

**Printing, writing or
drawing inks and
other inks**



Our findings, observations and/or recommendations are those that we could reasonably derive from the procedures or scope of services performed. The specific procedures performed were agreed with Georgian National Investment Agency (the Client) and were performed by us as set forth in the Report.

Our work was carried out solely based on the publicly available research data.

We have indicated within our Report the sources of the information presented and have satisfied ourselves, so far as possible, that the information presented in our Report is consistent with other information which was made available to us in the course of our work in accordance with the terms of the Contract. We have not, however, sought to establish the reliability of the sources by reference to other evidence.

All recommendations, provided to you with/in this Report that refer to the future have some limitations in the sense that they are based on the assumptions valid on the issuance date. These assumptions could change with time, after the date of this Report issuance, and so could lose their value.

References to 'KPMG Analysis' in this Report indicate only that we have (where specified) undertaken certain analytical activities on the underlying data to arrive at the information presented; we do not accept responsibility for the underlying data.

In order to understand the optimal/maximum industry capacity of production of Printing, writing or drawing inks in Georgia, we analyzed the potential consumption of the Georgian production by the countries of the region (EU, Ukraine, Turkey, Southern Caucasus and Central Asia) and Russia, assuming that significant part of the products will be exported to these countries. The consumption has been analyzed based on the supply/demand data. We calculated the gap between import and export in these countries, as well as considered the production, potential capacity increase (pipeline) and consumption data to understand the potential volume of the Printing, writing or drawing inks that might be exported to these countries. In addition, we analyzed the main countries from which Printing, writing or drawing inks are imported, and considering several factors, identified the countries which can potentially be replaced by Georgian imports (partially). The factors include:

- distance, i.e. transportation costs,
- economic and political factors
- ease of access to these countries by Georgia

Based on the analysis of the above factors for each country in the region and Russia, as well as considering the overall share of the importing countries, which might be potentially replaced, we calculated approximate maximum share of the potential import of the Printing, writing or drawing inks by Georgia to these countries.

The results are as follows:

Country	Import/export gap (USD m)	Existence of production facilities	Main exporter country/region	Total export in tons (2014 data)	Potential replacement	Share of import of the potential replacement countries in total import	Total imported tons by the potential replacement countries (2014 data)	Potential share of import from Georgia	Potential volume (tons)
Turkey	138.1	Yes	Germany, Italy, India, Spain, China	14,788	India, China, Europe (excluding Germany)	49%	7,233	15%	1,085
Ukraine	49.0	Yes	Germany, Poland, China, Sweden, Turkey	6,997	Turkey, China, Europe (excluding Germany)	55%	3,816	15%	572
Armenia	2.0	Yes	Turkey, Iran, Italy, China, India, Germany	270	Turkey, Iran, China, India	73%	196	30%	59
Azerbaijan	0.8	Yes	Turkey, India, Malaysia, Korea	179	India, Malaysia, Korea	37%	67	20%	13
Central Asia	27.7	N/A	Russia, Germany, Turkey, Switzerland, Netherland	2,014	Turkey, Europe	42%	849	5%	42
Russia	279.5	Yes	Germany, Italy, United Kingdom, Turkey	43,502	Turkey, Europe	43%	18,749	5%	937
EU	(581.7)	Yes				n/a			
TOTAL									2,709

Note: N/A means the data was not available in the public sources

The analysis shows, that there is a gap between the import and export in Russia and the countries of the region, except for EU. As the gap in the EU is negative, which shows that the export exceeds import, as well as considering that there are big producers of Printing, writing or drawing inks (Flint Group, Siegwark, SICPA Holding SA, ALTANA AG, etc) based in the EU countries, we considered that the possibility to access these markets is low, therefore didn't consider EU as a potential consumer of the Georgian production.

