. Almost all of them experienced steep declines in output and sharp rises in unemployment and poverty during the early phase of their transition. Most of them also took significantly long years to recover to the pre-transition period GDP. Several LLDCs in the region have also undergone

[2] See Chenery (1960), Chenery and Syrquin (1975), Kuznets (1966, 1971).

periods of conflict, war or political instability. These experiences have important bearings on the nature and speed of subsequent structural transformation.

Third, almost all of these countries are resource-rich and benefited from the commodity price boom of the early 2000s, until about 2008-2009 global financial crisis (GFC). This, too, has impacted on their growth and structural transformation experience. For example, together with high growth rates, they witnessed sharp real appreciation which adversely affected their tradable sectors. In short, their experience can be described as a classic case of "Dutch disease".

Fourth, in contrast to the historical trend observed in the present day developed countries, almost all Asian and European LLDCs are experiencing negative or pre-mature deindustrialisation, where the decline in the role of manufacturing is not due to natural advancement to high productivity service sector, but due to the decline in manufacturing competitiveness. This may be a consequences of several factors, such as neo-liberal policies pursued since the early 1990s and unfavourable conditions arising from the 2000s resource boom.[3]

Rowthorn and Wells (1987) developed a distinction between positive and negative deindustrialisation. Positive deindustrialisation is:

> "regarded as … the normal result of sustained economic growth in a fully employed, and already highly developed, economy. It occurs because productivity growth in the manufacturing sector is so rapid that, despite increasing output, employment in this sector is reduced, either absolutely or as a share of total employment. However, this does not lead to unemployment, because new jobs are created in the service sector on a scale sufficient to absorb any workers displaced from manufacturing. Paradoxically, this kind of de-industrialisation is a symptom of economic success." (Rowthorn and Wells 1987, p. 5).

On the other hand, negative deindustrialisation is "a product of economic failure and occurs when industry is in severe difficulties … labour shed from the manufacturing sector—because of falling output or rising productivity—will not be reabsorbed into the service sector. Unemployment will therefore rise" (Rowthorn and Wells 1987, p. 5).

In advanced economies, the peak of manufacturing sector's contributions to GDP – achieved in the 1960s – was around 36 per cent in Japan, 32 per cent in European Union and 30 per cent in industrial countries (Rowthorn and Ramaswamy 1997), before declining. But, in the LLDCs, in particular in Central Asia, the share of manufacturing in GDP began falling much earlier – even before reaching around 20 per cent.

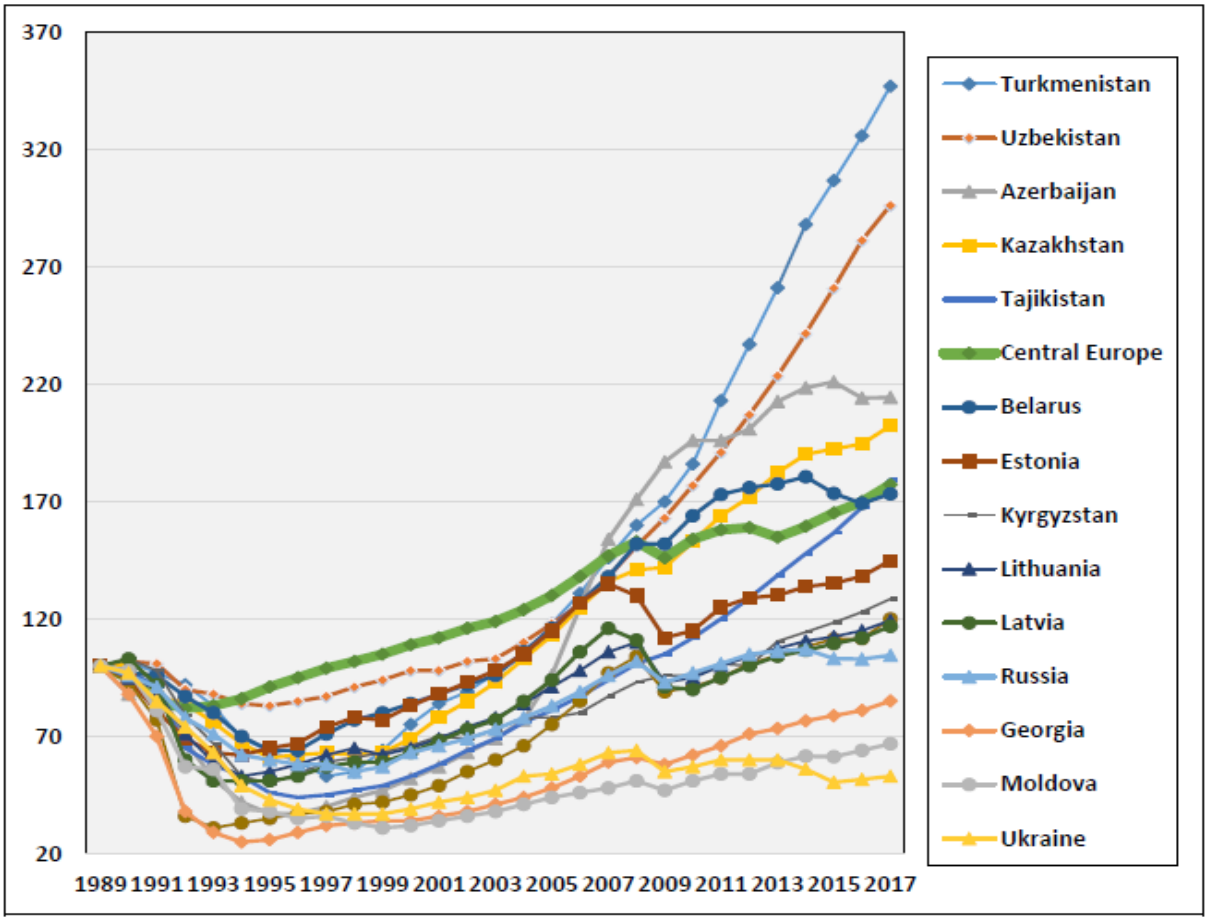
2. Development progress and challenges of LLDCs

[3] See Rodrik (2015), Rowthorn and Wells (1987) and Rowthorn and Ramaswamy (1997).

This section summarises the development progress and challenges of the LLDCs supported by publically available data from the World Bank, UN and other development organisations. The section begins with brief reflections on the transition experience of Central Asian LLDCs. As can be seen from Figure 1, there have been sharped declines in their GDP. While Uzbekistan's GDP recovered to the pre-transition level by the late 1990s, most took more than 10 years and Moldova's GDP still below the pre-transition period.

In retrospect, it is obvious that rapid economic liberalisation did not pay off: many gradual reformers from the former Soviet Union in this region performed better than the champions of "big bang" liberalisation – Baltic States and Central Europe. In Turkmenistan and Uzbekistan, for instance, privatisation was rather slow – over 50 per cent of their GDP is still produced at state enterprises, but their performance is superior to that of more liberalised economies. Resource abundance definitely helped resource exporters, such as Azerbaijan, Kazakhstan and Turkmenistan, to maintain higher incomes, when resource prices were high, but was not a *sine qua non* for growth – resource poor Tajikistan, as well as self-sufficient in fuel and energy Uzbekistan did much better than resource rich economies.

Figure 1: GDP change in economies of the Central Asian LLDCs, 1989 = 100%



Source: Popov (2018).

Note: Central Europe is the unweighted average for Czech Republic, Hungary, Poland, Slovakia and Slovenia.

Table 1 shows that economic growth trend in general has been slowing down since 2000. The most dramatic decline happened in Azerbaijan – from an average of 15.3 per cent in 2000-2010 to –0.6 per cent in 2015-2017. Armenia, Kazakhstan, Afghanistan and Mongolia also experienced significant declines in their GDP growth rates. Others, although did not record very high growth rates, were more stable; nevertheless, are also slowing. Despite the generally slowing trend, Bhutan recorded a growth recovery of an average of 7.1 per cent in 2015-17, increased from an average of 5.2 per cent in 2010-14.

