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Policy Briefing for Improving Access of the Ukrainian Taps, Cocks, Valves Sector to the EU under the AA/DCFTA

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Policy Briefing for Improving Access of the Ukrainian Taps, cocks, valves Sector to the EU under the AA/DCFTA

Draft Analytical Study – May-June 2018

Stefan Moser, A4U STE

The following evidence-based recommendations are built on analysis of the sector in Ukraine and EU and detailed consultations with business operators in the taps, cocks and valves sector.

1 Introduction

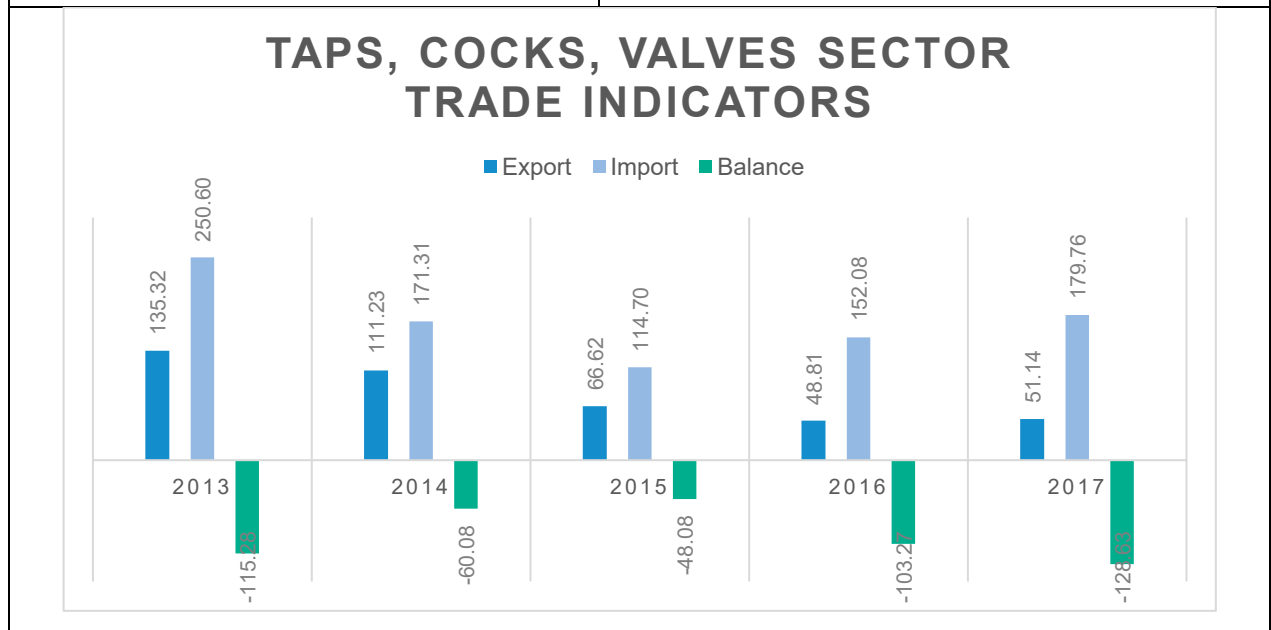
The previously conducted analytical study under the Association4U Project “**Underperforming Sectors under the DCFTA**” identified specific sectors where Ukraine’s market share in the EU is significantly less than its market share in world markets, despite the substantial benefits of the DCFTA. The reasons for this so-called “**underperformance**” could relate to policies in Ukraine, internal industrial problems in Ukraine, the AA/DCFTA regime itself, or market issues within the EU. Thus, to determine and possibly resolve existing constraints, the Project with the assistance of the Ukrainian National Chamber of Commerce and Industry, has consulted businesses in these sectors to determine the constraints they face. Based on these, recommendations for Government Action have been suggested. It can be noted, that now, there is no more underperformance in the taps, cocks, valves sector (latest data for the year 2017), however, not because Ukraine recovered terrain but because the Ukrainian exports shrank drastically while exports towards the EU somewhat stabilised. Thus, there is a **general weakness of the taps, cocks and valves sector**.

The Government of Ukraine might consider how to respond, including discussions with EU at trade and industrial dialogue committees, or, internal policy changes combined with business support measures (such as export promotion, education or other instruments). It will also decide on intra-governmental cooperation and work with other stakeholders to address and solve the constraints described and as raised by the private sector hereafter.

Given the preferential access of Ukrainian companies to the EU provided by the DCFTA, we would expect Ukrainian exports of Taps, cocks, valves to the EU to perform better than the rest of the World; that is Ukraine would be expected to have a bigger market share than it has in the rest of the world. However, Ukraine had on average over the last 3 years about 85% less share of EU market than it had in the rest of the world. Therefore, this report investigates the issues constraining the sector in exporting towards the EU under the DCFTA and makes recommendations to the Government of Ukraine to facilitate this potential through concrete actions to support the sector.