The calculated optimal capacity of the production of Printing, writing or drawing inks and other inks in Georgia is 2,000 to 3,000 tons per year

The estimated investment is USD 2.6 million to USD 3.9 million

As for other countries/regions, the import/export gap is significant. Notwithstanding the existence of the production facilities in most of the countries/regions, the demand exceeds supply and there is a potential for other supplier to enter these markets. As an example, the gap between the import/export in Turkey is USD 138.1 million. There are big producers in the country, including branches of the biggest producers of the sub-sector (Umiya Inks, Siegwark Group, Dyo Printing Inks), as well as local producers. Significant share of the local production is consumed in the domestic market, however there is still significant import of the Printing, writing or drawing inks to the country. The main importer countries are Germany, Italy, India, Spain and China. Considering the distance factor, as well as ease of access of Georgia to Turkey, i.e. common border, we assumed that Georgia might potentially take up some share of the imports from India, China and Europe (excluding Germany). The share of import from India, China and Europe (excluding Germany) is 49% in the total import of the Printing, writing or drawing inks to the country, which is 7,233 tons in volume terms. We assumed that Georgia could potentially take up maximum 15% of the imports from these countries considering the potential specific quality, brand and pricing factors of India, China and Europe (excluding Germany) products. Thus the potential volume of the import from Georgia can be around 1,085 tons.

The same approach has been applied to the analysis of other countries. For the countries, which do not have local production, bigger potential share of import from Georgia has been applied. We also considered the current political factors in the region, however we assumed that this might potentially have a short-term impact, therefore adjusted the potential share accordingly (e.g. in case of the trade between Russia and Ukraine, we assumed that it might potentially continue and left some share for the mutual trade).

In addition, we also assumed that up to 70% of the local consumption of Printing, writing or drawing inks might be supplied by the new market entrant. Based on our analysis, during the period of 9m 2014, production of paint, varnish and other coatings amounted to USD 3.081 million consequently, the production value for 2014 can be estimated to equal to USD 4.108 million. Taking into account also the import and export values of paint, varnish and other coatings, consumption value of paint, varnish and other coatings can be estimated to be equal to USD 51.528 million. As the Georgian import share of Printing, writing or drawing inks in the Georgian import value of paint, varnish and other coatings equals to 5%, we assume that around 5% of the Georgian consumption of paint, varnish and other coatings (USD 51.528 million) was Printing, writing or drawing inks.

Consequently, the potential value would be USD 2.6 million, which in volume term, using the average import price of Printing, writing or drawing inks in Georgia, would be around 385 tons. The 70% of this volume would be around 269 tons per year. Thus, based on the calculations of import/export data and the potential consumption in Georgia (assuming that the consumption volume has not been changed significantly), the optimal capacity of the production in Georgia would be around 2,978 tons per year, i.e. range from 2,000 to 3,000 tons per year.

In order to estimate the approximate investment for a manufacturing facility with the capacity of 2,000 to 3,000 tons per year, we searched for similar projects throughout several countries. Based on the results of our search, we identified projects in India and Lebanon with higher capacities from 17,000 – 18,000 tons per year. Based on the information on the investment amount, which includes construction of the plant, storage place and related infrastructure facilities, installation of machines and boilers, we calculated the cost per ton, which is around USD 1,300 on average. Thus the estimated investment would be from USD 2.6 million to USD 3.9 million. This is an approximate range, as the factors like country specifics, construction costs, availability of technologies have not been analyzed for Georgia in detail.

Taking into account the profitability we suggest that the new entrants could start with the production of most consumed product, e.g. Printing ink. Further integration of other products might become feasible when the company gains certain level of brand awareness in the targeted markets. Concentration on one product group would also decrease the required amount of initial investment as different product groups have different manufacturing technologies.

Printing, writing or drawing inks and other inks

The main competitor countries and companies

The main competitor countries are Russia, Ukraine and Turkey

The major competitor countries can be considered the neighboring countries which have significant production facilities. Based on our analysis, these include:

Main Competitor countries	Main competitor companies
Russia	<ul style="list-style-type: none"> • Flint Group Russia • Siegwerk Group • Huber Group • Fujifilm • Sun Innovations • PoliFlex • TPK Raznotsvet OOO • REAM-RTI OOO
Ukraine	<ul style="list-style-type: none"> • Sun Chemical Ukraine Ltd. • Huber Group • Fujifilm
Turkey	<ul style="list-style-type: none"> • Dyo Printing Inks • Flint Group AS- Turkey • DIC/Sun Chemicals • Siegwerk Group • Huber Group • Fujifilm • Zeller+Gmelin • Turan Kimya Sanayi ve Ticaret Limited Sirketi • Renk Yolu Chem Co., Ltd • Umiya Inks • Endustriyel Kimya

Azerbaijan and Armenia also have production facilities, however these are not significant and supply only small portion of the local consumption. Most of the production is consumed inside each country.

