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## India's Development Cooperation with Ethiopia in Sugar Production: An Assessment

Sushil Kumar

Discussion Paper # 198



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# India's Development Cooperation with Ethiopia in Sugar Production: An Assessment

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Sushil Kumar\*

**Abstract:** Ethiopia is one of the few countries in Africa with whom India has enjoyed a long standing partnership in development cooperation. In 2006, India provided a US\$ 640 million line of credit to Ethiopia for development of its sugar industry. In this paper, we analyse the impact of India's line of credit (2007-12) on Ethiopian sugar industry. We find that on completion of the ongoing projects Ethiopia would be able to produce 1.6 million tonnes of sugar per year. This will lead Ethiopia towards self-reliance in sugar production and by the end of 2015 the country will be a net exporter of sugar. We also find that estimated economic gain from sugar and ethanol production in Ethiopia would be close to US\$ 961 million per year. Based on field visits, we have explored several practical challenges to India's endeavour like inadequacy of appropriate mechanisms for monitoring and verification of the project. This leads to delays, information gaps and coordination failures in project implementation. India's engagement in Ethiopia's sugar sector signifies a major boost for the agriculture value chain in Ethiopia; and the ancillary support for railway tracks building is likely to play an important role in facilitating port connectivity and exports.

**Key Words:** Line of Credit, Development Cooperation, Sugar Industry, India, Ethiopia

**JEL:** F13, F17, F35, F81

## Introduction

Ethiopia is one of the few countries in Africa with whom India has consistently enjoyed a warm and mutually beneficial relationship. Areas of cooperation between the two countries have undergone major changes but the spirit of partnership has remained strong across the past several years, within the development compact<sup>1</sup> framework. A specific sequence and structure in the selection of areas for cooperation

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may have been lacking but since the 1950s cooperation has continued in capacity building, trade and investment, security, infrastructure and strengthening of education, in particular, supply of trained teachers. Indian teachers have been part of Ethiopian education system for several decades and their contribution is very well acknowledged.

Initially, India supplemented its social initiative through involvement of local Indians. The foundation stone for a maternity home in Addis Ababa was laid in 1952 to mark the 60<sup>th</sup> birthday of the Emperor of Ethiopia, for which the Indian community contributed US\$ 74000 and the Indian government provided US\$ 2000.<sup>2</sup> The emperor reciprocated by gifting 500 tonnes of wheat to India;<sup>3</sup> later the maternity home was to emerge as an important public health care facility in the capital.

In recent times, India's engagement has changed as new institutional arrangements have emerged. In 2005, the Indian Embassy in Addis Ababa supported the establishment of a 130- member Indian Business Forum (IBF), aimed at encouraging Indian investment in Ethiopia, creating a platform for dialogue and providing an opportunity for networking within the Indian community. Several countries including Israel, and the EU followed the Indian model and have now established similar business forums.

In the area of development finance, India provided major LoCs (Line of Credits) to Ethiopia in 2006 which in a way changed the dynamics of cooperation. In line with Ethiopia's priorities, India extended support for the growth of the sugar industry and its related infrastructure to encourage expansion in associated trade.

Development of Sugar industry in Ethiopia started with an agreement in 1951 between the Ethiopian Government and Handles Vereening Amsterdam (HVA), Dutch Company, for the establishment of a sugar factory in Wonji, Ethiopia. This was the first sugar factory in the country with its own plantation. Subsequently, a similar agreement

was concluded between the government and the company for the establishment of other sugar factories in Shoa and Metehara. The factors that led the company to establish sugar factories were: high domestic demand for sugar in Ethiopia, availability of natural and human resources together with favourable climate for cane production, and prevalence of infrastructural facilities within the Awash Valley.

The Government of Ethiopia had privatised sugar (cane production) on a priority basis for Foreign Direct Investment (FDI) along with cotton for textile industry and edible oils. However, no tangible investment comes to the country. Ethiopian Government conducted official visits to countries like Brazil to attract investment but their aspirations remained unfulfilled. Finally, the Government of Ethiopia decided to promote its own sugar industry by establishing Ethiopian Sugar Corporation by investing public resources and assigned high ranking officials to lead the Corporation.<sup>4</sup>

The rest of the Paper is structured as follows. Section II presents an overview of Ethiopian agriculture sector and Official Development Assistance (ODA) to Ethiopia. Section III discusses development priorities and Growth and Transformation Plan (GTP) of Ethiopia; Section IV focuses on India's engagement and sectoral commitment; an assessment of the economic impact of Indian development cooperation in the development of Ethiopian sugar industry is presented in Section V; Section VI discusses the practical challenges confronting Indian development cooperation to the Ethiopian sugar industry; and the last section of the Paper presents concluding remarks and the way forward.

## **II. Ethiopian Agriculture Sector and Official Development Assistance (ODA)**

Table 1 shows the importance of agriculture in the Ethiopian economy. The growth of the Ethiopian economy has accelerated from 2005, with

an average of 11 per cent over the time period 2005 to 2012, placing Ethiopia among the top performing economies in the Sub-Saharan Africa. The agriculture sector accounted for about 48.60 per cent of GDP in 2012. The agriculture sector grew at the rate of about 8.35 per cent a year over the period 2005 to 2012. Agriculture Development Led Industrialisation (ADLI) places very high priority on accelerating agricultural growth and achieving food security (Alemu, 2015).