2 Overview of current Situation in the Taps, Cocks, Valves Sector

EU third country Imports¹	Average Growth in EU Imports (2015-2017)
€ 7.83 bn	+ 5.3 %
Average Ukraine's global exports € 102.7m (2011-2013) € 58.3m (2014-2017) € 45.2m (2017 only) presents 0.06% of world exports ²	EU Imports from Ukraine³ € 5.6m Growth +7.1%
Underperformance Score 2017 1.3* (average 2008 – 2014: 0.54) (Details in Appendix 6)	Possible Export potential n.a. (*no under-performance, however generally weakened exports lead to the score as the average 2008-2014 shows)



¹ Eurostat Comext (2017)

² www.trademap.org Accessed: July 2018

³ Average Imports 2015-17 calculated from Eurostat Comext (2018)

US\$ thousand, based on Ukrstat

Taps, cocks, valves produced in Ukraine were exported by about 35 companies ⁴

- Valves for the control of oleo-hydraulic power transmission
- Pressure-reducing valves of cast iron or steel, for pipes, boiler shells, tanks, vats and the like (excluding those combined with lubricators or filters)
- Check valves for pipes, boiler shells, tanks, vats and the like
- Safety or relief valves for pipes, boiler shells, tanks, vats and the like
- Mixing valves for sinks, wash basins, bidets, water cisterns etc. excluding valves for pressure-reducing or oleo-hydraulic/pneumatic power transmissions, check valves, safety/relief valves
- Process control valves for pipes, boiler shells, tanks etc. excluding valves for pressure-reducing or oleo-hydraulic/pneumatic power transmissions, check, safety/relief valves, temp. regulators
- Other gate valves, of steel
- Other appliances

Constraints faced by Ukrainian Taps, cocks, valves companies

- Compliance with EU technical regulations
- Electricity/energy deficiencies
- Historical orientation towards CIS market
- Inadequately educated engineers and technicians
- Low labour productivity and resulting quality issues of production
- Poor dialogue with and missing trust in Government
- Other market-internal challenges facing the industry in general, i.e. VAT, access to affordable financing, corruption, access to affordable energy, inadequate infrastructure, etc.

3 Context

It should be recognised that the taps, cocks, valves sector is not a stand-alone industry but is often vertically integrated into large conglomerates. Production of taps, cocks, valves is an energy intensive industry, availability of and competitively priced energy is fundamental, but also of raw materials (iron ore and steel). In the Ukrainian industry landscape, these industries are often based in the centre or east of the country. It is understandable that through this position, trade integration mostly happened with CIS countries (Russia, Belarus, Kazakhstan).

⁴ www.trademap.org (2018)

4 Constraints to Export under the DCFTA

To understand better the constraints faced by Ukrainian taps, cocks, valves producers and reasons for their under- or weak performance in the EU market despite the DCFTA, business consultation took place with industry associations as well as representative businesses between February and April 2018. These were held on a regional level in six strategic locations, facilitated by regional Chambers of Commerce and Industry Kharkiv, Dnipropetrovsk, Zaporizhzhya, Sumy and L'viv as well as with Ukrainian Chamber of Commerce and Commerce (UCCI) in Kiev. Additional interviews with associations and businesses were held mainly in Kiev.

The taps, cocks, valves sector reported many challenges arising in recent years that prevent exports to the EU under the DCFTA. Many market internal constraints affect the sector and its export potential in general.

There are different levels of problems reported, many are national issues adversely affect the underlying competitiveness of taps, cocks, valves in the EU market, whilst others are more related to market and regulatory demands of the EU:

- Main problem for taps, cocks, valves sector is **application of global (or EU) or industry standards** at the manufacturers followed by low export diversification; enterprises think that obtaining product certification is (too) onerous.

Analysis of the reported issue:

GOST standards were sufficient. Need for change not evident based on the historical trade ties with CIS.

Ukraine has largely adopted the EU system of quality infrastructure and the EU machinery and Low Voltage Directives (LVD) were incorporated into Ukrainian law in 2013. EU DG GROW evaluated positively through concordance tables to confirm that these laws in Ukraine line up with the Directives and therefore national compliance would imply compliance with EU requirements.

Under the EU (and Ukrainian system) of conformity assessment (the way a firm proves it complies with technical requirements) is through either third-party conformity assessment (by accredited EU notified body) or through self-certification by using EU harmonised standards and accredited testing bodies.

*NOTE: for LVD and machinery, the use of notified bodies is mandatory – **that is taps, cocks, valves companies can self-certify**. Within Ukraine, National Accreditation Agency of Ukraine (NAAU) (and full member of International Laboratory Accreditation Cooperation - ILAC) is approved by European Accreditation to accredit Ukrainian-testing laboratories and such test results are legally acceptable in the EU. To date, NAAU has accredited 24 and 2 testing laboratories (IEC/ISO 17025) for machinery and LVD testing respectively that can be used by taps, cocks, valves producers as part of the approval process (with additional 83 and 49 accredited conformity assessment bodies for calibration, product review and inspection of machinery and LVD).*

UKRMETRSTANDARD (Ukraine's national standards body) has adopted on EU harmonised standards for machinery and LVD and MEDT regularly publishes the approved list of standards that convey compliance, which are identical to those of the EU. In addition, it is a companion

member only open to DCFTA member of European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC). Thus, Ukrainian technical committees can fully participate in equivalent EU technical committees to develop and revise EU harmonised standards. However, gaps are still existing. The Strategy for the Development of the Technical Regulation System (including an action plan) until 2020 approved by CMU resolution in August 2015 is a good starting point for a broader national quality policy or strategy, which is required to reflect the next stage of NQI development in Ukraine.⁵

Therefore, the system is in place for producers to obtain regulatory approvals for export to the EU in Ukraine but based on discussions, the taps, cocks, valves sector simply does not understand or know how.