Given Georgia's access to the neighboring countries and its favorable economic and political position in the region, the country might potentially negotiate significant investments in the sector

- *Strategic location – Georgia's strategic location is an asset to any investor. As a bridge between Europe and Asia, Georgia offers direct access to European, Gulf Cooperation Council and CIS markets. Its three major oil and gas pipelines, Black Sea ports, well-developed railway systems, together with its airports are playing an increasingly important role in linking the East and West*
- *Stable macroeconomic environment – even though macroeconomic situation in the region is unstable, Georgia demonstrates positive expected economic growth of 2.5% in 2015, whereas in neighboring countries either economic contraction or growth close to zero is expected*
- *Liberal Trade Regimes – Georgia has low tariffs and streamlined border clearance procedures. With a range of Free Trade Agreements, Georgia has access to a 900 million market that is not subject to customs tax, including Turkey, CIS and EU countries*
- *Free Industrial Zones – Georgia has two industrial zones, in which businesses are exempted from all tax charges, except personal income tax*
- *Raw materials – Georgia itself may not be the producer of some of the key raw materials, however solvents, additives and resins can be easily obtained. Based on obtained data for 2013, Azerbaijan represents the net exporter of Resins with the amount of 26 thousand tons. Pigments are considered to be the major constituent of ink and contribute about 50% of its cost. Based on the analysis, the regional (excluding EU) export of pigments equals to USD 487 million.*



Ukraine and EU countries have positive trade balances of pigments equal to USD 230 million and USD 1.7 billion correspondingly. All the other countries in the region except for Ukraine and EU countries, have import/export gap of pigments, the total import exceeds the total export by USD 949 million. Turkey has the biggest import/export gap of pigments equaling to USD 868 million. Considering the availability of raw materials in Georgia for producing pigments, including mining minerals, Georgia might consider producing pigments to supply both the domestic and foreign demand.

- *Low electricity cost* – The highest tariff for industrial consumers of one KWh energy in Georgia in 2014 was around USD 0.045 which is lower than in neighbor countries (in Armenia the price is around USD 0.069/per KWh, in Turkey USD 0.093/per KWh and in Azerbaijan 0.057/per KWh).*
- *Labor cost* in manufacturing industry is low amounting to 410 USD monthly on average
- *Legal environment* - No legal restrictions for importing/exporting and producing Printing, writing or drawing inks in Georgia and in the region
- *Special Customs regime for exporters* – “Internal Processing Customs Regime”, which offers tax incentives for exporting companies. A company may get a license from the Ministry of Finance about “Internal Processing Regime” and receive an exemption from VAT and from import/customs tax on raw materials. If an exporting company sells the products in Georgia, then it has to pay VAT and import/customs tax only for these products.
- *Corporate profit tax* is flat at 15%. *Personal income tax* is 20% and there is no social tax.
- *Depreciation of capital assets* – Based on the Tax code legal entities are able to fully depreciate their assets in the year in which they are put into operation. As a result, significant amount of tax loss-carry forward is generated which could be used during the first years of operation

* Note: The prices are converted to USD based on the exchange rates as at 29 April 2015 (GEL/USD - 2.31, AMD/USD - 475.94, AZN/USD – 1.05, TRY/USD – 2.67)

Paint or varnish production sector had 92 employees in 2013

We obtained the official data on the average number of people working in chemical production. The number provided below includes not only chemists, but also other positions working in the sector (technical staff, administration etc.). The separate data on chemists is not separately available.