Ethiopia's sugar industry is earmarked as having great potential, as both soil and climate in various parts of the country are well suited for large sugarcane crops. Almost 165 million to 172 million of Ethiopia's 276 million acres is suitable for cultivation. However, only 37 million acres is currently in use.<sup>5</sup> Sugar manufacturing is the leading sub-sector of food processing sector which accounts for 53 per cent of sales revenue of the food processing sector and 57 per cent of employment in the food processing sector.<sup>6</sup>

The number of manufacturing enterprises has increased from 288 in 1991 to 2209 in 2009. The gross value of production more than doubled in the period 1991-2009. In the same time period the gross value of sugar production also increased more than twofold. Employment in the manufacturing sector increased from 0.08 million in 1991 to 0.14 million in 2009 (Table 2). Sugar manufacturing accounted for 4.58 per cent of total capital formation in 2009. Ethiopia produces 340,000 tonnes of sugar on 25,000 hectares of land annually and about 20,000 tonnes a year is sold to the EU under the Everything but Arms (EBA) initiative. However, Ethiopia's domestic sugar consumption is considerably higher (1.26 times) than its production. Therefore, the country imports about 152,000 metric tonne (MT) of sugar per year to meet domestic demand.<sup>7</sup>

Ethiopia has been suffering from chronic (Table 3) sugar shortage for many years, forcing the country to become a net importer of the commodity. Ethiopia's domestic demand for sugar has been rising sharply for the past eight years.

**Table 1: Agriculture Sector of Ethiopia**

	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012
GDP growth (annual %)	6.13	6.07	11.82	10.83	11.46	10.79	8.80	12.55	11.18	8.73
GDP per capita (constant 2005 US\$)	125.16	134.98	159.83	172.34	186.95	201.66	213.67	234.26	253.75	268.87
Agriculture, value added (% of GDP)	56.13	48.71	45.61	46.80	46.38	49.40	49.60	45.64	45.57	48.60
Agriculture, value added (annual % growth)	3.77	3.05	13.54	10.91	9.45	7.50	6.36	5.13	9.01	4.92
Exports of goods and services (% of GDP)	9.79	12.16	15.27	14.04	12.87	11.61	10.69	13.85	17.00	13.93
Exports of goods and services (annual % growth)	44.39	6.69	13.61	1.90	2.18	-0.04	0.22	45.80	36.43	-10.90
Agricultural raw materials exports (% of merchandise exports)	13.37	18.71	15.30	17.28	20.41	14.10	11.92	9.02	8.62	7.99

*Source:* World Development Indicators (2014).

**Table 2: Ethiopian Manufacturing and Sugar Production Sector**

Year	Number of establishments			Number of employees			Output (US\$ million)			Value added (US\$ million)			Total Gross Fixed Capital Formation (US\$ million)		
	Manufacturing	Sugar	% Share of Sugar	Manufacturing	Sugar	% Share of Sugar	Manufacturing	Sugar	% Share of Sugar	Manufacturing	Sugar	% Share of Sugar	Manufacturing	Sugar	% Share of Sugar
1991	288	8	2.78	84002	3610	4.3	1059.11	89.56	8.46	553.14	68.96	12.47	44.33	1	2.26
1995	501	5	1	90213	4061	4.5	800.62	46.08	5.76	379.96	36.66	9.65	31.83	1.46	4.6
2000	788	9	1.14	95007	6469	6.81	989.27	119.54	12.08	466.14	93.98	20.16	54.8	2.34	4.27
2001	796	8	1.01	93515	6113	6.54	995.96	125.6	12.61	468.47	102.03	21.78	63.94	8.83	13.81
2002	909	12	1.32	98136	6916	7.05	950.28	103.59	10.9	460.84	79.13	17.17	53.84	13.9	25.82
2003	966	10	1.04	101404	7521	7.42	1049.37	135.64	12.93	527	110.74	21.01	60.11	9.91	16.49
2004	1074	12	1.12	105381	6937	6.58	1258.95	147.53	11.72	612.57	110.01	17.96	107.17	7.27	6.78
2005	1207	10	2.78	109150	6794	6.22	1421.16	142.1	10	544.22	85.81	15.77	103.25	9.99	9.68
2006	1244	14	1.13	118468	8810	7.44	1729.82	170.89	9.86	657.17	101.53	15.45	114.85	10.68	9.3
2007	1443	16	1.11	134963	19620	14.54	2071.64	220	10.62	830.74	111.92	13.47	170.13	9.97	5.86
2008	1930	21	1.09	131803	8296	6.29	2394.48	218.87	9.14	954.97	109.6	11.48	134.4	8.15	6.06
2009	2209	21	0.95	148817	9421	6.33	2447.8	193.4	7.9	971.91	74.17	7.63	165.51	7.59	4.58

Source: UNIDO Industrial Statistics Database, CD 2014.

**Table 3: Production and Consumption of Sugar in Ethiopia, 2004 to 2011**

(Million tonnes)

Year	Production	Consumption
2004	0.33	0.30
2005	0.35	0.32
2006	0.36	0.35
2007	0.34	0.37
2008	0.34	0.39
2009	0.32	0.42
2010	0.32	0.43
2011	0.35	0.44

*Source:* Sugar Year Book 2012, International Sugar Organisation, pp 82-83.

As discussed earlier, Ethiopia has targeted to increase sugar production from 0.31 million tonnes to 2.25 million tonnes under the GTP (2010-11 to 2014-15) – a growth of 614 per cent over the time period. Ethiopia also wants to reduce import dependency and generate surplus sugar for export.

Table 4 shows Ethiopia’s major sugar trade partners. Ethiopia was importing sugar from India, Kenya, Brazil, Saudi Arabia, Thailand and China and exporting mainly to member countries of the EU.