One exception, the producers of speciality valves, i.e. for use in nuclear reactors, need approved technical laboratory facilities and testing capacities currently not available in Ukraine (one valve producing company is investing heavily into realisation of meeting EU standards in a near future⁶).

- **Companies oriented towards the domestic market or towards the CIS, limited export potential and competitive products**

Analysis of the reported issue:

- *Ukraine is more importer of taps, cocks, valves than exporter (negative trade balance).*
- *Average share of taps, cocks, valves that Ukraine exports to CIS in 2015-17 was 66.5%.⁷ (Thus, strategic orientation still towards CIS countries).*
- *Export Strategy of Ukraine: Roadmap for Strategic Development of Trade for the period 2017-2021 includes measures of machine building support – to develop at least two strategies for innovation potential strengthening (IV quarter 2018)⁸*
- *Export promotion measures in Ukraine are done but mostly not for machine building.*
- *Export Promotion Office (EPO) operates with limited resources and human capital.*
- *Export support is provided by Ukrainian Chamber of Commerce and Industry of Ukraine including directions of support for Export to the EU, Formation of an Export Strategy, Market Analysis, Product Requirements, Access Modes, Partner Reliability, Review Search for Business Partners⁹*
- *Export risk guarantee (export risk credit facility) still lacks implementation.*
- *Ukrainian exporters underestimated or were not aware of the Russian import substitution policy adopted already during the pro-Russian Government in Ukraine and before the real crisis hit Ukraine. Thus, business operators must understand that there is no way backwards, communist market strategies have come to a global extinction. The only way are fully market-oriented reforms, as the Government of Ukraine is implementing.*

⁵ <http://documents.worldbank.org/curated/en/407381501738384776/Ukraine-national-quality-infrastructure-gap-assessment>

⁶ According to this company, the overall investment to meet EU standards will top € 250,000. This despite the company had no issues in the past with GOST standards about their reliability of products.

⁷ Calculations based on Ukrstat

⁸ <https://www.kmu.gov.ua/ua/npas/pro-shvalennya-eksportnoyi-strategiyi-ukrayini-dorozhnoyi-karti-strategichnogo-rozvitku-torgivli-na-20172021-roki>

⁹ <https://ucci.org.ua/en/services/zovnishn-oiekonomichna-diial-nost>

First impression is, industry receives relevantly limited support from the government for public policy making and dialogue. Enhanced, evidence-based communication would be an essential tool for GoU to enhance public awareness on recent economic developments and future trends and policies.

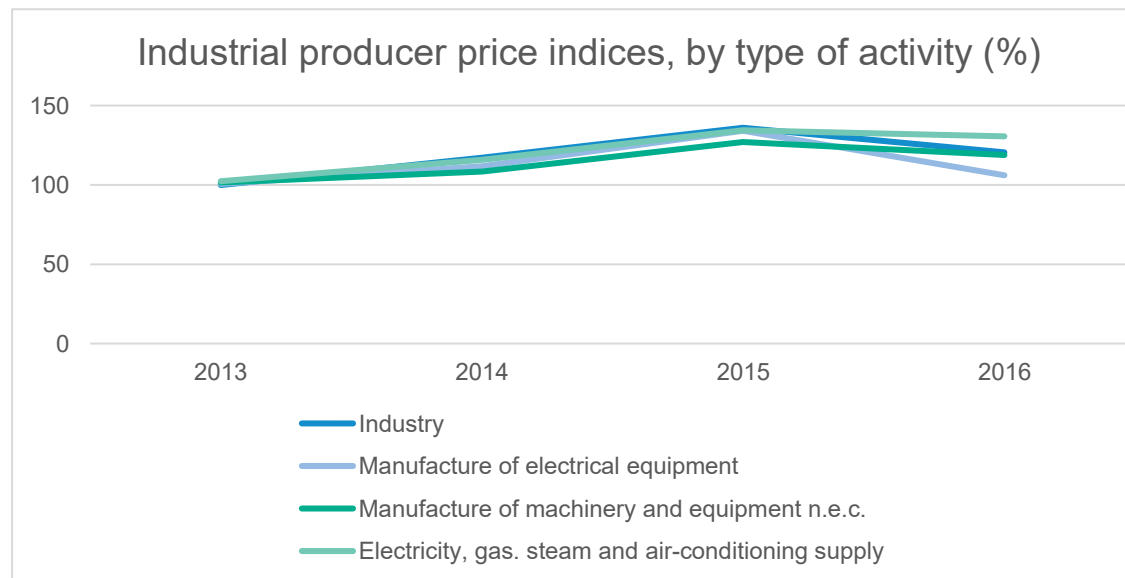
The "Law of Ukraine on Providing for Large-Scale Export Expansion of Goods (Works, Services) Originating in Ukraine through Insurance, Guarantees and Cheapening of Export Credits"¹⁰ that was adopted on 20 Dec 2016 established the legal basis for establishment of the Export Credit Agency to encourage the export of Ukrainian goods (works, services). This law would enable more SMEs to obtain better financing conditions for exports as risks of the bank not to get paid back are minimised.

Verkhovna Rada should do all efforts to implement the law as soon as possible (agency budget above all).