Table 1: GDP growth, Per-capita GDP and Population

	Annual GDP growth (% average)			GDP per capita, PPP (current international $)	Population (000)
Country Name	2001-10	2011-14	2015-17	2017	2017
Armenia	8.3	4.7	3.6	9,647	2,930
Azerbaijan	15.3	2.5	-0.6	17,398	9,828
Macedonia, FYR	3.0	2.1	2.3	15,231	2,083
Moldova	5.2	5.1	2.9	5,698	4,051
Average	*8.0*	*3.6*	*2.0*		
Kazakhstan	8.3	5.6	2.1	26,410	18,204
Kyrgyz Republic	4.2	5.2	4.3	3,726	6,045
Tajikistan	8.2	7.2	6.7	3,180	8,921
Turkmenistan	7.8	11.6	6.4	17,993	5,758
Uzbekistan	7.0	8.1	7.0	6,865	31,911
Average	*7.1*	*7.5*	*5.3*		
Afghanistan	9.1	6.8	2.1	1,981	35,530
Bhutan	8.8	5.2	7.1	9,561	808
Lao PDR	7.1	7.9	7.1	7,023	6,858
Mongolia	6.5	12.3	3.2	13,000	3,076
Nepal	3.9	4.6	3.7	2,682	29,305
Average	*7.1*	*7.4*	*4.6*		

Source: World Bank, World Development Indicators (various issues)

Table 2 summarises export performance of Asian and European LLDCs (henceforth referred to as Eurasian LLDCs). It shows declining relative size of export (% GDP) in most of former Soviet Republics, except Macedonia. There has been a significant expansion of export in Mongolia due to resource boom. According to the

UN Comtrade dataset for years 2011--2015, the commodity exports (mineral fuels, lubricants and related materials, non-ferrous metals and nonmonetary gold) of the Mongolian economy account for around 96 per cent of its total exports, which is about 39 per cent of its total GDP during these years. Mongolia's top exports are: mineral fuels including oil: US$2.6 billion (42.4% of total exports), ores, slag, ash: $2.2 billion (35.3%); gems, precious metals: $662 million (10.8%).

Table 2: Global trade – export as % GDP

Country Name	1990	1995	2000	2005	2010	2014	2015	2016	2017
Armenia	35.0	23.9	23.4	28.8	20.8	28.6	29.7	33.1	38.1
Azerbaijan	43.9	27.9	39.0	62.9	54.3	43.3	37.8	46.4	48.7
Macedonia, FYR	25.8	33.0	32.9	34.8	39.8	47.7	48.8	50.0	55.1
Moldova		49.3	49.8	51.1	39.2	41.5	42.8	43.3	42.5
Kazakhstan		39.0	56.6	53.2	44.2	39.3	28.5	31.8	
Kyrgyz Republic	29.2	29.5	41.8	38.3	51.6	37.4	35.2	35.8	35.4
Tajikistan	27.8	65.6	98.8	27.0	14.9	9.1	10.5	13.3	15.7
Turkmenistan		84.0	95.5	65.0	76.3				
Uzbekistan	28.8	36.7	24.6	37.9	31.7	23.1	19.5	18.9	28.5
Afghanistan				27.4	10.0	6.6	7.0	6.9	
Bhutan	26.8	37.8	29.4	38.2	42.5	36.3	33.2	29.7	26.0
Lao PDR	11.3	23.2	30.7	29.0	35.4	40.8	34.0	33.2	34.3
Mongolia	18.3	40.5	54.0	58.8	46.7	52.2	45.6	50.2	59.5
Nepal	10.5	25.0	23.3	14.6	9.6	11.5	11.6	9.5	9.8

Source: World Bank, World Development Indicators (various issues)

3. **Structural economic transformation**

This section takes stock of progress made by Eurasian LLDCs in structural economic transformation – the extent these economies have diversified from primary commodity sectors. The discussion covers sectoral production and employment shares and the deepening of manufacturing. As mentioned earlier, one particular concern is premature deindustrialisation, observed in many Eurasian LLDCs.

Table 3 (a, b and c) presents **trends in GDP shares** of the primary (agriculture, forestry & fishing), secondary (manufacturing) and services sectors since 1990, covering the Almaty Programme of Action and Vienna Programme of Action for the LLDCs. The key points can be summarised as follows:

- General decline in the role of the primary sector in the economy since 1990. In most countries, the decline is very dramatic, such as in Azerbaijan (from 27% to 6%) and Turkmenistan (from 33% to 9%).

- The above trend of declining role of primary commodity has not been followed by a more important role of the more modern, productive and dynamic manufacturing sector.
    - In the former Soviet Republics (Eurasian LLDCs), a process of dramatic deindustrialisation has taken placed since 1990. This means that the two main tradable sectors (Agriculture and manufacturing) have shrunk very significantly, replaced by the mining sector and largely non-tradable activities (construction and services).
    - Other LLDCs in Asia showed a process of industrialisation till 2014, but data in the later years indicate a process of pre-mature deindustrialisation.

Table 3: sectoral shifts in GDP

(a) Agriculture, forestry, and fishing, value added (% of GDP)							
(Primary sector)							
Country Name	1990	1995	2005	2014	2015	2016	2017
Armenia	16.0	40.7	19.1	18.1	17.2	16.4	14.9
Azerbaijan	26.5	25.2	9.1	5.3	6.2	5.6	5.6
Macedonia, FYR	7.5	11.2	9.7	10.2	9.7	9.1	9.4
Moldova		29.3	16.4	13.0	12.2	12.1	12.2
Kazakhstan		12.3	6.4	4.3	4.7	4.6	4.4
Kyrgyz Republic	32.7	40.7	28.5	14.7	14.1	12.8	12.3
Tajikistan	33.3	36.7	21.2	23.4	21.9	20.4	
Turkmenistan	33.3	16.2	18.5	8.3	9.3		
Uzbekistan	33.1	28.0	25.0	17.1	16.6	16.1	17.3
Afghanistan			30.8	22.0	20.5	21.0	
Bhutan	34.4	30.8	22.3	16.8	16.7	16.5	15.2
Lao PDR	46.5	42.2	28.3	17.8	17.6	17.2	16.2
Mongolia	12.5	32.5	19.8	13.3	13.4	11.7	10.4
Nepal	48.8	39.0	33.8	30.3	29.4	29.2	27.0

(b) Manufacturing, value added (% of GDP)

Country Name	1990	1995	2005	2014	2015	2016	2017
Armenia	30.2	24.3	13.5	9.7	9.2	10.3	10.2
Azerbaijan	17.6	11.5	6.5	4.7	5.0	4.9	4.7
Macedonia, FYR	31.5	19.6	9.7	11.0	11.8	12.2	11.8
Moldova		22.3	13.1	11.6	11.9	11.8	11.5
Kazakhstan		14.6	12.0	10.3	10.3	11.3	11.2
Kyrgyz Republic	26.4	8.6	12.9	13.7	14.1	15.4	15.1
Tajikistan	24.8	26.8		7.6	8.7	9.7	
Turkmenistan		38.2	20.5 (2004)				
Uzbekistan							
Afghanistan			16.4	11.4	11.4	11.3	
Bhutan	7.7	10.3	7.1	8.1	8.0	7.5	7.1
Lao PDR	4.2	6.0	9.6	8.4	8.2	7.8	7.5
Mongolia	20.4	17.3	5.8	8.8	7.6	7.3	8.3
Nepal	5.8	8.9	7.6	5.8	5.6	5.3	5.2

(c) Services, value added (% of GDP)

Country Name	1990	1995	2005	2014	2015	2016	2017
Armenia				47.4	48.2	49.9	51.3
Azerbaijan	34.0	37.9	25.1	33.6	40.0	38.7	37.5
Macedonia, FYR	39.5	45.6	55.8	53.8	53.7	53.5	54.6
Moldova		33.1	50.4	54.5	56.9	56.1	
Kazakhstan		54.0	52.0	54.8	59.3	57.9	57.4
Kyrgyz Republic	30.6	35.6	42.4	50.6	52.1	50.1	50.4
Tajikistan	29.1	21.2	40.6	40.6	42.5	42.2	
Turkmenistan	36.7	19.1	42.9				
Uzbekistan	34.6	34.7	37.0	44.3	44.5	43.4	39.8
Afghanistan			39.0	53.0	53.2	52.8	52.7
Bhutan	38.9	32.9	38.1	37.2	37.6	37.4	37.2
Lao PDR	40.2	40.9	43.4	44.2	44.2	42.5	41.5
Mongolia	43.3	29.3	37.5	45.8	47.5	46.1	42.3
Nepal	30.4	33.2	45.8	48.7	49.5	50.0	51.6

Source: World Bank, World Development Indicators (various issues)

On the other hand, there have not been commensurate declines in agriculture's employment shares in almost all countries, except in Kazakhstan, where it declined from around 32 per cent in 2005 to 18 per cent in 2017 (Table 4). In Loa PDR, Nepal, Afghanistan and Bhutan respectively around 78 per cent, 72 per cent, 61 per cent and 56 per cent of the labour force still works in low productivity agriculture, implying large scale rural property.