Foreign aid has played a major role in Ethiopia’s development effort since the end of World War II (Alemu, 2009). ODA’s gross disbursements to Ethiopia at constant prices rose by nearly 50 per cent from 2.4 billion in 2007 to 3.5 billion in 2010 (World Bank, 2013). Ethiopia has also received a significant volume of development assistance from non-traditional donors and such flows have expanded over the past decade. This includes external assistance from official non-traditional providers such as China, India and Turkey and new development assistance committee members such as South Korea.<sup>8</sup> We analyse the current ODA flow to Ethiopia as well as ODA for

**Table 4: Ethiopia's Major Sugar Trade Partners**

Year	Import (US\$ million)							Export (US\$ million)				
	India	Kenya	Brazil	Saudi Arabia	Thailand	China	Total Import	Djibouti	Italy	Portugal	United Kingdom	Total Export
2004	0.93 (5.44)	0.89 (5.21)	9.91 (57.99)	1.57 (9.19)	0.17 (0.99)	0.37 (2.17)	17.09	1.13 (99.12)				1.14
2005	0.62 (3.33)	1.65 (8.86)	2.11 (11.33)	2.44 (13.10)	0.24 (1.29)	0.83 (4.46)	18.62	2.72 (20.78)	0.58 (4.43)	8.79 (67.15)	0.98 (7.49)	13.09
2006	10.93 (21.22)	1.16 (2.25)	9.56 (18.56)	3.75 (7.28)	0.4 (.78)	1.33 (2.58)	51.52	0.1 (4.81)	1.09 (52.40)	0.89 (42.79)		2.08
2007	29.55 (69.63)	0.97 (2.29)	0.6 (1.41)	3.71 (8.74)	0.02 (0.05)	1.74 (4.10)	42.44	1.56 (8.06)	1.22 (6.30)	16.1 (83.20)		19.35
2008	53.27 (72.41)	0.51 (0.69)	0.76 (1.03)	4.4 (5.98)	0.01 (0.01)	2.23 (3.03)	73.57	1.68 (10.77)	0.32 (2.05)	13.59 (87.12)		15.6
2009	3.79 (9.25)	0.18 (0.44)	28.39 (69.28)	1.93 (4.71)	0.32 (0.78)	2.21 (5.39)	40.98	0.57 (3.68)			14.87 (96.06)	15.48
2010	2.82 (2.44)	0.09 (0.08)	80.36 (69.46)	8.79 (7.60)	16.84 (14.56)	2.17 (1.88)	115.69					0.01
2011	133 (72.75)	0.18 (0.10)	14.78 (8.08)	8.83 (4.83)	13.09 (7.16)	2.17 (1.19)	182.83					0.04

*Source:* UNCOMTRADE.

*Note:* Data in parentheses represent percentage share of total.

agriculture. Table 5 shows ODA disbursements by DAC (Development Assistance Committee) countries to Ethiopia and Africa.

In 2005, total flow to Ethiopia was US\$ 1.26 billion out of which 94.05 per cent was grant. In 2012, the total assistance flow to Ethiopia was US\$ 1.85 billion out of which 99.37 per cent was grant. Ethiopia's share in the total ODA to Africa was 4.56 per cent in 2005 and increased to 6.21 per cent in 2012. The share of ODA to agriculture increased from 3.7 per cent in 2005 to 5.5 per cent in 2011 and drastically increased to 14.8 per cent in 2012.

### **China's Development Assistance to Ethiopia**

As previous section analysed the ODA from DAC countries, it is also important to analyse the engagement of non-DAC donor countries, particularly the emerging presence of China. Information on Chinese development assistance to Ethiopia is not available on a systematic annual basis. Chinese aid constituted 0.14 per cent of total aid to Ethiopia in 2006-07.<sup>9</sup>

In 2009-10, China extended US\$ 124.6 million as grant to Ethiopia. Of this development assistance 96 per cent went to three sectors: energy generation and supply (52 per cent), transport and storage (31 per cent) and manufacturing industry (12 per cent). Assistance to energy generation and supply included projects on hydro power, power transmission lines, solar power, wind power, marsh gas and Aba-samuel Hydropower plant rehabilitation project (which provide 6.6 MW of electricity).

### **Ethiopia-China Agricultural Technology Demonstration Centre**

The Ethio-China Agriculture Technology Demonstration Centre project aided by the Chinese government was carried out by Guangxi International Construction Engineering and Guangxi Bagui Agricultural Science and Technology between 26 January 2011 and 30 April 2012.<sup>10</sup> The main purpose of establishing this centre was

**Table 5: Official Development Assistance Disbursements by DAC Countries to Ethiopia and Africa (US\$ million)**

	Grants (ODA) Africa	Gross loans (ODA) to Africa	Total	Grants (Ethiopia)	Gross loans (Ethiopia)	Total	ODA to Agriculture (Ethiopia)	% Agri-culture in total	% Ethiopia in total Africa	% share of (grant) total	% share of gross loan total
2005	26016.13	1948.14	27964.27	1186.40	75.00	1261.40	46.18	3.66	4.56	94.05	5.95
2006	33178.06	1868.04	35046.10	947.96	79.48	1027.44	21.54	2.10	2.86	92.26	7.74
2007	25106.58	2251.23	27357.81	1194.41	60.25	1254.66	66.57	5.31	4.76	95.20	4.80
2008	27818.03	2743.41	30561.44	1801.82	54.57	1856.39	43.08	2.32	6.48	97.06	2.94
2009	27130.74	3373.51	30504.25	1779.72	43.80	1823.52	70.54	3.87	6.56	97.60	2.40
2010	28813.02	2714.09	31527.11	1926.84	3.30	1930.14	177.59	9.20	6.69	99.83	0.17
2011	33008.11	3975.89	36984.00	1986.85	0.27	1987.12	108.97	5.48	6.02	99.99	0.01
2012	29782.27	3292.88	33075.15	1848.11	11.79	1859.90	274.47	14.76	6.21	99.37	0.63