Annual average number of people working in chemicals production 2012-2013 (Declared Data)		
Person	2012	2013
Chemicals production	5,560	5,414
From above		
Paint or varnish production	116	92

As of 2013 the number of people employed in the chemical production sectors was 5,414. The number of people in Printing, writing or drawing production sub-sector was 92.

Key Assumptions

Based on the data gathered and analyzed in the previous stages, we performed high level financial calculations for the potential project on producing Printing, writing or drawing inks in Georgia. The more detailed description of the assumptions and relevant calculations are provided further on

- Construction period was forecast to last one year
- Capacity utilization was forecast to reach 50% in the second projection period and further increase by 25% YoY reaching 100% in the 4th projection period
- The delay in the launch of the production is due to the forecasted plant construction period. The delay in reaching full forecasted capacity of the production is due to the estimated time needed for marketing the product and building brand recognition, as well as considering learning curve effect.
- During the forecasted period the maximum capacity has been estimated as the nominal capacity determined based on the analysis of the data obtained during the research, i.e. potential debottlenecking of production has not been considered.
- Maintenance capital expenditures were forecast based on initial investment and estimated useful life of the plant of 30 years. As a result, maintenance CAPEX amounted to USD 129 thousand, further adjusted for the expected USD inflation.
- Maintenance CAPEX was assumed to be incurred starting from the 5th projection year
- As per the Georgian tax code, legal entities are able to fully depreciate their assets in the year in which they are commenced. As a result, the project will generate significant amount of tax loss-carry forward in the 1st projection year, making the project effectively exempt from corporate income tax during the first four years

Construction project details

Investment, '000 USD	3,871
Capacity	2,978
Construction timeline	1
Annual maintenance CAPEX, '000 USD	129
Domestic sales	9%
Export sales	91%

Source: KPMG Analysis

- WACC is estimated to be 15% for all chemicals products
- Based on the data provided by Damodaran, industry average capital structure of the chemicals producing companies in the emerging markets comprises of 29% debt and 71% of equity. The capital structure of the project was assumed to be the same as industry average

We have assumed projection period of 10 years, followed by terminal period. The construction of factory is expected to be finished by the end of the first projection period, after which the plant will be commenced

Gross and EBITDA margins were forecast to amount to 19.9% and 6.2%, respectively throughout the forecast and terminal periods. EBT margin was projected to vary between 5.1% and 5.7%. Volatility of EBT margin is explained by increasing capital expenditures starting from year 5 and absence of corporate income tax till year 5. The COGS and the SG&A expenses have been calculated based on the industry average margins published in CapitalIQ.

Projected statement of Profit and Loss											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TP
Revenues	-	11,805	18,115	24,757	25,253	25,783	26,350	26,904	27,468	28,045	28,606
Growth			53.5%	36.7%	2.0%	2.1%	2.2%	2.1%	2.1%	2.1%	2.0%
COGS	-	(9,453)	(14,505)	(19,823)	(20,220)	(20,644)	(21,099)	(21,542)	(21,994)	(22,456)	(22,905)
Gross profit	-	2,353	3,610	4,934	5,033	5,139	5,252	5,362	5,474	5,589	5,701
Gross profit margin		19.9%	19.9%	19.9%	19.9%	19.9%	19.9%	19.9%	19.9%	19.9%	19.9%
SG&A	-	(1,617)	(2,482)	(3,392)	(3,460)	(3,532)	(3,610)	(3,686)	(3,763)	(3,842)	(3,919)
EBITDA	-	735	1,129	1,542	1,573	1,606	1,642	1,676	1,711	1,747	1,782
EBITDA margin		6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%
Financial Depreciation		(129)	(129)	(129)	(131)	(136)	(141)	(146)	(151)	(157)	(162)
EBT	-	606	1,000	1,413	1,442	1,470	1,500	1,530	1,560	1,591	1,620
EBT margin		5.1%	5.5%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
Corporate Income tax	-	-	-	-	(145)	(219)	(224)	(229)	(233)	(238)	(243)
Net Income	-	606	1,000	1,413	1,297	1,251	1,277	1,301	1,327	1,352	1,377
NI margin		5.1%	5.5%	5.7%	5.1%	4.9%	4.8%	4.8%	4.8%	4.8%	4.8%