Table 4: Sectoral employment

	Agriculture				Industry				Services			
Country Name	1995	2005	2014	2018	1995	2005	2014	2018	1995	2005	2014	2018
Armenia	51.7	40.6	34.8	33.2	18.1	17.7	16.7	16.3	30.3	41.7	48.4	50.4
Azerbaijan	44.9	40.5	36.8	37.5	10.7	12.6	14.3	13.9	44.4	46.9	48.9	48.7
Macedonia, FYR	21.7	19.5	18.5	16.0	41.2	32.4	30.4	29.7	37.1	48.1	51.2	54.3
Moldova	48.8	40.6	30.5	32.6	17.9	16.0	17.9	17.2	33.3	43.3	51.6	50.3
Kazakhstan	39.7	32.4	20.1	17.7	15.6	18.0	20.5	20.8	44.7	49.6	59.4	61.5
Kyrgyz Republic	54.0	38.5	31.6	26.1	10.9	17.6	20.4	22.4	35.1	43.9	48.0	51.5
Tajikistan	60.9	56.7	53.7	51.2	17.6	16.2	14.9	16.5	21.5	27.1	31.4	32.3
Turkmenistan	19.3	19.1	9.4	7.9	49.6	36.6	44.9	44.8	31.1	44.2	45.7	47.2
Uzbekistan	37.5	34.7	23.9	21.4	33.7	32.2	37.6	37.7	28.8	33.1	38.5	40.9
Afghanistan	78.7	71.8	61.6	62.0	4.1	6.6	6.5	6.8	17.2	21.7	31.9	31.3
Bhutan	83.1	70.3	56.7	55.6	2.1	4.8	10.8	9.7	14.8	24.9	32.5	34.7
Lao PDR	85.4	78.5	64.3	59.9	3.5	5.3	9.4	9.8	11.1	16.2	26.3	30.3
Mongolia	54.6	45.7	28.0	29.8	13.8	11.9	20.7	19.2	31.6	42.5	51.3	51.0
Nepal	81.1	76.0	72.8	71.3	4.7	4.7	7.9	8.2	14.2	19.3	19.3	20.5

Source: World Bank, World Development Indicators (various issues)

Notes: The agriculture sector consists of activities in agriculture, hunting, forestry and fishing. The industry sector consists of mining and quarrying, manufacturing, construction, and public utilities (electricity, gas, and water). The services sector consists of wholesale and retail trade and restaurants and hotels; transport, storage, and communications; financing, insurance, real estate, and business services; and community, social, and personal services.

Table 5 presents indicators showing **manufacturing's deepening**, which refers to the extent of advancement within the manufacturing sector. This indicates to what extent the manufacturing sector has transformed itself from a lower level, more traditional and simpler manufacturing activities and resulted products to a higher level, more modern and more sophisticated ones. Despite the deindustrialisation trend, data on the share of medium and high technology manufacturing value added (MVA) in the total of MVA is probably the best proxy to see the extent of advancement within the manufacturing sector over time. This indicator reflects progress related to technological content within the manufacturing sector. The key observations of mixed performance can be summarised as follows:

- During 2010 and 2015, countries show both progress and stagnation on this. For example, the share doubled in Moldova, from 8.4 per cent in 2010 to 18.8 per cent in 2015, while it has declined in Armenia and Tajikistan.

- The changes in the shares of medium and high technology MVA in the total MVA are not consistently reflected in the share of medium and high technology MVA export in the total MVA export.
- During 2010 and 2015, the shares of MVA export in total exports either declined or remained stagnant. On this, a few countries are worth highlighting: Armenia, Moldova, Mongolia and Nepal show the dominance (around 60-70 per cent) of manufacturing exports in their total export. It is particularly worth noting that the size of export (relative to GDP) is relatively large (around 40%) in small countries of Armenia, Moldova, Mongolia. This simply points to the importance of export market due to small size of domestic market (with population of around 3-4 million).

Table 5: Deepening of manufacturing

	Medium-high tech MVA share in total MANUF (%)		Medium-high tech Manuf export share in total MANUF export (%)		MANUF export share in total export (%)	
	2010	2015	2010	2015	2010	2015
Armenia	5.0	3.7	24.8	10.4	69.2	70.2
Azerbaijan	10.1	13.7	17.2	16.5	10.5	13.9
Macedonia						
Moldova	8.4	18.8	13.1	30.8	61.6	61.8
Kazakhstan	12.8	16.6	37.2	41.5	22.7	24.4
Kyrgyzstan	3.5	4.1	20.0	42.3	25.5	34.6
Tajikistan	3.7	2.5	66.3	66.3	13.8	13.8
Turkmenistan						
Uzbekistan						
Afghanistan	9.5	9.5	-	0.1	19.6	16.5
Bhutan						
Lao PDR						
Mongolia	2.1	6.7	1.9	0.3	62.9	59.9
Nepal	8.5	8.6	20.1	17.9	76.7	76.9

Source: UNIDO – IDR 2018

Table 6: Foreign Direct Investment (FDI) as % GDP

Country Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Armenia	5.5	3.3	4.7	4.4	6.9	6.0	7.3	7.3	8.1	8.8	5.7	6.4	4.7	3.1	3.5	1.7	3.2	2.2
Azerbaijan	2.5	14.4	32.5	55.1	54.4	33.8	21.4	13.9	8.2	6.5	6.3	6.8	7.6	3.5	5.9	7.6	11.9	7.0
Macedonia, FYR	5.8	12.7	2.8	2.4	5.4	2.3	6.2	8.8	6.2	2.8	3.2	4.8	3.5	3.7	0.5	3.0	5.1	3.8
Moldova	9.9	7.0	5.1	3.7	5.8	6.4	7.6	12.2	12.0	4.7	4.9	5.0	3.4	3.0	4.3	3.3	1.3	2.6
Kazakhstan	7.5	12.7	10.5	8.1	13.0	4.5	9.4	11.4	12.6	12.4	5.0	7.1	6.6	4.2	3.3	3.5	12.2	2.8
Kyrgyz Republic	-0.2	0.3	0.3	2.4	7.9	1.7	6.4	5.5	7.3	4.0	9.9	11.1	4.0	8.3	4.6	17.1	9.1	-1.4
Tajikistan	2.7	0.9	3.0	2.0	13.1	2.4	12.0	9.7	7.3	0.3	1.4	2.5	3.1	1.5	3.3	5.4	3.5	2.8
Turkmenistan	4.5	4.8	6.2	3.8	5.2	5.2	7.1	6.8	6.6	22.5	16.1	11.6	8.9	7.3	8.8	8.5	6.2	5.5
Uzbekistan	0.5	0.7	0.7	0.8	1.5	1.3	1.0	3.2	2.4	2.5	4.2	3.6	1.1	1.1	1.2	0.1	0.2	0.2
Afghanistan		0.0	1.2	1.3	3.5	4.3	3.4	1.9	0.4	0.4	1.2	0.3	0.3	0.2	0.2	0.9	0.5	0.3
Bhutan			0.5	0.5	1.3	0.8	0.7	6.2	0.2	1.4	4.7	1.7	1.3	1.1	1.2	0.3	0.5	-0.7
Lao PDR	2.0	1.4	0.3	1.0	0.7	1.0	5.4	7.7	4.2	5.5	3.9	3.4	2.9	3.6	6.9	9.9	6.3	4.8
Mongolia	4.7	3.4	5.6	8.2	4.7	7.4	7.2	8.8	15.0	13.6	23.5	43.9	34.8	16.4	2.8	0.8	-37.2	13.0
Nepal	-0.0	0.3	-0.1	0.2	-0.0	0.0	-0.1	0.1	0.0	0.3	0.5	0.5	0.5	0.4	0.2	0.2	0.5	0.8

Source: World Bank, World Development Indicators (various issues)

The extent a country is able to attract the inflow of foreign direct investment (FDI) can indicate its **economic dynamism and competitiveness**. Table 6 shows the most recent trends of net FDI inflows in the Eurasian LLDCs. Several countries with a dominant resource sector (mining) show their attractiveness for FDI, such as Azerbaijan, Kazakhstan and Mongolia. For example, the inflow of FDI jumped significantly in Kazakhstan reaching the figure of 55 per cent of GDP during the resource boom of the early 2000s. This, however, cannot be simply interpreted as signs of dynamism and competitiveness as the flow is due to their natural resource endowments rather than created economic attractiveness resulting from human resource capabilities, technical capacity upgrading, institutional strengths, etc.

Table 7: Research and Development (R & D) expenditure as % of GDP

Country Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Armenia	0.19	0.28	0.25	0.32	0.26	0.26	0.24	0.21	0.22	0.29	0.24	0.27	0.24	0.22	0.24	0.25
Azerbaijan	0.34	0.34	0.30	0.32	0.30	0.22	0.17	0.17	0.17	0.25	0.22	0.21	0.22	0.21	0.21	0.22
Macedonia, FYR	0.42	0.29	0.24	0.21	0.23	0.23	0.19	0.17	0.22	0.20	0.22	0.22	0.33	0.44	0.52	0.44
Moldova				0.32	0.35	0.40	0.41	0.55	0.53	0.53	0.44	0.40	0.42	0.35	0.37	0.37
Kazakhstan	0.18	0.22	0.25	0.25	0.25	0.28	0.24	0.21	0.22	0.23	0.15	0.15	0.17	0.17	0.17	0.17
Kyrgyz Republic	0.16	0.17	0.20	0.22	0.20	0.20	0.23	0.23	0.19	0.16	0.16	0.16	0.17	0.15	0.13	0.12
Tajikistan		0.09	0.07	0.07	0.07	0.10	0.11	0.07	0.07	0.09	0.09	0.12	0.11	0.12	0.11	0.11
Turkmenistan																
Uzbekistan	0.36	0.35	0.29	0.27	0.27	0.24	0.22	0.22	0.19	0.20	0.20	0.19	0.20	0.20	0.20	0.21
Afghanistan																
Bhutan																
Lao PDR			0.04													
Mongolia	0.19	0.27	0.25	0.25	0.27	0.24	0.19	0.24	0.34	0.30	0.24	0.23	0.24	0.23	0.22	0.16
Nepal									0.05	0.26	0.30					

Source: World Bank, World Development Indicators (various issues)

As efficiency and competitiveness of an economy is a product of continued efforts and struggle, facilitated by developmental macroeconomic and pro-active sectoral policies, it is essentially a long-term process requiring certain investment in key priority areas. In other words, efficiency and competitiveness are determined largely a process from within. In this regard, one needs to look for other indicators, and on this, investment in research and development (R&D) is very crucial. Table 7 shows most recent trends of R&D expenditure. In general, R&D expenditures in the Eurasian LLDCs are low and hardly show increasing trends, which is not supportive for innovations required for facilitating economic transformation through knowledge acquisition and innovation. As a comparison, China and India spend more on R&D, around 2 per cent and 0.6 per cent respectively. An important point to note is that resource rich LLDCs experiencing resource boom do not show higher spending on investment in research and development indicating that the resource windfall has not been invested domestically to improve internal capacity for future structural transformation.