*Source:* OECD Statistics.

to promote transfer of agricultural technologies and knowledge from China along with capacity building through demonstration and training.<sup>11</sup> The total cost of this centre was 40 million birr. The centre is established on 52 hectares of land with 5 hectares for offices and training facilities.<sup>12</sup>

### **Provision of Chinese Instructors on Agricultural Technical Vocational Education and Training (TVET)**

It is based on a specific agreement signed between Ethiopia and China and has been under implementation since 2001. The main objective of this agreement was to send Chinese agricultural TVET instructors to Ethiopia to provide practical training within the agricultural TVET system. During the financial year 2011-12, 16 Chinese instructors were deployed in Ethiopian agricultural TVETs. The other costs of the programme were covered by the Ministry of Agriculture, Ethiopia which included accommodation, utilities and health costs as well as the monthly gross salary of the instructors (~ US\$ 2000)<sup>13</sup> but since 2012 the Chinese government has started covering these costs also.<sup>14</sup> India's contribution to training and human resources development has been broad based and not restricted to specific area. An MoU has been signed between Indian Council of Agriculture Research and Ethiopian Institute of Agricultural Research in 2011.<sup>15</sup> The priority areas of cooperation include agricultural research in horticulture, crop science, fisheries, animal science, agricultural engineering and natural resource management, agricultural extension and agricultural education. The cooperation will be implemented through exchange of scientists, scholars, technologies, literature, information and germplasm and collaborative research projects.<sup>16</sup>

### **III. Development Priorities and Growth and Transformation Plan (GTP) of Ethiopia**

In Africa, nearly 65 per cent of the total workforce is employed in the agricultural sector, which contributes about 32 per cent of

Africa's Gross Domestic Product (GDP) and about 70 per cent of exports (Kwadwo and Jemaneh, 2012). According to the Central Statistical Agency (CSA) of country, Ethiopia is the second most populous country in Africa with a population of more than 80 million and growing at the rate of 2.5 per cent per annum. Economic growth of the country depends highly on the agricultural sector, which accounts for 48 per cent of GDP, more than 63 per cent of its exports and 80 per cent of the total employment, followed by the services and the industrial sectors.<sup>17</sup> The agriculture sector in Ethiopia is dependent on traditional technology and is rain-fed. It is also affected by the poor supplementary services such as access of extension services, credit, marketing, and infrastructure.<sup>18</sup> Ethiopia is a relatively closed economy in terms of exports plus imports over GDP. In 2010, this ratio was 43.8 per cent compared to 65.2 per cent for Sub-Saharan Africa. For modernising the agriculture sector, the Government of Ethiopia has been investing heavily in agricultural education, research and extension. Linked with such investment, Ethiopia duly considers the importance of technology and skill transfer from other countries. In general, facilitation of technology and skill transfer is envisaged through two main complementary approaches. The first is through promotion of foreign private investment to ensure flow of required capital into the country along with easily transferable skills and technology. The second is through cooperation agreements with different countries and donors linked with technology and skill transfer (Alemu, Seth and Qi, 2015).

Ethiopia has evolved a Growth and Transformation Plan (GTP) for the period 2010-11 to 2014-15 for accelerated and sustained economic growth. This would help development partners to identify areas for cooperation. GTP is developed on the basis of performance in the previous five year development plan, viz. Plan for Accelerated and Sustained Development to End Poverty (PASDEP). On the basis of PASDEP, GTP aims at enhancing productivity for high value crops so as to push for intensified commercialisation. The idea is to promote

agricultural development led industrialisation with a greater role for the private sector. The eight industries identified for this purpose include textile and garment, leather and leather products, sugar, cement, metal and engineering, chemical, pharmaceutical, and agro processing.

Ethiopia's vision which guides the GTP is:

*“to become a country where democratic rule, good-governance and social justice, upon the involvement and free will of its peoples, and once extricating itself from poverty to reach the level of a middle-income economy as of 2020-2023”* (GTP, 2010).

GTP has established precise targets for the sugar sector. The objective is to ensure sufficient domestic production and to establish energy generating plants to power key economic activities. This project has assumed great significance given that Ethiopia has identified the sugar sector as one of its engines for economic growth; construction of rail links is very much a part of an effort to ensure connectivity for the export of agricultural produce. GTP envisages facilitating human resource development, building institutional capacities and supporting necessary R&D (Research and Development) in the sugar industry, which in Ethiopia is largely government-owned. Private firms are trying to make a modest entry into this promising sector but it is the public sector that has almost full ownership.