- **Power consuming production/ technology, lower quality and competitiveness**

Analysis of the reported issue:

- *In 2015 net costs (excluding GVA) of electrical equipment manufacture included 4% of electricity, gas, steam and air-conditioning supply and machinery and equipment n.e.c. manufacture included 6.9%¹¹ The shares of these productions in total energy consumption are 0.4% and 1.1% relevantly.*



- *However Intermediate consumption, also called "intermediate expenditure" in manufacture of electrical equipment makes 70.7% and in manufacture of machinery and equipment n.e.c. – 68.8%.*
- *Intermediate consumption includes other energy components (natural gas, coke etc.). The biggest share of energy expenditures is in metallurgy sector.*

¹⁰ <http://zakon5.rada.gov.ua/laws/show/1792-19>

¹¹ http://ukrstat.gov.ua/druk/publicat/kat_u/2017/zb/05/zb_tv_15_w.zip

Main positions included in intermediate expenditures (%)	Electrical equipment	Machinery and equipment n.e.c.
<i>Mining of crude oil and natural gas</i>	1,8	3,5
<i>Manufacture of coke, and refined petroleum products</i>	3,6	0,1
<i>Manufacture of chemicals and chemical products</i>	4,3	2,2
<i>Manufacture of rubber and plastics products, and other non-metallic mineral products</i>	8,3	3,3
Metallurgy production	31,2	28,7
<i>Manufacture of basic metals and fabricated metal products, except machinery and equipment</i>	2,5	7,7
<i>Manufacture of computer, electronic and optical products</i>	6,2	1,3
<i>Manufacture of electrical equipment</i>	5,3	0,9
Manufacture of machinery and equipment n.e.c	8,4	15,2
<i>Electricity, gas, steam and air-conditioning supply</i>	4,0	6,9
<i>Wholesale and retail trade; repair of motor vehicles and motorcycles</i>	8,6	9,8
<i>Transportation and storage, postal and courier activities</i>	4,5	4,4
<i>Financial and insurance activities</i>	2,4	3,9
<i>Other</i>	8,9	12,1

- *Gross value added of Manufacture of electrical equipment is 29.3% (including wages 16.7%) and Manufacture of machinery and equipment n.e.c. - 31.2% (wages 22.3%) relevantly.*
- *Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The country with the highest value in the world is Puerto Rico, with a value of 95.49. The country with the lowest value in the world is Sudan, with a value of 2.90.¹²*
- *In the 2nd half of 2017 average prices of natural gas for non-residential consumers with VAT and considering transportation and distribution tariffs was UAH 247.97 for 1 GJ or UAH 9183.99 per 1 ths. m³ (given under the metering reference conditions at 15°C).¹³*
- *Estimating the exchange rate of UAH/USD as UAH 28.0672 for 1 dollar (31.12.2017)¹⁴ the price of natural gas for non-residential consumers can be considered as \$ 8.8 for 1 GJ.*

*World Bank Natural Gas Price Forecast for Europe¹⁵
(nominal US dollars (\$/mmbtu)*

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
10.05	7.26	4.56	5.50	5.66	5.83	6.00	6.17	6.35	6.54

- *European gas prices were rather stable between March and July 2017 but started to rise from August, helped by a combination of factors, including injection demand, continuing coal-to gas switching, rising oil and coal prices, increasing seasonal demand and persistent concerns about French nuclear availability. In the fourth quarter, TTF averaged 6.6 USD/MMBtu (19.2 Euro/MWh). The average German*

¹² <https://www.indexmundi.com/facts/indicators/NV.IND.TOTL.ZS>

¹³ http://www.ukrstat.gov.ua/operativ/operativ2018/energ/ser_cin_gas/ser_cin_gas_e/ser_cin_gasll_e.htm

¹⁴ <https://finance.i.ua/nbu/?d=31&m=12&y=2017>

¹⁵ <https://knoema.com/ncszerf/natural-gas-prices-forecast-long-term-2017-to-2030-data-and-charts>

border price was lower (6.1 USD/MMBtu or 17.6 Euro/MWh), especially in December, when falling oil-indexed prices put pressure on the price of gas imported under long-term contracts.¹⁶

- *Production costs appear to be highly dependent on the price of energy. Pumps production involves principally metallurgical processes to form the casing of the pumps and most of the internal components. Thus, the competitiveness of the taps, cocks, valves sector heavily depends on access to cheaper energy.*

Ukraine must liberalize about its compliance with the obligations stemming from the Energy Community acquis communautaire ('acquis') i.e. Electricity Directive 2009/72/EC as well as Gas Directive 2009/73/EC.¹⁷ In doing so, Ukraine restructured the national regulatory body into the "National Commission for the State Regulation of Energy and Utilities of Ukraine" (NEURC), under direct responsibility of the President and the Verkhovna Rada (since 2011). The Commission was dissolved but again reinstated in 2014. The Commission combined the previously separate National Commission for State Regulation of Public Utilities and National Commission for State Regulation of Energy and Utilities. There were serious doubts about the independence of NEURC in 2014/2015. However, the adoption of the new law "On the National Commission for the State Regulation of Energy and Utilities in 2016 reached improvements related to the organisational and financial independence of NEURC. Struggles to substitute Commissioners in a timely manner showed however the difficulties persisting to guarantee such organisms a neutral, empowering working environment.