Table 8: Broadband and mobile cellular subscriptions

(a) Fixed broadband subscriptions (per 100 people)

Country Name	2005	2010	2014	2015	2016	2017
Armenia	0.07	3.25	9.39	9.82	10.23	10.76
Azerbaijan	0.03	5.26	19.97	19.75	18.55	18.37
Macedonia, FYR	0.60	12.50	17.04	17.43	18.33	18.56
Moldova	0.25	6.63	12.51	13.14	13.73	14.42
Kazakhstan	0.02	5.30	12.28	12.96	13.06	14.14
Kyrgyz Republic	0.05	0.43	2.96	3.61	4.04	4.27
Tajikistan		0.06	0.07	0.07	0.07	
Turkmenistan		0.01	0.04	0.05	0.07	
Uzbekistan	0.03	0.41	2.69	5.77	8.73	10.40
Afghanistan	0.00	0.01	0.00	0.02	0.03	0.05
Bhutan		1.19	3.22	3.54	2.07	2.07
Lao PDR	0.01	0.09	0.17	0.18	0.36	0.40
Mongolia	0.07	2.83	6.75	6.99	7.47	9.27
Nepal		0.22	0.88	1.06	0.77	

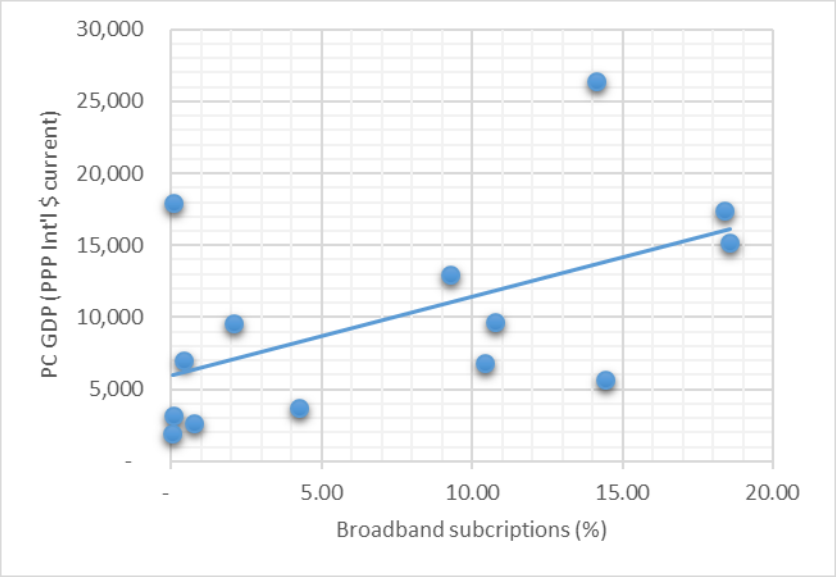
(b) Mobile cellular subscriptions (per 100 people)

Country Name	2000	2005	2010	2014	2015	2016	2017
Armenia	0.6	10.7	134.3	119.0	118.8	117.4	119.0
Azerbaijan	5.2	26.3	100.7	111.0	111.2	104.8	103.0
Macedonia, FYR	5.7	54.9	104.0	107.1	100.2	98.5	101.9
Moldova	3.3	26.2	62.4	91.8	91.3	93.3	90.4
Kazakhstan	1.3	34.7	118.3	163.5	148.2	142.0	145.4
Kyrgyz Republic	0.2	10.7	97.3	131.0	129.2	127.8	121.9
Tajikistan	0.0	3.9	77.7	95.7	99.3	107.6	
Turkmenistan	0.2	2.2	62.9	131.8	140.9	151.4	
Uzbekistan	0.2	2.7	73.2	70.9	70.3	74.0	76.0
Afghanistan	-	4.8	35.5	56.2	58.4	62.3	67.4
Bhutan	-	5.5	54.2	80.4	85.8	87.5	90.5
Lao PDR	0.2	11.4	64.1	70.2	55.9	58.6	54.1
Mongolia	6.4	22.1	92.5	103.5	103.1	111.2	126.4
Nepal	0.0	0.9	34.0	81.3	96.0	110.8	123.2

Source: World Bank, World Development Indicators (various issues)

On efficiency and competitiveness of an economy, another factor to consider is information and communication technology (ICT) penetration. One way to gauge the extent of the penetration is to look at the internet broadband and cellular phones coverage. It has to be noted that, fixed broadband subscription is better in representing access to ICT rather than mobile cellular subscription which is, in most cases, more of a response to poor fixed-line telephone infrastructures. Data presented in Table 8 show that the fixed broad band penetration vary significantly. ICT infrastructure represented by fixed broadband subscriptions in the society basically represents development progress as it is positively correlated with per capita GDP (see Figure 2).

Figure 2: Broadband subscription and per capita GDP (14 Eurasian LLDCs, 2017)



Source: World Bank, World Development Indicators

Economic dynamism is a key to the process of structural transformation. In this regard, the role of the private sector is very important and few key indicators are worth looking at. As previously presented, net FDI inflows and exports are good measures of economic dynamism, where the private sector plays key roles, facilitated by the state policies. As previously highlighted, however, both measures (FDI and exports) are primarily driven by the resource sector rather than economic attractiveness driven by human resource or technological advancement. Therefore, these measures of economic dynamism have to be treated with cautions.

Table 9: Domestic credit to private sector (% of GDP)

Country Name	1995	2005	2010	2014	2015	2016	2017
Armenia	7.3	8.0	28.4	48.9	45.6	48.9	51.5
Azerbaijan	1.2	9.5	17.9	30.6	38.5	26.6	16.4
Macedonia, FYR	23.1	23.3	44.2	49.4	51.1	48.1	49.4
Moldova	6.7	23.6	35.4	37.0	34.6	30.3	23.4
Kazakhstan	7.1	35.7	39.3	33.5	37.7	33.0	30.5
Kyrgyz Republic	12.5	7.9	13.6	20.1	22.6	20.0	21.8
Tajikistan		9.1	14.2	21.5	22.7	19.2	13.7
Turkmenistan							
Uzbekistan							
Afghanistan		4.8	11.5	3.9	4.0	3.6	3.5
Bhutan	7.6	18.1	41.5	43.8	45.2	47.0	
Lao PDR	9.1	7.4	20.9				
Mongolia	8.0	27.6	34.2	59.3	53.9	56.9	52.9
Nepal	22.8	28.7	54.6	61.9	64.7	81.1	81.2

Source: World Bank, World Development Indicators (various issues)

A key policy variable impacting on the expansion of the private sector is the relative size of domestic credit allocated to the private sector as presented in Table 9. In general, between 1995 and 2010, there were significant increases in the relative size of domestic credit allocated to the private sector, with the exception of Kyrgyzstan and Tajikistan. These increases are likely due to two inter-related factors: (i) the transition to market economy and (ii) the expansion of domestic financial/banking system.

Recent data, however, show contrasting trends. Domestic credit to the private sector has either shrank or stagnated in most of former Soviet Republic LLDCs. Dramatic declines are found in Azerbaijan and Tajikistan. The sharp declines in domestic credit have also been experienced in Afghanistan from a very small base of only 11 per cent in 2010 to 3.5 per cent in 2017. On the other hand, expansions of domestic credit to private sector are recorded in Nepal and Mongolia. While the figure in Nepal is truly exceptional in indicating private sector dynamism, the situation in Mongolia is likely related to the resource boom phenomena.

4. Domestic policies for fostering economic transformation

This section provides policy framework and highlights policy developments in selected Eurasian LLDCs with regard to fostering economic transformation. It has to

be noted that policy direction might not be always consistent with the state of progress highlighted in Section 3. This section begins with highlights on recent policy development in several Eurasian LDCCs related to structural transformation component of the VPoA, followed by suggested policy frameworks for the LLDCs to contemplate on.