Indian companies have offered investment of over US\$ 4 billion to Ethiopia. Of this, an estimated US\$ 2 billion is already on the ground or in the pipeline. There are 608 Indian projects approved by the Ethiopian Investment Commission in Ethiopia. About 48 per cent of the Indian companies are in manufacturing and 21 per cent<sup>19</sup> in agriculture.<sup>20</sup>

Table 6 shows that Ethiopia has a target to build 10 new sugar plants in the country. Out of these sugar plants five are being

constructed in two provinces (Southern Nations, Nationalities and Peoples' Region, see Figure 1 in appendix), and are expected to utilise sugar cane grown over a total of 175,000 hectares. Out of these five plants, three will each have the capacity to crush 12,000 tonnes of sugar cane a day, and the other two will crush 24,000 tonnes a day with a total annual sugar production of 0.83 million tonnes. The Kuraz No.1 factory, whose construction has now started, will be operational in the near future.<sup>21</sup> The Wolkait Sugar Development Project, which is located in the Tigray Regional State, will have a capacity to crush 24,000 tonnes of sugar cane a day drawn from 50,000 hectares.<sup>22</sup>

These projects are of different in size and capacity. Tendaho will include a total area of 50,000 hectares of sugarcane plantation, and will be the largest sugar mill in the country with a capacity to produce 619,000 tonnes of sugar a year as well as 55,000 cubic meters of ethanol and 120 Megawatt (MW) of electricity annually for the national grid. It is expected to start sugar production later this year and production of ethanol next year. It will be providing a total of 42,000 jobs for the local community.<sup>23</sup>

India has agreed to support three different sugar factories, total production of which is likely to be around 1.58 million tonnes. The support for development of the sector was envisaged through a LoC of US\$ 640 million over the period 2007-2012. The initial target was an annual production of 2.25 million tonnes of sugar and 304000 m<sup>3</sup> of ethanol. Additionally, 607 MW of electric power would be generated by the end of the plan period. This was planned to be achieved by bringing an additional 200,000 hectares under sugar cane plantation with productivity of 155 tonne per hectare. The GTP expects to earn US\$ 661 million from sugar exports and create 200,000 new jobs. The projects are also aimed at reducing growing import dependence, as domestic demand for sugar has multiplied considerably.

**Table 6: Ethiopia’s Sugar Development Projects under Implementation**

Project Name	Region	Completion Capacity			Electricity generation (MW)	Land for sugar cultivation (Ha.)
		Crushing capacity (TCD)	Sugar production (tonnes)	Ethanol (m <sup>3</sup> )		
Kessem Sugar Development Project	Afar regional state	6000	153000	125000	26	20000
Tendaho Sugar Development Project	Afar regional state	13000 (1 <sup>st</sup> phase) 13000 (2 <sup>nd</sup> phase)	619000	55000	120	50000
Kuraz Sugar Development Project (2 Sugar factories)	Southern Nations, Nationalities, Peoples’ region	24000 (each)	556000	52324	415	175000
Kuraz Sugar Development Project (3 Sugar factories)	Southern Nations, Nationalities, Peoples’ region	12000 (each)	278000	26162		
Wolkaiyt Sugar Development Project	Tigrary regional state	24000	484000	41654		50000
Arjo-Didiessa Sugar Development Project	Oromiya regional state	12000				
Belles Sugar Development Project	Amhara regional state		242000	20827		75000
Total		152000	2332000	320967	561	370000

*Source:* Compiled by author based on Sugar Development Corporation of Ethiopia.

The expected cost of the development of the 10 planned factories and associated plantations is about 80 billion birr (US\$4.6 billion).<sup>24</sup>

As the table shows, when the present projects are fully operational, Ethiopia will be able to produce 2.33 million tonnes of sugar with 0.32 million m<sup>3</sup> ethanol per year. Apart from that, Ethiopia will also be able to produce 561 MW of electricity per year.

#### **IV. India's Engagement and Sectoral Commitments**

LoCs have always been a major tool for assistance to African countries. India has used these instruments to extend support for the development of key economic sectors, allocating US\$ 10 billion between 2008 and 2014 for infrastructure and development projects on the continent. In Ethiopia, LoCs have been used in three broad sectors: agriculture, railways and rural electrification. Agriculture and railways are part of a larger mandate entrusted to India as part of the Ethiopia's Growth and Transformation Plan (GTP). Requests for supporting rural electrification had come long before the GTP was launched.

Ethiopia sought and received a US\$ 640 million line of credit from India to expand sugar production at two existing facilities (Wonji/Shoa and Fincha) and to set up a Greenfield sugar manufacturing plant at Tendaho. The three units would be able to produce close to 1.6 million tonnes of sugar annually, with 87000 hectares of captive sugarcane plantation providing the necessary raw material. The plan also includes manufacturing over 93000 cubic meter of ethanol and generating 210 MW power from these plants. The three production units are expected to be fully functional by the end of 2015.<sup>25</sup>

#### **Development of the Sugar Industry**

Ethiopia's sugar industry, almost totally owned by the government, includes four sugar mills (Wonji Shoa, Tendaho, Methara and Fincha) organised under three separate managements and the Ethiopian Sugar Corporation (ESC).

## **Wonji/Shoa Sugar Factory**

This is one of the oldest establishments among the sugar units in Ethiopia. It was established in 1954 by a Dutch company HVA and expanded in 1962 by including Shoa sugar factory which is quite close to Wonji. The expansion of the Wonji Shoa Sugar factory in Oromia Regional State, undertaken by the Ethiopian government at a cost of 3 billion Birr would expand the capacity of crushing 6250 tonne of cane per day (TCD). This would bring in nearly 16000 hectares of agricultural expansion. The project was awarded to the Uttar Pradesh based company Uttam Sucrotech International Ltd. It should have been finished by June 2012; however, it was not completed until December 2013.

## **Fincha Sugar Factory**

Fincha Sugar Factory is close to the Finchaa River in the Eastern Wollega Zone of Oromia State, 350 km from Addis Ababa. It has some 21,000 hectares of land under cane cultivation and until recently was the only factory in Ethiopia to produce ethanol. The new expansion plan has more than doubled its annual sugar production to 270,000 tonnes at a cost of about US\$ 250 million. Expansion of the factory will also increase annual production of ethanol to 20 million litres from the current 8 million litres. The factory received around US\$ 132 million of US\$ 640 million LoC. The contract went to a Mumbai based company, Overseas Infrastructure Alliance (OIA). However, the project closure was delayed, in this case by more than two years.