Therefore, lot of problems seem to be connected to the energy sector because economy is very inefficient. Furthermore, the dominance of a few stakeholders in the market limit access to competitive energy thus GoU should seek to liberalise energy sector as well as strengthen the role and independence of the "National Commission for the State Regulation of Energy and Utilities of Ukraine" (NEURC) to perform its mandate and shield it from political influence.

- **Inefficiency of management and marketing skills, low productivity, low qualification of workforce, labour migration (brain drain):**

Analysis of the reported issue:

- *Industrial (machine building) professional area includes several occupational groups, from machine tool operators to chief engineers and directors.*
- *Interviews with industry employers and experts showed that entry-level students were viewed as underprepared and that there was a demand for a more specialized core curriculum for entry-level employees.¹⁸*
- *In 2016 number of employees for enterprises, departments, organisations, by industrial manufacturing economic activity decreased by 43.3 thsd. persons (from 1447.4 persons in 2015). Number of registered unemployed in that sphere also decreased in 2016 to 45.3 thsd. persons (15.6 thsd. persons less than in 2015). However, employers' demand for employees to replace vacant work places increased*

¹⁶

https://ec.europa.eu/energy/sites/ener/files/documents/quarterly_report_on_european_gas_markets_q4_2017_final_2018_0323.pdf

¹⁷ https://www.energy-community.org/dam/jcr.../ECS_NEURC_reg_report_032018.pdf

¹⁸ Skills for a Modern Ukraine <http://dx.doi.org/10.1596/978-1-4648-0890-6>

from 5.1 thsd. persons in 2015 to 7.8 in 2016 (burden per one vacant work place dropped from 12 to 6 persons).¹⁹

- Retirement rate in industry is higher than recruitment rate (percent of averaged payroll staff). Recruitment rate – 20.9% in 2015 23.6% in 2016. Retirement rate in industry – 28.1% in 2015 and 27.9% in 2016.
- Percent of the time-book working hours fund in industry in 2016 was 84% (less than average 84.1%). Hours per one regular employee not fulfilled by reasons of holidays without wage 9 (average 4) due to economic reasons transferred to part-time job 38 (average 14). Similar situation is in for all industrial activities. In 2016, for Manufacture of machinery and equipment n.e.c. 92 hours were not fulfilled by reasons of holidays without wage or due to economic reasons.²⁰
- Labour migration is felt by companies as impacting negatively the competitiveness of Ukraine. Companies fail to recruit qualified workforce, also due to the salary gap between neighbouring EU countries (i.e. Poland or Hungary).
- Companies that want to hire their own apprentices criticize the existing vocational education and training (VET) program and related handling of approval for companies by the Ministry of Education and Science (MES). It is also underpinned that technical and vocational education is not focused on the market needs. It is necessary to enhance the quality of technical and vocational education and link it with the job market demands.

According to MES however, curricula have been developed to ensure a consistent qualification of the students. During the term of study, students are required to pass current, subject-oriented, intermediate, and exit knowledge quality control. A graduate of a vocational educational institution who successfully passes the qualification examinations is awarded the qualification degree of “Qualified Worker” of the appropriate category in the selected specialization field. Thus, companies that adhere to VET programs to form apprentices on the work, should follow the curricula requirements as stipulated by the Law on Law of Ukraine on vocational education.²¹

Overall, employers might need more apprenticeship-based VET programs to form apprentices already into the work environment and have a higher probability to retain the workforce in the company (i.e. as successfully implemented in Switzerland)²². The current VET system well forms people but outside the company. Salary-wise, an ILO study from 2015 attributes to Ukraine that “The wage potential of the TVET graduate also lags behind the university graduates, although the gaps are not large, and in Ukraine youth with technical training had the highest average wage”²³. (n.b. of the Eastern European countries analysed).

Measures should be taken to make manufacture more productive and balance recruitment and retirement rates. Measures should also be taken to adapt the VET system to the needs of the producing industries.

- **Negative perception of Government actions and policies, thus affecting Government work and feedback culture:**

¹⁹ Ukrstat Statistical Yearbook of Ukraine 2016

²⁰ Ukrstat Statistical Yearbook of Ukraine 2016

²¹ See also: <http://enic.in.ua/index.php/en/educationl-system/vocational-education>

²² <http://ncee.org/wp-content/uploads/2015/03/SWISSVETMarch11.pdf>

²³ http://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_357353.pdf

Analysis of the reported issue:

- *Low Trust in the Government or no trust, some companies refusing to cooperate in this study if result is shared with GoU (almost half of questionnaires are confidential);*
- *Corruption allegations, including ProZorro; the latter might have brought some relief, but enterprises still see corruption during the signing of the contracts;*
- *Oligarchic structures, making business operations hard for SMEs;*
- *Wrong energy policy led to energy sector dominated by one Oligarch, raising energy prices and not offering alternatives for enterprises;*
- *Some companies raised the bar, saying “Enough consultancy, now real help needed for enterprises”;*
- *Government should focus on real business needs, on the other side, Government should not mingle into doing business of enterprises but give the necessary autonomy;*
- *AA/DCFTA seen as negative and not bringing any advantage;*
- *Enterprises have low perception of utility of Chambers of Commerce or also their own associations;*
- *Low trust in their own associations makes it difficult for Government to consult private sector, as no strong partner available;*

Some of the problems mentioned sound more like a hard-to-kill prejudices than facts. The Government of Ukraine has a paramount interest to raise the perception on the real success stories, the undertaken reform policies and available tools and instruments at the service of the private sector.