Source: CapIQ, KPMG Analysis

Note: For our calculation purposes, we have not adjusted corporate income tax for the changes in deferred tax

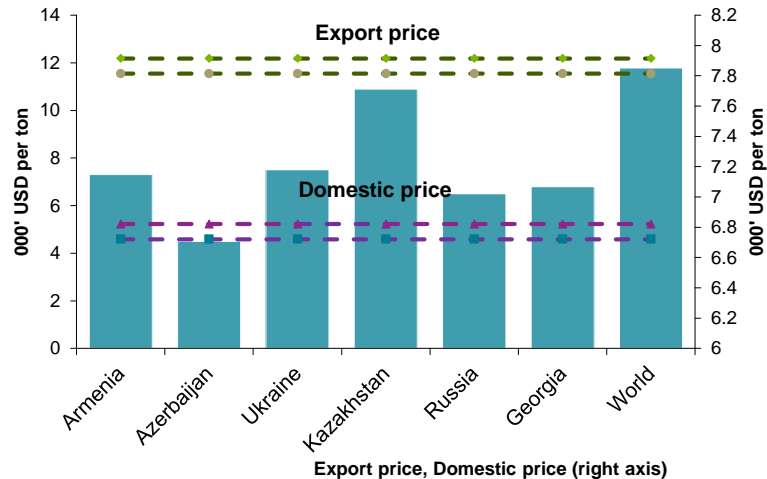
Sales volumes

Production of Printing, writing or drawing inks was projected to start in Year 2 at the level of 1,489 tons further increasing to 2,978 tons in Year 4. Sales volume on the domestic market was estimated to be 9% of total production, while remaining 91% is expected to be sold on export

Seles price

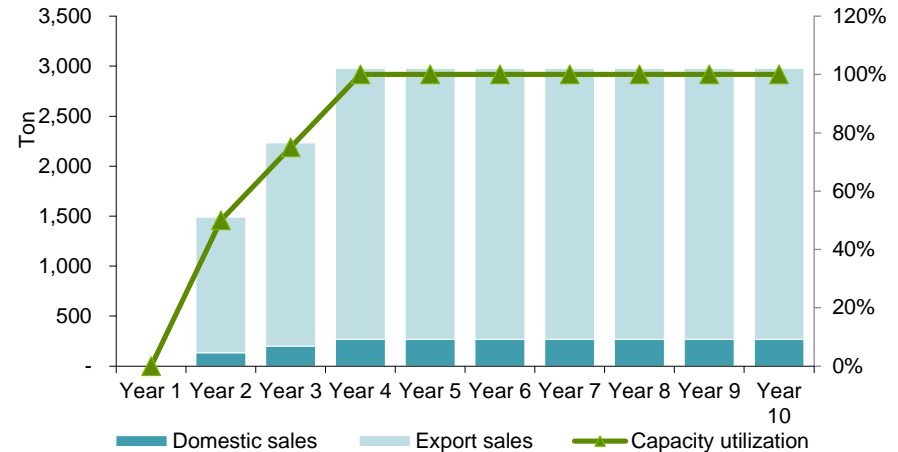
Average price per ton for the domestic market was estimated to be USD 6,771 based on average import price as provided by International Trade Centre (ITC), while export price was estimated to be USD 7,864 per ton based on average of the targeted market price as provided by International Trade Centre (ITC)

Selling prices



Source: ITC, KPMG Analysis

Sale volume of plant



Source: ITC, KPMG Analysis

Cost of Goods Sold and Selling, General and Administrative expenses were forecast based on 3 year industry average Gross and SG&A margins of 19.9% and 13.7% respectively.

The 79% of COGS were accounted for raw materials and remaining 21% was split between Labor (8%), Energy (3%) and Overheads, taxes and other (10%).