## **Tendaho Sugar Factory**

Tendaho Sugar Factory is in the Afar State in north-eastern Ethiopia and represents an ambitious initiative, given the unpromising terrain. In operation, it will crush more than 619,000 tonnes annually and is expected to cover 50,000 hectares of sugarcane cultivation. The first phase of the project should have been

completed by August 2011 but once again has been subject to delay (Phase II is not expected to begin before 2017). All the three factories and their evolutionary phase are compared in Table 7.

**Table 7: Support for Development of Ethiopian Sugar Industry**

	Wonji-Shoa	Fincha	Tendaho
Capacity	6250 tonnes per day	12,000 tonnes per day	Two phases each of 13,000 tonnes per day
EPC Contractor	Uttam Sucrotech	Overseas Infrastructure Alliance (OIA)	Overseas Infrastructure Alliance (OIA)
Date of Commencement	February 2010	10th April 2009	17th July 2009 (Phase I)
Scheduled Date of Completion	June 2012	31st October 2011	12th August 2011
Proposed Date	October 2013	October 2013	October 2013 (Phase I)
Amount (US\$ 640 million)	US\$ 141 million	US\$ 132 million	US\$ 367 million

*Source:* Prepared by the author.

## **Development of Value Chain for Sugar Production**

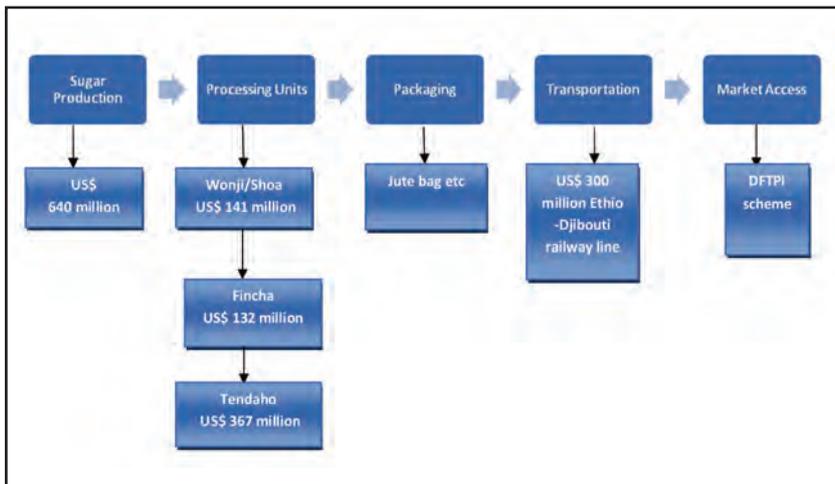
There is a growing policy emphasis on improving efficiency and business integration in agriculture through better value chains. This is designed to enhance market competitiveness. Activity in the sugar sector has expanded rapidly over the past two decades, in the face of low world sugar prices and rising production costs.<sup>26</sup> Finance is always a challenge in the sugar industry because lead times are generally long; hence development assistance assumes great significance. Support is essential for ensuring regularity and continuity of production with consistent quality, and for that reason adequate measures are needed for the assimilation of technology. The fact that Ethiopia recognised sugar as a priority sector and India extended support across the board is a demonstration of India's commitment to the development compact. India assisted specifically in proving better germplasm for sugar strains, new processing plants and transportation of product over new railway tracks. Packaging support came from a new jute

bag plant. Overall this programme is a clear case of support across the value chain.

The Ethiopian government approached India not only for support for the development of sugar industry, but also for help with a rail network as an activity linked to facilitate sugar exports. On the basis of satellite mapping technology, three rail corridors have been identified, covering a total of 2359 km that would help in expansion of connectivity to dry ports and to the seaport at Djibouti.

India's development cooperation with Ethiopia for the sugar industry aims to transfer sugar manufacturing technology and capacity building of Ethiopian sugar experts. In addition, India is assisting Ethiopia in laying railway tracks for sugar exports. Focused attention is also being paid to quality standard of the product with international level packing, market access and improved sugar productivity. So, India's development cooperation for sugar projects can be described as a value chain (see Figure 1).

**Figure 1: India's Development Cooperation with Ethiopia for Sugar Project as Value Chain**



## **V. Economic Impact of Indian Development Cooperation in the Development of Ethiopian Sugar Industry: Estimated Gains**

According to the Ethiopian Investment Agency, the country will produce 1.25 million tonnes of surplus sugar after satisfying domestic demand at the end of GTP period 2014-15. Table 8 shows the estimated monetary gains from sugar and ethanol production from the three major sugar factories, namely Wonji/Shoa, Finchaa and Tendaho. The estimated combined sugar production of these factories will be 1.16 million tonnes which is 51.51 per cent of the GTP target. Ethiopia imported raw centrifugal sugar and refined sugar worth US\$ 175.85 million in 2011, making raw centrifugal the country's third largest import in dollar terms. Ethiopia's domestic demand for sugar has been rising sharply over the past five year, forcing the government to spend substantially higher amount on imports. In macroeconomic terms, the gains from the alternate source of financing seem large and could include, stemming Ethiopia's annual foreign exchange outflows, ensuring self-sufficiency in producing the product, increasing employment potential in the industry and its supply chain, adding production capabilities and raising the potential of generating foreign exchange through exports. In the long-run, the collective impact of line of credit could result in substantial productivity and profitable gains for Ethiopia (Qadri and Singhal, 2014).