5 What government should do to help

During the consultations, the most often cited issue raised was about not meeting technical standards. Other problems cited concern mostly market-internal problems in Ukraine. Some might be latent since long-time, this ranges from corruption allegations to problems with the VAT system, and the Ukrainian financial system in general (lack of credit, high interest rates, inflation, etc.).

The resolution of problems does not always need new resources or plans but it can fit or complement the implementation of current Governmental initiatives or help accelerating them. This applies especially for the “*Action plan for the implementation of the SME Strategy*” as well as the “*Export Strategy of Ukraine*”, or also the eventually upcoming “*Industrial strategy*”. The Government also involves the EU in a high-level industrial dialogue since March 2017, which sector-specific working groups in Mining industry, Aerospace industry, Engineering, Light industry, Automotive industry and Shipbuilding.

This study also stresses that communication is an essential tool for solving not only problems, but also fighting prejudices about Government work. Thus, it is essential that Government communicates in a formal way with private sector and replies with the sectors concerned.

In order that the taps, cocks, valves manufacturing sector of Ukraine can take advantage of the DCFTA and begin preparing for and exporting to the EU, the following actions are recommended:

1. Support the taps, cocks, valves Sector comply with EU technical regulations

- Explaining the system and requirements for compliance and what is already available in Ukraine, eventually empowering NAAU to further promote its functions and technical standards;
- Implement the Strategy for the Development of the Technical Regulation System (including an action plan);
- Developing systems/business support services for conformity assessment (especially self-certification procedures), i.e. through Innovation centres, Techno-parks and Incubation centres, Quality and Technology awards, Quality and Training Centre;
- Developing and facilitating intra-industrial dialogue to facilitate further consultation work of the Government but also to form a tissue of trustable industry associations representing the industry interests;
- Enhance and facilitate cooperation and knowledge sharing among the business community itself²⁴;
- Continue and intensify the High-level Industrial Dialogue with the EU, eventually adapting the working groups to key sectors with real economic potential; adapt “Roadmap of the Ukraine-EU Industrial Dialogue” accordingly.

2. Modernisation of production/design

- Encourage Research & Development across industrial clusters (i.e. spending in EU amongst machinery sector is 5-6% according McKinsey) to allow industries to close the technological gap with European competitors;
- Create tax or other incentives for investment (tax relieves on investment capital, employment measures, industrial upgrading);
- Create industrial investment fund that should act as a catalyst for investment activities and modernisation/upgrading; Such fund should have good management capacities and clear focus and thus could be a good starting point for international donor’s contribution.

3. Workers and skills development

- Evaluate achievements of actual TVET system and establish measures of validation and alignment of education and training curricula with sector needs and requirements.
- Career opportunities could be studied in partnership with local industry starting in secondary school. Required competencies can be taught in vocational training systems if the equipment that is used is up-to-date by industry standard.
- Encourage the enterprises to implement programs improving labour productivity including insurance, recreation and introduction of competitive and transparent wages.

²⁴ The local association looks weak: <http://www.apau.com.ua/eng.html> and got eventually dissolved, one big producer in Dnipro is acting as association (which is not ideal to favour industrial dialogue among producers).

4. Export promotion

- Evaluate the achievements of existing export promotion tools as well as propose new tools to put on equal footing Ukrainian exporters vis-à-vis European competitors (Export risk guarantee can cover a multitude of trade risks);
- Set-up Ukrainian business hubs in key countries in Europe (i.e. the UK, Germany, France, Italy);
- Encourage intra-industrial dialogue and cooperation between, for example European Association of Valve Manufacturers or the European Association for the Taps, Cocks and Valves Industry and relevant Ukrainian institutions and key clusters;
- Continue High-level industrial dialogue with the EU, but also continue opening other potential markets (i.e. Korea, Japan);
- Continue expanding the network of Free Trade Agreements to fully implement the Regional Convention on Rules of origin (Paneuromed Convention);

4. Government Dialogue with Industry

- Evaluate effectiveness of current Government dialogue activities, i.e. of business events organised by EPO (MEDT);
- Evaluate Government actions in all areas of internal market intervention raised by enterprises:
 - o Fighting corruption;
 - o Technical standards;
 - o Public procurement (ProZorro);
 - o Access to finance (cost, availability, conditions) (i.e. IMF conditions are felt as destructive for Ukraine economy);
 - o Access to electricity and pricing of energy;
 - o Labour law and labour workforce, massive migration of educated workforce, education system and TVET;
 - o VAT related issues (refund difficulties and delays, VAT on investment);
- Enhance intra-governmental coordination and enhance a common Government language towards industrial dialogue and communication (i.e. “answer toolkit” or “text modules”) with private sector about common issues raised, i.e. corruption allegations, VAT refund problems, financial market situation, infrastructure, energy market and supply, land reform and other issues at stake.
- Final goal: Enhance a standardised, evidence- and fact-based dialogue with the industrial sector, upon own initiative to propagate new opportunities or in reply to any inquiry.

Final goal:

Enhance a standardised, evidence- and fact-based dialogue with the industrial sector, upon own initiative by the GoU to propagate new opportunities or in reply to any inquiry by private sector.