COGS and SG&A											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TP
COGS	-	(9,453)	(14,505)	(19,823)	(20,220)	(20,644)	(21,099)	(21,542)	(21,994)	(22,456)	(22,905)
Raw materials	-	(7,467)	(11,459)	(15,660)	(15,974)	(16,309)	(16,668)	(17,018)	(17,375)	(17,740)	(18,095)
Other	-	(1,985)	(3,046)	(4,163)	(4,246)	(4,335)	(4,431)	(4,524)	(4,619)	(4,716)	(4,810)
Labor	-	(756)	(1,160)	(1,586)	(1,618)	(1,652)	(1,688)	(1,723)	(1,760)	(1,796)	(1,832)
Energy	-	(284)	(435)	(595)	(607)	(619)	(633)	(646)	(660)	(674)	(687)
Overheads	-	(945)	(1,450)	(1,982)	(2,022)	(2,064)	(2,110)	(2,154)	(2,199)	(2,246)	(2,291)
SG&A expenses	-	(1,617)	(2,482)	(3,392)	(3,460)	(3,532)	(3,610)	(3,686)	(3,763)	(3,842)	(3,919)

Source: CapIQ, KPMG Analysis

The NPV of the project is positive amounting to USD 2,473 thousand

Discounted cash flow results											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Terminal period
Total revenues	-	11,805	18,115	24,757	25,253	25,783	26,350	26,904	27,468	28,045	28,606
% of growth	-	-	53.45%	36.67%	2.00%	2.10%	2.20%	2.10%	2.10%	2.10%	2.00%
EBITDA	-	735	1,129	1,542	1,573	1,606	1,642	1,676	1,711	1,747	1,782
EBITDA margin	-	6.23%	6.23%	6.23%	6.23%	6.23%	6.23%	6.23%	6.23%	6.23%	6.23%
EBT	-	606	1,000	1,413	1,442	1,470	1,500	1,530	1,560	1,591	1,620
Income tax (adjusted)	-	-	-	-	(145)	(219)	(224)	(229)	(233)	(238)	(243)
NOPAT	-	606	1,000	1,413	1,297	1,251	1,277	1,301	1,327	1,352	1,377
Cash flow adjustments											
Depreciation	-	129	129	129	131	136	141	146	151	157	162
CAPEX	(3,871)	-	-	-	(143)	(146)	(149)	(152)	(156)	(159)	(162)
Change in working capital	-	(1,181)	(631)	(664)	(50)	(53)	(57)	(55)	(56)	(58)	(56)
FCFF	(3,871)	(445)	498	878	1,236	1,188	1,212	1,240	1,266	1,292	1,321
WACC	15.00%										
Terminal growth rate	2.00%										
Terminal value											16,891
Discount period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10
Discount factor	0.933	0.811	0.705	0.613	0.533	0.464	0.403	0.351	0.305	0.265	0.265
Discounted FCFF	(3,610)	(361)	351	538	659	551	489	435	386	343	2,694
Sum of discounted cash flows	(220)										
Terminal value	2,694										
NPV	2,473										

Source: CapIQ, KPMG Analysis

Key profitability factors of the Project

Based on the high-level calculations the project is feasible

Key profitability factors of the project											
'000 USD	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TP
Revenues	-	11,805	18,115	24,757	25,253	25,783	26,350	26,904	27,468	28,045	28,606
EBITDA	-	735	1,129	1,542	1,573	1,606	1,642	1,676	1,711	1,747	1,782
Net Income	-	606	1,000	1,413	1,297	1,251	1,277	1,301	1,327	1,352	1,377
EBITDA margin	-	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%
Net income margin	-	5.1%	5.5%	5.7%	5.1%	4.9%	4.8%	4.8%	4.8%	4.8%	4.8%
NPV of the Project	2,473										
IRR	23%										
Payback period	5.43										

Source: CapIQ, KPMG Analysis

Our assumptions and analysis have been performed based on the general economic and sector indicators. The detailed calculations for Georgia, including construction costs, labor costs, specific legal and environmental costs etc have not been considered. However, the country specific taxation, as well as the CPI and the pricing data have been considered.

Per the general analysis, the results show that the project is feasible for the calculated optimal capacity and the relevant investment, as well as given costs assumptions. The NPV of the project is positive amounting to USD 2,473 thousand, the IRR is high amounting to 23%. The payback period is estimated to be 5.4 years.



cutting through complexity

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