These statistics show the extent to which the value chain makes the sugar industry inclusive and competitive. It can be compared with an IDRC-supported dairy development project at Ada'a in which commodity development projects have already been introduced. Although it may be premature to comment, it is possible that the sugar industry programme will derive lessons on farm orientation and training programmes that apply to quality output with cost reduction strategies.<sup>27</sup>

**Table 8: Estimated Economic Gains (2014-15)**

	Wonji-Shoa	Finchaa	Tendaho	Total
Sugar Production (million quintals)	2.7	2.7	6.19	11.59
Estimated Monetary value of Sugar (US\$ million)	206.06	206.06	472.42	884.55
Ethanol (m <sup>3</sup> )	10,299	20,000	63,000	93,299
Estimated Monetary value of Ethanol (US\$ million)	9.06	17.60	55.44	82.10

*Source:* Author's calculation based on data from Sugar Corporation of Ethiopia.

*Note:* Exchange rate US\$ 1 = 19 Birr, Price data of the Sugar product taken from Sugar Corporation of Ethiopia which is applied from 16 July 2013. The Sugar Production and ethanol of the each factory is expected for 2014-15.

## **Sugar Production**

Sugar is a basic product and molasses, bagasse, ethanol are by products of sugar.<sup>28</sup> Production of sugar by the three sugar factories is estimated to be 11.59 million quintals for 2014-15 (see table 8). The production of ethanol by the three sugar factories during the 2014-15 will be 93299 m<sup>3</sup>. Total monetary value of production of sugar and ethanol will be US\$ 966.65 million.

## **Employment Creation**

With regard to employment, the three sugar industries will create job opportunities for some 81,833 workers. In 2008-09, Fichta Sugar Factory had about 2,200 permanent and 5,000 temporary employees and Wonji/Shoa Sugar Factory had about 2,750 permanent and 1,430 temporary employees. According to Sugar Development Agency of Ethiopia, on reaching its full production capacity, the Tendaho factory will create job opportunities close to 50,000 citizens, which will further open the door for more job opportunities.

### **Captive Power Generation: Capacities of Production Units**

The three sugar factories will be more or less self sufficient in electric power supply. Electricity generation of Wonji/Shoa and Tendaho will be 22 MW and 70 MW, respectively.

### **Seaport Connectivity through Development of Railway**

India has provided a US\$ 300 million LoC for financing machinery, equipment and services including consultancy services, to the Asaita-Tadjourah portion of the new Ethiopia-Djibouti railway line.<sup>29</sup> Funding for the railways is one element of India's support for Africa's regional integration. The railway line will enable Ethiopia to increase its trade through the port of Tadjourah on the Red Sea in Djibouti. The project was in place by June 2013; Ethiopia exported sugar worth US\$ 570000<sup>30</sup> to Djibouti in 2009 but with better rail connectivity exports will rise dramatically.

## **VI. Indian Development Cooperation to Ethiopian Sugar Industry: Practical Challenges**

There are, however, certain practical challenges to India's endeavour like absence of robust mechanisms for monitoring and verification that come in the way of project implementation in this sector. All three projects concerning development of the sugar industry in Ethiopia will enhance production capacity in the country and contribute towards the objectives of the GTP, it is worth pondering whether India has really earned as much goodwill for its contribution. The impression that emerged out of discussions with officials in Addis Ababa and with other independent experts points in other direction.

Under the mutually agreed terms of the agreement, while the project implementing firm should be from India selected by the Ethiopian side, the sub-contracting firms can be local to be selected by the implementing partner. It is apparent that choice of these sub-contractors becomes extremely difficult given serious information asymmetries. The process of selecting the project implementing

firm by itself can be difficult due to large number of potential applicants. While, in some cases very few players are involved; in others a plethora of different bidders poses a major challenge of choice. Preliminary exploration also indicates that some Indian firms that have taken up LoCs have very little visibility in India and no specific core competence to deliver on their bid under the LoC. As a result, they largely outsource most of the work, a process that creates delays and inevitably, higher overhead costs. In one case, the successful engineering, procurement and construction (EPC) bidder was so at odds with the subcontractor that the matter escalated and ended up before an Indian court. In the process, the responsible Ethiopian government department was compelled to visit Exim Bank headquarters, because the Bank had stopped releasing money against LoC commitments.

Our discussions on the ground indicated that India needs to review its approach to LoCs. They should not be viewed as one-time projects under which the EPC picks up the job and walks out once the project is over. In such a case, the EPC has no long-term commitment nor does it have an interest in delivering turnkey projects on time or ensuring their long-term sustainability. It is this limitation that delays almost all LoC projects. It is also important to build up capacity at the partner country end, mainly in terms of handling the bidding process and identifying the right kind of companies for the project. In the above example, (Finchaa and Tendaho sugar project, see Table 6) more than 18 companies participated, which in itself presented a major challenge for the Ethiopian Government. The selection involved division of tasks across several companies with one appointed as EPC. This kind of ‘clubbing’ of two companies led by one EPC poses multiple challenges.<sup>31</sup>

Postponement in release of funds by the EXIM Bank to the Ethiopian Government also reflects problem of communication between the partner and the implementing agency. Any review should

not only involve the relevant division of MEA (Ministry of External Affairs, Government of India) and Exim Bank but should also receive greater input from DPA (Development Partnership Administration), which may gradually evolve a rich database of companies with core competencies and a proven track record. Companies that are merely trading should be discouraged from bidding.

Irrespective of operational shortcomings, Indian engagement in Ethiopia's sugar sector signifies a major boost for the value chain approach in the agriculture sector; and the ancillary support for railways track building is likely to play an important role in ensuring port connectivity and exports for Ethiopia.