4.1 Recent policy development[4]

Nepal

Nepal has mainstreamed the VPoA in the national development plan, currently implementing their 14th Periodic Plan. In addition to infrastructural development in the areas of energy, road and air transport, and ICT, structural economic change is set to be achieved through the agricultural sector's transformation and expansion of tourism sector, industries and small and medium enterprises (SMEs). A strong focus has also been given to domestic and foreign investment as well as collaboration with the private sector to develop infrastructure and promote export of high-value products.

Recent developments favourable for structural transformation include: (i) improvement in the energy sector (Nepal's ability to solve the power crisis and declare an official end of load shedding, hydroelectric initiatives with private sector involvement and reaching 87% of population's access to electricity) and (ii) upgrading of ICT infrastructure through new investment in optical fibre and the drafting of a new Telecommunication and IT Act .

Bhutan

Bhutan has mainstreamed the VPoA in the national development plan by integrating it in the recently completed 11th Five Year Plan (2013-2018) and its 16 National Key Result Areas (NKRA) and the incoming 12th Five Year Plan (2018-2023). Recent development and policies favourable for structural transformation include:

- Initiatives to improve trade links between Bhutan, India, Nepal and Bangladesh across the north-east of the Indian sub-continent, which will foster external trade.
- New infrastructure development/improvement including road, airport, ICT and energy infrastructure.
- Bhutan's manufacturing sector has been largely driven by hydropower, with India as the main export market. Hydropower has become the backbone of Bhutan's economy. Due to the hydropower electricity sales, Bhutan's per capita GDP has become one of the highest in South Asia, higher than India, Pakistan, Bangladesh and Nepal.
- Bhutan has adopted numerous key policy instruments such as the Economic Development Policy 2016, the FDI Policy 2016 and the Public Private Partnership Policy 2016 in order to boost investment in key sectors, attract investors and create a greater role of the private sector. While efforts to tap hydropower will

[4] This part draws on individual country report on the status of VPoA in each country.

continue, Bhutan has identified the needs to expand investments in tourism, organic agriculture, and cottage and small industries.

Mongolia
Recent policy and development initiatives favourable for structural transformation include:

- Implementations of the bilateral MOU on Aligning Mongolia's "Development Road" and China's "Belt and Road" Initiatives and the trilateral "Mongolia-Russia-China Economic corridor program". The purpose of the Economic Corridor program is to enable development and expansion of the trilateral cooperation by implementing 32 major joint projects aimed to increase trade turnover, ensure competitiveness in goods supply, facilitate cross-border transportation and develop infrastructure.
- As an effort for export diversification, the "Mongol Export Program" was adopted in September 2018. The program is mainly aimed at taking necessary steps to stabilize a favourable legal and financial environment for Mongolia's non-mining exports, support value-addition processing and strengthen competitiveness of those export porducts in foreign markets, as well as to facilitate trade and to expand access to export markets. The WTO Trade Facilitation Agreement (TFA) entered into force on 22 February 2018 is an important agreement for LLDCs to ease trade processes, bring down barriers to trade and enhance the capacity of the developing world to better integrate into global trading network.
- It has to be noted that, as Mongolia is a resource depended country with a large geographical area and sparsely small number of population, this characteristic is unlikely to alter in the near future. The focus should be for Mongolia to be able to improve their bargaining position vis-à-vis international player in the mining sector and capitalise higher return from the sector and making sure that resource revenue is invested in domestic capacity development for future structural transformation.

Armenia
The Government has promoted public-private partnerships (PPP) for infrastructure development. Most of the PPP projects in Armenia are implemented in infrastructure sector, namely transport, energy and telecommunication.

The country has adopted export-led industrial policy to enhance the competitiveness and diversification of exports in terms of both product and geographical coverage. In January 2015 Armenia officially joined the Eurasian Economic Union (EAEU). EAEU has five member states: Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia. It stipulates a common market of goods, capital and labour, and the operation of common macroeconomic, competition, financial

and other regulation, including harmonisation of policies such as energy and transport.

Innovation and technological sectors' development is one of the key factors to increase competitiveness and productivity of the whole economy as well as to boost well-being in the country. To this end the Concept Paper on the Initial Strategy for Formation of Innovation Economy was adopted by the Government of Armenia for 2011-2020. This Strategy covers a number initiatives including projects of establishment of technological centres and creation of the first venture fund.

Investment policies are aimed at improving the investment climate, the legislative framework, and stimulating investment in the Armenian economy, including foreign direct investments (FDI).

Small and medium entrepreneurship (SME) development is declared by the Government a priority policy area intended to ensure country's sustainable economic growth. In this regard SME sector is perceived to have a significant impact on promoting the country's inclusive development and delivering tangible socio-economic impact, as well as balanced regional development.

Azerbaijan

As the country's economy is dominated by the oil sector, the development of non-oil sector has been adopted as one of main directions in development concept "Azerbaijan 2020: Look into the Future" that was stipulated in 2012.

Investment Promotion Document has been launched to ensure attractiveness of non-oil sector to FDI. Industrial and technology parks have been introduced with facilities including certain tax holidays and consolidated infrastructure.

Export promotion and stimulation mechanisms are available for non-oil goods produced in the country. In early 2018, Agency for Small and Medium-Sized Enterprise (SMEs) was established. The agency is aimed at supporting the development of SMEs, providing and coordinating ranges of services for SMEs. The country has also been initiating campaigning for non-oil Azerbaijan products in foreign market as 'made in Azerbaijan'. The initiative consists of 10 different support mechanisms to stimulate export and promote 'made in Azerbaijan' abroad.

4.2 Policy Framework for Structural Transformation[5]

As noted in UNCTAD (2014, p. 121, emphasis original) "Economic transformation requires not merely increasing the resources available for investment, but also ensuring enough of the **right** kinds of investment, using the **right** technologies in the **right** sectors to achieve:

[5] This sub-section draws on Chowdhury (2018).

- Diversification, by developing new industries and activities, and increasing value addition in existing industries and activities;
- Deepening, by creating forward and backward linkages with existing industries; and
- Upgrading of products and processes."

These require industry policy, supported by enabling macroeconomic, trade, financial, labour market, human resource and research & development (R&D) policies. However, industrial development has to be in tandem with rural and agricultural development. This means that agricultural and rural development policies must be an integral part of industry policy.

Therefore, although a large part of industry policy deals with industries or manufacturing; but it is an integrated approach to break out of vicious circles of low income, low savings and poverty by simultaneously addressing interconnected imperfections in credit, labour and product markets, as well as inadequate infrastructure, skills, technology and aggregate demand while at the same time adapting and building resilience to climate change and external volatilities. In short, it is for structural transformation towards a more inclusive and sustainable future. This fits with Warwick's broad definition of industry policy as "**any type of intervention** or government policy that attempts **to improve the business environment** or to alter the structure of **economic activity** toward **sectors, technologies or tasks** that are expected to offer better prospects for economic growth or **societal welfare** than would occur in the absence of such intervention" (Warwick, 2013, pp. 16), emphasis original).[6]

Industrial policy: Comparative advantage following or defying?

The broad definition of industrial policy implies a *horizontal* or *functional* approach. They are policies and measures designed to improve business environment generally without favouring any *particular* industry or activity. Thus, they are 'neutral'. On other hand, policies that are designed to alter the structure of economic activity towards *specific* sectors or activities are referred to as *vertical*, or *selective* industrial policies. These are more interventionist.

Following Lall and Teubal (1998), UNCTAD and UNIDO (2011, p. 34) describe industrial policy as involving "a combination of strategic or selective interventions aimed at propelling specific activities or sectors, functional interventions intended at improving the workings of markets, and horizontal interventions directed at promoting specific activities across sectors." They aim to

[6] Other authors (Chang, 2009; Landesmann, 1992; Pack and Saggi, 2006) provide narrower definitions of industrial policy. For example, Pack and Saggi (2006, p. 2) defines industrial policy as "any type of **selective intervention** or government policy that attempts to alter the structure of production toward sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention, i.e. in the market equilibrium" (emphasis added).

promote cross-sector activities for which markets are missing or are difficult to create. A typical example is innovation and R&D policy.

Macroeconomic stabilisation, infrastructure and education & skill development policies fall under horizontal category – they apply to all sectors equally, although ability to take advantage of them may differ among firms within a sector. Horizontal or functional industrial policies are not prone to rent-seeking or directly unproductive activities by particular industry lobbies, because they do not create industry-specific rents or try to pick "winners".

Tariff protections, tax concessions, subsidies, specialised credit, etc. fall under vertical category. Being more interventionist in nature, vertical industrial policies are more information-intensive, and hence are more demanding. That is, policymakers need to identify industries ("winners") which could become the engine of growth and hence worthy of support or protection.