6 ANNEXES

6.1 Sector Profile

This study focusses specifically on taps, cocks, valves (HS position 8481) with the following sub-categories:

HS Product code	HS Product description
8481.10	Pressure-reducing valves
8481.20	Valves for oleo-hydraulic or pneumatic transmission
8481.30	Check "non-return" valves for pipes, boiler shells, tanks, vats or the like
8481.40	Safety or relief valves
8481.80	Appliances for pipes, boiler shells, tanks, vats or the like (excluding pressure-reducing valves, valves for the control of pneumatic power transmission, check "non-return" valves and safety or relief valves)
8481.90	Parts of valves and similar articles for pipes, boiler shells, tanks, vats or the like, not elsewhere specified (n.e.c.)

It is acknowledged that the Ukrainian economy suffered multiple setbacks over the past few years caused by multiple crises. This has led to drastic changes in foreign policy orientation that led to loss of traditional markets for many industrial goods. A previous study by Association4U identified several sectors that were underperforming under the DCFTA and hypothesised that other constraints were preventing them taking advantage of the new opportunities and if these constraints could be resolved, then it could unlock access to the EU market.

The taps, cocks, valves sector was one of those products identified as underperforming with a current share in EU imports of taps, cocks, valves, much lower than expected. Therefore, a consultation round with private sector stakeholders was initiated to identify these constraints and where appropriate to undertake further analysis.

6.2 Overview of taps, cocks, valves Production and Export in Ukraine

A significant part of the market is occupied by firms that carry out wholesale and sales of pipeline fittings of local and foreign manufacturers.

Under conditions of strong market competition, Ukraine cannot do without new developments, researches and mastering the production of new types of product. However, Ukraine has a powerful potential to produce industrial valves. About a hundred of engineering and manufacturing companies develop and design a wide range of valves for various purposes.

Considering the global trend, which is aimed at expanding the production of pipeline fittings with elements of automation, some Ukrainian manufacturers make automation for various control systems.

A special place in the market infrastructure is occupied by domestic producers of pipeline fittings and basic industries of Ukraine. The main consumers of general industrial and special purpose

valves include: oil and gas, petrochemical, chemical, fuel and energy, atomic, aerospace, mining and metallurgical, machine-building, food and other sectors of the economy. Pipe fittings are widely used in pipeline transport and housing and municipal services.

Output of taps, cocks, valves in Ukraine in 2017²⁵

Product name by the Nomenclature, unit	Output in 2017	% to 2016
Valves for the control of oleo-hydraulic power transmission, kg	51331	79,9
Pressure-reducing valves of cast iron or steel, for pipes, boiler shells, tanks, vats and the like (excluding those combined with lubricators or filters), kg	132231	135,0
Check valves for pipes, boiler shells, tanks, vats and the like, kg	56049	96,0
Safety or relief valves for pipes, boiler shells, tanks, vats and the like, kg	132965	117,1
Mixing valves for sinks, wash basins, bidets, water cisterns etc. excluding valves for pressure-reducing or oleo-hydraulic/pneumatic power transmissions, check valves, safety/relief valves, kg	16616	*
Process control valves for pipes, boiler shells, tanks etc. excluding valves for pressure-reducing or oleo-hydraulic/pneumatic power transmissions, check, safety/relief valves, temp. regulators, kg	562941	167,7
Other gate valves, of steel, kg	4639507	97,9
Other appliances, kg	1563783	111,1

*Data are not published to ensure compliance with the requirements of the Law of Ukraine On the State Statistics regarding confidentiality of statistical information

Manufacturing of general machinery and equipment as well as manufacture of electrical equipment are relatively large subsectors of industrial sector and machine building in Ukraine, representing 27% and 16% of machine building output. Subsectors differ in terms of their size, productivity and exposure to markets. Industrial companies are engaged in manufacturing of machinery and equipment for virtually all types of industrial activities.

The share of economic activity manufacture of machinery and equipment that includes taps, cocks, valves dropped to 2.3% in 2016 from 2.9% in 2010.

*Volume of machinery and equipment n.e.c.²⁶ (NACE²⁷) in industrial products (goods, services) sold in 2012-2016 (bn. UAH/ %)***

	2012		2013		2014		2015		2016	
	Value	in % to the total	Value	in % to the total	Value	in % to the total	Value	in % to the total	Value	in % to the total
Industry	1 367,9	100,0	1 322,4	100,0	1 428,8	100,0	1 776,6	100,0	2 158,0	100,0
Manufacture of machinery	37,6	2,8	34,8	2,6	33,5	2,3	42,0	2,4	50,1	2,3

²⁵ Ukrstat

²⁶ n.e.c. stands for "not elsewhere classified"

²⁷ <https://siccode.com/en/pages/what-is-a-nace-code>

and equipment n.e.c.										
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Performance of enterprises show the volume of sold machine building products in 2013 and 2015 as 8.7% and 6.5% of the total volume in industry accordingly. Index of industrial production in Ukraine for 2013 was 97.3% and for 2015 made 66.4% over 2010.

The average number of full-time employees dropped from 456 thousand in 2013 to 346 thousand in 2015 and made about 17% of the total number of employees in the industry.

Total volume of manufacture of machinery and equipment n.e.c. (goods, services) January-February of 2018 amounted to UAH 7 519.1 m with 47.5% exported (UAH 3 569.9 m).