## **VII. Conclusion and Way Forward**

Economic relations between India and Ethiopia are based on mutual respect, mutual benefit and self reliance. The contribution of the sugar industry to the national economy of Ethiopia is considerable. The Ethiopian Government has a clear policy to be a middle income country by 2023-25 and the current five year plan focuses on transforming the economy from agriculture to industry. The present study analysed the impact of Indian line of credit on sugar industry namely Wonji /Shoa, Fincha and Tendaho plant for which India has provided US\$ 640 million line of credit. The study revealed that India's development cooperation would help Ethiopia become self-reliant in sugar production and by the end of 2015 Ethiopia would be a net exporter of sugar. The estimated results (likely economic gain) show that on completion of the projects with full utilisation of capacity Ethiopia would produce 1.6 million tonnes of sugar per year which is 51.51 per cent of the GTP target. These three sugar plants will produce about 93 million cube litre of ethanol and create employment opportunity for some 81,833 people. The total economic gain would be US\$ 966.65 million per year.

Faced with practical challenges, India needs to review its approach to its Lines of Credit. They should not be viewed as one-time projects under which the EPC picks up the job and walks away once the project is over. In such a scenario, EPC absolves itself of long-term commitment, and does not have an interest in delivering turnkey projects on time or ensuring their long-term sustainability. Nevertheless, Indian engagement in Ethiopia's sugar sector can be considered substantially effective in boosting agriculture value chain in Ethiopia. Ancillary support in terms of development of railways would ensure port connectivity for exports.

## Endnotes

- <sup>1</sup> Development compact, works at five different levels, viz. trade and investment, technology, skill up gradation, lines of credit and finally financial grants (see Chaturvedi, 2014).
- <sup>2</sup> MEA (1952), page 9.
- <sup>3</sup> *ibid.*
- <sup>4</sup> Some of the criticisms of crowding out private investment through such huge public investment were justified by the fact that once the estates are established and become functional, they will be privatized as other public investment.
- <sup>5</sup> According to state minister of agriculture H.E. Wondirad Mandefro
- <sup>6</sup> World Bank (2012).
- <sup>7</sup> Amrouk *et al.* (2013).
- <sup>8</sup> Prizzon& Rogerson (2013).
- <sup>9</sup> Geda (2008).
- <sup>10</sup> Ministry of Agriculture of China.
- <sup>11</sup> Ministry of Agricultural Ethiopia (2009).
- <sup>12</sup> Alemu (2013).
- <sup>13</sup> *ibid.*
- <sup>14</sup> Alemu and Gubo (2015).
- <sup>15</sup> Ministry of External Affairs, Government of India, July 2013 (Brief India-Ethiopia Relation).
- <sup>16</sup> See Indian Council of Agriculture Research (<http://icar.org.in/en/node/4151>).
- <sup>17</sup> WDI (2013).
- <sup>18</sup> Tegegne *et al.* (2014).

- <sup>19</sup> The major investors in this field are: M/s Karaturi – 1, 00,000 hectares, Bho-Bio 27,000 hectares, Ruchi Soya – 25,000 hectares, Sannata Group - 10,000 hectares, White Field Cotton – 10,000 hectares.
- <sup>20</sup> See Briefs on India’s Bilateral Relations, India-Ethiopia, December 2014.
- <sup>21</sup> Ethiopian Sugar Corporation
- <sup>22</sup> *ibid.*
- <sup>23</sup> *ibid.*
- <sup>24</sup> Ministry of Foreign Affairs, Government of Ethiopia.
- <sup>25</sup> Fiscal year of Ethiopia starts in July.
- <sup>26</sup> Higgins Andrew *et al.* (2007).
- <sup>27</sup> Alemayehu (2012).
- <sup>28</sup> The economic products of cane based sugar industry are not only sugar and ethanol but molasses, which the Government of Ethiopia is planning to link it with live stock production.
- <sup>29</sup> The credit agreement under the LoC is effective from 15 July 2013 and date of execution of agreement is 13 June 2013.
- <sup>30</sup> WITS which is online data base (accessed on 12 November 2013).
- <sup>31</sup> See Abate (2009), page 11.

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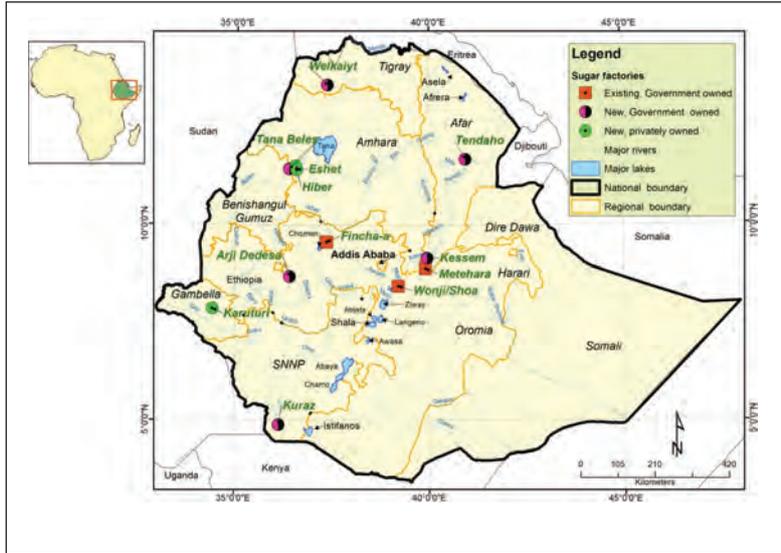
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# Appendix

Figure 1: Distribution of Sugar Estates in Ethiopia





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