Many progress and development initiatives undertaken in Eurasian LLDCs fall under the horizontal or functional category. This kind of industrial policy generally work through enabling market and can be described as comparative advantage following (CAF). According to the CAF strategy, countries should develop industries that are consistent with their comparative advantages, as determined by their endowment structure, and do not try to overleap necessary stages aiming at exporting the goods which are exported by very advanced countries (Lin, 2012). Oil rich countries, like Kazakhstan and Azerbaijan, for instance, according to this logic, should aim at developing heavy chemical, not, for example, high-tech computer industries. Similarly, labour surplus countries, such as Afghanistan and Nepal should concentrate on labour-intensive activities, and try to catch the lower end of global value chain (GVC).

But desired structural transformation may also require vertical or selective industrial policy to defy determinism of factor endowments. Such strategies are referred to as comparative advantage defying (CAD). For example, Japan protected its car industry with high tariffs for nearly four decades, provided a lot of direct and indirect subsidies, and virtually banned foreign direct investment in the industry before it could become competitive in the world market. It is for the same reason that the electronics subsidiary of the Nokia group had to be cross subsidised by its sister companies for 17 years before it made any profit. "History is full of examples of this kind, from eighteenth-century Britain to late twentieth-century Korea" (Lin and Chang, 2009).[7]

The CAD strategy does not necessarily imply a transition to more technologically sophisticated industries, but rather, to industries that are not linked to comparative advantages of a particular country. Theoretically, it could be a

[7] Hausman-Hwang-Rodrik's (Hausmann, Hwang and Rodrik (HHR), 2007; Rodrik, 2006) suggestion to promote high tech industries and R&D in relatively poor countries is not very dissimilar to Chang's CAD strategy.

transition from chemicals to machine building with the same, or even lower, level of R&D intensity and technological sophistication.

Unfortunately, economic theory does not suggest any definite clues for picking the "winners", except for the idea that these industries should have the highest externalities, i.e. their social returns should be higher than private returns. Yet, it is not easy to measure these externalities. Nevertheless, upon examination of the literature and the experience of countries with industry policy, it is possible to isolate methods which can aid in identification of industries that should be supported (Popov and Chowdhury, 2016). Some authors have specified the characteristics that such "winner" sectors must have, e.g., export, job, and knowledge creation potential (Reich, 1982); activities new to the economy (Rodrik, 2004); higher technological content and promote innovative activities with strong backward and forward linkages to the rest of the economy (Ocampo, Rada and Taylor, 2009).

Furthermore, selective policies are prone to risk rent-seeking, and supported/protected firms or industries may become complacent, and hence less efficient or competitive. There is considerable debate about the efficacy of such industrial policy instruments that try to pick the "winners", and critiques of industrial policy often point to the failures mainly attributable to rent-seeking and the difficulties of picking the winners.

In order to overcome such problems, it is suggested that these measures be in place for a fixed period on the condition that the supported/protected firms/industries must achieve certain goals (e.g. export) within the pre-specified period. For example, a government can support several promising industries with the condition that assistance ends, if the increase in export is not achieved within, for example, five years. This is called "EPconEP" – effective protection conditional on export promotion (Jomo, 2013). Economic policymakers in this case are similar to the military commander who begins an offensive on several fronts, but throws reserves where there has been a breakthrough.

Governments can also choose to support some general principles, such as productivity, competitiveness, environmental soundness and inclusiveness, without necessarily identifying particular sector/activities ("winners" or "losers"). Firms which fall under the industry average or a bench-mark, will have to either improve or disappear, whereas above average firms become more dynamic. For example, governments can raise minimum wage to nudge low-productivity firms to improve their performance and move towards higher productivity activities. Higher minimum wage applies to all; but low productivity activities can find them in a disadvantageous position vis-à-vis high productivity activities (see Box 5). Exchange rate and reserve accumulation policies also apply uniformly across the economy and can also be similarly used to promote export-oriented activities (see Box 6).

Box 1: Wage and labour market policies for structural transformation: The Singapore experience

Singapore used labour-market, in particular wage policies during the later phase, to restructure its industries by phasing out labour-intensive activities. However, it is obvious that at a later stage of development wages must rise commensurate with the higher levels of per capita GDP. The symbiotic relationship between the union and the government helped Singapore's economy without union resistance. Being part of the policy-making process, trade union leaders understood the need for economic restructuring to remain internationally competitive. Trade union leaders also helped the government devise compensation packages and retraining programmes for workers who lost jobs due to restructuring. The government of Singapore introduced a Skills Development Fund (SDF) to collect levies from the "sunset" industries (low-skill, low-wage), thereby encouraging firms to retrain workers and making sure they remain employable. Employers were also required by law to contribute to workers' retirement funds. The government, by legislating compulsory employer contribution to the government-managed Central Provident Fund (CPF), has been able to create a sense of fairness in industrial relations. As the sunset firms exited under the pressure of rising costs, their workers did not fear losing their entitlements.

Finally, the tripartite wage-fixing mechanism at the national level accelerated the industrial restructuring process. By de-linking productivity-based wage increases at the *enterprise level* and adhering to the *industry-wide average productivity-based wage increases*, the system raised the unit labour cost of firms with below-industry-average productivity, thereby forcing them to exit. This also meant that firms with above-industry-average productivity enjoyed lower unit labour costs, hence higher profit rates for reinvestment.

Singapore's experience can be emulated by LLDCs such as in central Asia and Europe, especially when considering minimum wage. A common criticism of minimum wage adjustments is that they interfere with market forces in wage setting and raise labour costs, resulting in layoffs of workers – especially in small and medium sized enterprises (SMEs). This may be a valid consideration if minimum wages were increased abruptly without appropriate measures for adjustment in labour-intensive sectors. However, fears that minimum wages per se lead to employment losses appear to lack empirical verification. Instead, a growing number of studies indicate that the relationship between the minimum wage and employment is not necessarily negative.

Minimum wages have many benefits apart from boosting workers' income. Increased incomes for workers boost consumption demand, while increased labour costs trigger new economic activities with higher value-added content. Minimum wages thus improve the competitiveness of an economy by raising knowledge-based skill contents of workers in preparation for increased international labour competition. Such wage policies also contribute to reduction of income inequality by

redistributing income towards low wage workers as well as lower labour market inequality. This, in turn, improves workers' morale and reduces the risk of industrial unrest, which ultimately increases productivity and reduces worker turnover, resulting in a lower cost of production and allowing firms to absorb the rise in unit labour cost.

Source: Popov and Chowdhury (2016), ESCAP (2013).

Box 2: Exchange rate policy for structural transformation

As the experience of successful countries shows, the use of exchange rate as an industrial policy instrument can avoid pitfalls of rent-seeking. Exchange rate affects the entire economy as it applies uniformly providing stimuli to all producers of tradables at the expense of real wages (consumption) and non-tradables. To be able to use an undervalued exchange rate as an effective industrial policy tool, however, countries need to be able to accumulate foreign exchange reserves and manage it judiciously.

Undervaluation of exchange rate via accumulation of foreign exchange reserves as an industrial policy – aimed at promoting export oriented growth by benefiting the producers of tradables and exporters at the expense of the producers of non-tradables and importers – is gaining support in the literature. If there are externalities from export and production of tradables (industrialisation, development of high tech sectors), undervaluation of the exchange rate resulting from the accumulation of reserves provides a subsidy to these activities and this subsidy is automatic, i.e. does not require a bureaucrat to select possible beneficiaries.

In short, this is a non-selective industrial policy promoting export and production of tradables that seems to be quite efficient especially in countries with high corruption and poor quality of institutions. Accumulation of reserves and undervaluation of the exchange rate may be good for structural transformation in resource rich LLDCs. This also applies to those LLDCs which receive large remittances, e.g. Armenia, Moldova, Kyrgyzstan, Tajikistan and Nepal.

It remains to be said that the policy of reserve accumulation is often considered to be self-defeating because in order to avoid inflation (that would eat up the impact of devaluation on real exchange rate) it is necessary for the monetary authorities to carry out sterilisation policy, i.e. to sell government bonds in order to neutralise the impact of purchases of foreign currency on money supply. But sales of government bonds lead to higher interest rates that in turn attract capital from abroad that contribute to increase in foreign exchange that again should be sterilised, which creates a vicious circle. That is why economists talk about "impossible trinity" – a country cannot maintain at the same time an open capital account, managed exchange rate and independent monetary policy. But many developing countries

exercise control over capital flows (e.g., China, Fiji and Viet Nam) and even without such a control, capital mobility – especially for large economies – cannot be considered perfect.

In practice, as the statistics shows, the accumulation of foreign exchange is financed through government budget surplus and debt accumulation, but not through money printing. That is to say, most countries that accumulated reserves rapidly exhibited low inflation, and low budget deficit (or budget surplus), but increasing holdings of government bonds by the public.

Source: Popov and Chowdhury (2016a).

Industrial policy instruments

Partly following Warwick (2013), Weiss (2015) has identified five categories of industrial policy instruments: those related to the product market, labour market, capital market, land market, and technology. They are further categorised into market-based, defined as instruments operating through pricing; and public goods, referring to the provision of goods and services that private firms would not supply on their own. Table 10 presents industrial policies for low-income countries and Table 11 for middle-income countries.

Table 10: Select industrial policies in low-income economies

Policy domain	Instruments	
	Market-based	Public goods/direct provision
Product market	Import tariffs, export subsidies, duty drawbacks, tax credits, investment/FDI incentives	Procurement policy, export market information/trade fairs, linkage programmes, FDI country marketing, one-stop shops, investment promotion agencies
Labour market	Wage tax credits/subsidies, training grants	Training institutes, skills, councils
Capital market	Directed credit, interest rate subsidies	Loan guarantees, development bank lending
Land market	Subsidized rental	EPZs/SEZs, factory shells, infrastructure, legislative change, incubator programmes
Technology		Technology transfer support, technology extension programmes

Source: Weiss (2015, p. 9)
Notes: EPZs: export processing zones; FDI: foreign direct investment; SEZs: special economic zones.

Table 11: Select industrial policies in middle-income economies

Policy domain	Instruments	
	Market-based	Public goods/direct provision
Product market	Import tariffs, duty drawbacks, tax credits, investment/FDI incentives	Procurement policy, export market information/trade fairs, linkage programmes, FDI country marketing, one-stop shops, investment promotion agencies
Labour market	Wage tax credits/subsidies, training grants	Training institutes, skills, councils
Capital market	Interest rate subsidies, loan guarantees	Financial regulation, development bank (first/second tier) lending, venture capital
Land market	Subsidized rental	EPZs/SEZs, factory shells, infrastructure, legislative change, incubator programmes
Technology	R&D subsidies, grants	Public-private research consortia, public research institutes, technology transfer support, technology extension programmes

Source: Weiss (2015, p. 23)

Notes: EPZs: export processing zones; FDI: foreign direct investment; SEZs: special economic zones.

It is important to note that some industrial policy instruments are expensive, and hence may not be suitable for countries with severe fiscal constraints. Mobilising resources, thus, becomes crucial along with choosing those instruments which are within a country's fiscal means in the immediate run and then gradually move upstream as its fiscal space growth. This once again, highlights the importance of a pragmatic and evolutionary approach.

Comparison of Table 10 and Table 11 reveals relatively costly and complex industrial policy instruments that middle-income countries can introduce to upgrade their industrial strategies and sustain industrialisation and development. These instruments are found in two policy domains: capital markets and technology. Capital markets are rudimentary in many low and middle-income countries. They develop along with the level of development of a country, allowing governments to provide venture capital to projects with a high-risk profile, but high growth potential (e.g. innovative projects in new technological fields). Similarly, as firms accumulate knowledge and capabilities and the State technical and administrative capabilities grow, governments can offer a number of incentives to stimulate innovation. The experience of East Asian economies is once more illuminating in this regard.

Designing and implementing industrial policy

Just as there is no one-size-fits-all policy package, there is no set rule or one simple "recipe" as to how countries should design, coordinate, and implement an industrial policy. It all depends on varying country circumstances. Nevertheless, while each country has to individually experiment and learn by doing when establishing its

own industrial policy programmes, important lessons can be learned from other countries' experiences.

Thus, various authors have produced general advice on how to effectively design and implement industrial policy. This relates to two main aspects of industrial policymaking processes: (a) how to build an institutional setting capable of implementing policies effectively; and (b) how to manage the delicate relationship with the private sector.

Based on a wide-ranging country experiences, Devlin and Moguillansky (2011) outline a set of strategic and operational principles. They start with two over-arching strategic principles that should serve as the guide for effective industrial policy implementation. First, State initiatives must be pro-active, selective, and focused on the long term, rather than simply tied to the electoral cycle or the need to gain popular legitimacy over the short term to remain in power. Here the problem of carefully "picking winners" (and getting rid of "losers" over time) is of particular relevance. This would require proactively seeking solutions to cope with the problems faced by industry and improve government support for businesses to upgrade towards more productive and value-adding activities.

The second strategic imperative is to stress the inter-connectedness of the industrial development and structural transformation process, as well as the need to forge a common vision for collective action. Devlin and Moguillansky argue that public-private alliances are a means to accomplish this crucial task. Such structures allow for information sharing and collective action, but preclude the possibility of the State being "captured" by private interests. Devlin and Moguillansky (2011) also provide a list of operational principles that the public sector could implement when designing and pursuing an industrial policy.

Rodrik (2008, p. v) suggest that "[t]hree key design attributes that industrial policy must possess are embeddedness, carrots-and-sticks, and accountability." Embeddedness concerns how close state-business relations should be; "carrots and sticks" refers to the combination of incentives and discipline that industrial policy should seek; and accountability refers to the need to monitor bureaucrats and hold them responsible for how they spend public money. The first two of these attributes clearly concern State-business relations: the State needs to be embedded in close relations with the private sector, and State support must be combined with discipline (carrot-and-sticks) in order to reduce the chances of rent-seeking and corruption.

According to Evans (1995), the crucial requirement for successful industrial policy is that private enterprises and economic elites play a role in its formulation and implementation. This he calls "embedded autonomy". This concept affirms that the State should proactively partner with the private sector and non-governmental bodies, but it also emphasises that the State must at the same time resist being

captured by such interests so that it can ensure that the aims of the society as a whole are addressed rather than those of private entities.

Rodrik (2004) also emphasises the importance of State-business collaboration to reduce information asymmetries and co-design an industrial policy that can truly tackle the obstacles faced by the private sector. There are several elements of State-business relations, such as reciprocity, credibility, and trust – that are important for industrial policymaking (Maxfield and Schneider, 1997). However, the State needs to strike the right balance between being sufficiently close to the private sector – in order to collaborate with it and understand its challenges – and at the same time being sufficiently far from it – in order to avoid rent-seeking and corruption (in line with the embedded autonomy concept introduced by Evans, 1995).

5. Means of implementation

This section will briefly review overseas development assistance (ODA), remittances and South-South co-operation (foreign direct investment is discussed in section 3). Particular attention will be given to regional cooperation, especially in the context of growing contributions from China's Belts and Roads Initiative (BRI).

Table 12: Net ODA received (% GNI)

Country Name	2000	2005	2010		2014	2015	2016
Armenia	11.0	3.4	3.5		2.2	3.2	3.0
Azerbaijan	2.8	1.8	0.3		0.3	0.1	0.2
Macedonia, FYR	6.8	3.7	2.1		1.9	2.2	1.6
Moldova	9.4	5.1	7.5		5.9	4.5	4.5
Kazakhstan	1.1	0.4	0.2		0.0	0.0	0.0
Kyrgyz Republic	16.7	11.3	8.6		8.7	12.0	8.0
Tajikistan	15.1	11.3	6.2		3.1	4.5	4.1
Turkmenistan	1.3	0.4	0.2		0.1	0.1	0.1
Uzbekistan	1.4	1.2	0.6		0.5	0.7	0.7
Afghanistan	16.7	45.1	40.4		23.8	21.9	20.6
Bhutan	12.2	11.2	8.8		7.2	5.2	2.5
Lao PDR	16.9	11.1	6.2		3.7	3.4	2.6
Mongolia	19.3	8.9	4.6		2.8	2.2	3.1
Nepal	7.0	5.2	5.1		4.3	5.6	5.0

Source: World Bank, World Development Indicators (various issues)

Table 12 indicate general declining trends of net ODA inflow to these LLDCs, including LLDC-LDC. From the perspective of international community support for

these countries, such trend means lowering supports for them in navigating structural transformation.

Table 13: Remittances received as % GDP

Country Name	1995	2000	2005	2010	2014	2015	2016	2017
Armenia	4.9	9.5	18.7	18.0	17.9	14.1	13.1	13.3
Azerbaijan	0.1	1.1	4.7	2.7	2.5	2.4	1.7	2.8
Macedonia, FYR	0.0	2.1	3.6	4.1	3.2	3.1	2.7	2.8
Moldova	0.1	13.8	30.6	30.2	26.0	23.6	21.5	20.2
Kazakhstan	0.6	0.4	0.1	0.2	0.1	0.1	0.2	0.2
Kyrgyz Republic	0.1	0.2	12.7	26.4	30.0	25.3	29.3	32.9
Tajikistan	0.0	0.0	20.2	35.8	36.6	28.8	26.9	31.6
Turkmenistan	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0
Uzbekistan	0.0	0.0	0.0	7.3	9.2	4.6	3.7	0.0
Afghanistan		0.0	0.0	2.3	1.2	1.8	1.9	1.8
Bhutan	0.0	0.0	0.0	0.5	0.7	1.0	1.6	1.7
Lao PDR	0.0	0.0	0.0	0.6	0.3	0.6	0.7	0.7
Mongolia	0.0	0.1	7.0	3.7	2.1	2.2	2.3	2.4
Nepal	1.3	2.0	14.9	21.6	29.4	31.4	31.3	28.3

Source: World Bank, World Development Indicators (various issues)

Remittances can be another source of fresh fund coming from abroad for ready used by the society domestically for sustainable development. Several Eurasian countries recorded reasonably high inflow of remittances: Kyrgyzstan, Tajikistan, Nepal and Moldova. However, an increase in remittance may indicate that people move abroad seeking for employment and other economic opportunities. The flow of remittances may also create Dutch disease phenomena.

Challenges of connectivity and China's Belt and Road Initiative (BRI)

Central Asian LLDCs are betting on the BRI for long-term benefits. Central Asian countries are in need of large-scale investments in infrastructure for their connectivity – to transform their land-lockedness into land-linked – to enable them to join a global trade. The BRI intends to do just that.

However, many countries are still struggling to establish viable economies following the dissolution of the Soviet Union. The crumbling infrastructure built to be connected with Russia exclusively has contributed to the region's economic downturn. At the same time, the economic developments of the Central Asian states are not equal: Kazakhstan has highest per capita GDP of over $7,500, while

Kyrgyzstan's GDP per capita is around $1,077 and the equivalent of 30 per cent of GDP comes from remittances of labour migrants working predominantly in Russia.

So far, three railroad connections in the region have been completed under the BRI: Pop-Angren in Uzbekistan, Uzen-Bereket-Gorgan traversing Kazakhstan, Turkmenistan, and Iran, and Khorgos dry port in Kazakhstan that connects China and Kazakhstan. The China-Kyrgyzstan-Uzbekistan railroad had been under discussion for almost 20 years but stalled over Kyrgyzstan's complaints that the project lacked benefits for Bishkek. Recently the parties resumed cooperation with renewed energy to complete the project. The Pop-Angren railroad will become a part of the China-Kyrgyzstan-Uzbekistan rail link once completed. While the railroad is in the making, China-Kyrgyzstan-Uzbekistan recently launched a highway connecting the three countries. Although Tajikistan is not a part of any proposed rail link, China invested in the 350-km Dushanbe-Chanak highway that connects the north of the country with the capital, Dushanbe.

The economic interdependencies and security cooperation between Central Asia and China, as well as Beijing's role as a major financier of infrastructure and connectivity projects has prompted regional leaders to propose additional layers of cooperation that can actively feed into their domestic development agendas. Kazakhstan officially established points of confluence in its national Nurly Zhol infrastructure plan with China's BRI. In addition, Uzbekistan and Kazakhstan are seeking opportunities that go beyond physical infrastructure, building sustainable relations in industry, science, and cultural domains. Kyrgyzstan expressed a strong interest in emerging as the digital hub in the region by connecting to the fibre-optic lines of China's Digital Silk Road.

However, concerns have been raised by many observers after some high profile fall-outs, and debt stress in several countries. Instead of throwing the baby with the bath water, policy makers in participating countries and China should find ways to overcome potential problems. In particular, they should be more diligent in project selection and implementation. In addition, there should be provisions for technology and skills transfers. They could also consider new instruments such as equity-based financing instead of debt-based financing following the principles of FDI which would avoid debt traps and ensure appropriate risk-sharing.

6. Summary and way forward

6.1 Summary

There has been mixed progress on structural economic transformation in Eurasian LLDCs. In Central Asian LLDCs, which were former Soviet republics, the process was hampered by problems surrounding transition to market economy. Their embrace of privatisation and liberation reforms limited their industrial capabilities, and a number of them experienced premature deindustrialisation. High resource dependence and commodity price booms also contributed to deindustrialisation – a phenomenon known as "Dutch disease". Some of the Eurasian LLDCs also face the challenge of smallness, especially in terms of domestic market and availability of labour force.

6.2 Way forward

Eurasian LLDCs face a much more daunting task of structural transformations than the developed countries at their early phase of transformation. On this, three suggested ways forward are in order (Strengthening state capacity, fostering regional cooperation and managing conflicts, and providing international supports).

(i) Strengthening state capacity

Historically the State played a central role either indirectly as a provider of public goods, such as an enabling policy and regulatory environment, or directly as an entrepreneur producing goods & services and innovating new ways. The State also provided a vision for change, and remains a significant user of goods & services. In recent past, the State has been more visible, especially in the rapid transformation of North-East and South-East Asian newly industrialised economies, thus being referred to as "Developmental State". However, questions have been raised about the ability of LLDCs to emulate developmental States of East Asia.

In this context, one necessary pre-requisite for managing transition and navigating structural transformation is having adequate state capacity to navigate the processes. Although alignments with market signals are important, they cannot be left to the largely market based proses or fully dependent on the market forces. This factor is particularly enhanced by the fact of geographically unique locations and being within the status of developing or least developed countries resulting in multiple development challenges requiring strong state capacity.

This, however, has been a main problem with Eurasian LLDCs as in most cases they are new countries after the dissolution of Soviet Union undergoing systemic transition, poor small countries and countries with state fragility and long conflict history of conflict; all are complicated by geographical (given) disadvantage.

In addition to the more traditional roles of the state, state capacity is crucial in navigating regional cooperation that is key to dealing with their landlocked-ness. With the long standing debate surrounding the role of the state in development, given LLDCs structural transformation challenges, strengthening state capacity is simply a necessity.

The historical experience suggests six different, but inter-related, roles of the state in the process of structural transformation: the state as creator of institutions, the state as policy reformer, the state as guardian of macroeconomic stability, the state as entrepreneur, the state as manager of conflicts, and the state as productive factor enhancer (Chowdhury 2018).

In the context Eurasian LLDCs a pragmatic evolutionary way forward can be followed in building state capacity as suggested by UNCTAD (2014).[8] On this, three lessons can be learned from successful East Asian countries as noted by Evans (1998). First, *institutional capacity develops over time through learning*. The technical capacities of Governments were not particularly advanced when East Asian developmental States embarked on their development process. They were built up over time, through policies of meritocratic recruitment, continuity of personnel and an incentive-based career structure commensurate with the private sector.

Second is the *focus on a small number of key agencies and institutions*. There was a deliberate strategy to build a few strategically important agencies instead of improving government effectiveness across the board and all at once.[9]

Third, *there is no one-size-fits-all magic bullet*. One major lesson of efforts at institutional reform is that "institutional innovations do not travel well" (Rodrik, 2005, p. 994). Andrews, Pritchett and Woolcock (2015, p. 124) also found, "There are no easy or quick-fix solutions. Building state capability is an idiosyncratic process that looks different in each and every country; the specific institutional structures that come to have local legitimacy and effectiveness are highly dependent on a complex interplay of local context, history, politics and culture".[10]

(ii) Fostering regional cooperation/integration

As the LLDCs are constrained by the geography, close regional cooperation with the transit countries is a sine qua non for improved connectivity in transport, energy, and information and communications technology; all are important for structural transformation (Popov 2018). It has to be noted that regional cooperation is indirectly linked to structural transformation, while its direct connection is with

[8] UNCTAD (2014), *The Least Developed Countries Report 2014: Growth with structural transformation: A post-2015 development agenda*, Geneva: UNCTAD

[9] As Evans (1998, p. 73) observed: "a substantial share of the benefits of superior bureaucratic performance may be obtained by focusing reforms on a relatively small set of economic agencies."

[10] Also see Andrews, Pritchett and Woolcock (2017).

overall functioning and dynamism of the economy, which in turn favourable for structural transformation. At the same time, regional corporation should also be utilised to manage regional conflict emanating from the geographical factor.

In Central Asia for example, former Soviet Union LLDCs are now less industrialised and export lesser relative values, which was largely due to the dismantling of regional cooperation previously put in place by the existence of Soviet Union as a dominant ruling power. After the independence and with subsequent transition, the economies were less integrated and coordinated. Therefore, the challenge is how to bring back regional cooperation and integration among Central Asian LLDCs and their transit countries in the present context of many independent states with their own political entities and dynamics. In this context, the existing UN Special Program for the Economy of Central Asia (UN SPECA) can play a strategic role.

In Southeast Asia, Lao PDR is part of the Association of Southeast Asian Nations (ASEAN) that should facilitate the country dealing with its transit countries for economic dynamism. Lao PDR in the only LLDC-LDC in Southeast Asia making its development challenges more severe than the other two LDCs in the region: Cambodia and Myanmar.

ASEAN economic integration should "create more opportunities for Lao PDR to grow and diversify in different directions. Within the AEC, there should be expansion of infrastructure and the regional value chain. Lao PDR has been able to attract a number of multinational companies during the past few years, which has resulted in rapid growth in the assembly and equipment parts sectors (such as camera parts), indicating Lao PDR's potential to effectively participate in regional and global value chains." (UNDP 2017)[11]

Fostering regional cooperation and integration while managing regional relationships is not only for creating regional dynamism but more importantly to avoid race to the bottom (beggar thy neighbour) situation among countries of the same region.

(iii) The role of the international community including the UN

With the embedded characteristics of low state capacity and weak regional cooperation, Eurasian LLDCs need support from the international communities, facilitated by the UN, to enable them to strengthen their state capacities and to help fostering strong regional cooperation and integration. Support for strengthening state capacity can be implemented through technical assistances and aid. On the other hand, international community should assist in improving regional cooperation framework and facilitation.

[11] *National Human Development Report: Graduation from Least Developed Country Status*, LAO PDR, 2017

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