Creation of effective mechanisms for controlling the quality of pipeline armature compels first and foremost unfair competition. Inconvenience is expressed in the fact that products of dubious origin are thrown out at dumping prices. This seriously deforms the market and damages both conscientious vendors and direct consumers.

The market for pipeline fittings has always been a high degree of competition. With the introduction of market elements of business, the process of competition began to acquire more visible outlines. Today in the domestic market infrastructure is created that can provide practically all the demands of the consumers of pipeline valves. It can be said that Ukraine has a positive history of taps, cocks, valves manufacturing and a research base.

Based on Ukrstat data, total exports, as well as the exports of machine building fell between 2013 and 2016. Exports of the machines, equipment and mechanisms, electric and technical equipment amounted to \$ 4 277 m in 2017, an annual increase of 17.6 % but this remains 37.3 % lower than 2013 level (\$ 6 826.5 m). Exports of nuclear reactors, boilers, machines increased 10.7 % in 2017 to \$ 1 728.2 m but also remains 53.7 % lower than it was in 2013 (\$ 3 732,4 m). As a result, the share of machine building products in total exports has decreased from 11% to 9.9% during the last 5 years.

Share of exports of industrial products from Ukraine in 2013-17 (%)

HS Commodity code and title	2013	2014	2015	2016	2017
Base metals and preparations thereof (XV.)	28,1	28,3	24,8	22,9	23,4
Machines, equipment and mechanisms, electric and technical equipment (XVI):	11,0	10,5	10,3	10,0	9,9
85 electric machines	5,0	5,0	5,2	5,7	5,9
84 nuclear reactors, boilers, machines	6,0	5,5	5,1	4,3	4,0

(Source: Ukrstat, Accessed May 2018)

Ukrainian machine-building companies remain traditionally export-oriented with Russia and other CIS states being the key markets. However, a significant portion of export goes to the Central and Eastern Europe (CEE), China, India with a several players selling machines globally.

The large significance of the Russian market is largely due to the continuation of old economic ties. Due to good knowledge of trade partners, shared production standards (GOST) and customised products, such long-standing trade relations usually are mutually advantageous and

thus sensible to continue, although a diversification of exports is desirable as it reduces dependency on a single market and thus exposure to risks and shocks stemming from this key market.

6.3 Import Competition in Ukraine

The total Ukraine's imports of taps, cocks, valves increased by 18.2% in 2017 to \$ 179.8 m but remains 28.3 % lower than it was in 2013 (\$ 250.6 m).

Imports from the European countries increased 19.1 % in 2017 to \$ 109.3 m but remains 27.6 % lower than it was in 2013 (\$ 151 m). Imports from Asian countries increased 16.3 % in 2017 to \$ 51.2 m and 5.1 % more than it was in 2013 (\$ 48.8 m). Imports from America increased 48.6 % in 2017 to \$ 10.3 m and become 21.3 % higher than it was in 2013 (\$ 8.5 m). Imports from the CIS countries dropped 4.5 % in 2017 to \$ 8.8 m and remains 79.1 % lower than it was in 2013 (\$ 42.2 m).

Appendix 1. Growth of Ukraine's imports of taps, cocks, valves (HS 8481) in 2013-17

Ukraine imported about 60.8 % of taps, cocks, valves from Europe in 2017. The biggest exporters were Italy (12.6%), Germany (12.4%), Poland (7.9%) and Czech Republic (5.7%). 28.5 % of taps, cocks, valves Ukraine imported from Asia. The biggest exporter was China (24.4%). America exported 5.7% to Ukraine. The USA was the biggest exporter (4.9%). 4.9 % Ukraine imported from the CIS countries. The CIS main exporters were the Russian Federation (4.2 %).

Appendix 6. The main exporters of taps, cocks, valves (HS 8481) to Ukraine in 2013-17

Overall, the trade balance for taps, cocks, valves in 2017 remains traditionally negative of \$ 128.6 m. that came from negative trade balance of \$ 115.3 m in 2013.

6.4 International markets for Ukrainian taps, cocks, valves

The total Ukraine's exports of taps, cocks, valves increased by 4.8% in 2017 to \$ 51.1 m compared to 2016 but remains 62.2 % lower than it was in 2013 (\$ 135.3 m).

Exports to the CIS countries increased 18.3 % in 2017 to \$ 34.5 m compared to the previous year but remains 71.3 % lower than it was in 2013 (\$ 120.2 m). Exports to the European countries increased 69.9.6 % in 2017 to \$ 11.1 m and increased 90.8 % than it was in 2013 (\$ 6.8 m). Exports to the Asian countries dropped 65.5 % in 2017 to \$ 4.2 m and remains 46.3 % lower than it was in 2013 (\$ 7.9 m). Export to African and American countries increased by 70.5% and 39.1% in 2017 compared to the previous year accordingly, but compared to 2013, it increased 92.3% and dropped 34.1%.

Appendix 3. Growth of Ukraine's exports of taps, cocks, valves (HS 8481) in 2013-17

Traditional markets:

In 2017, the CIS remain the main consumer of Ukrainian taps, cocks, valves. Ukraine exported 67.5 % of taps, cocks, valves to the CIS countries. The CIS main importers were Russian Federation (52 %), Belarus (7.1 %), Kazakhstan (3.8 %) and Moldova (3.1%). 32.5 % were exported to other

countries (Europe 21.8%), (Asia 8.3 %), America (1.4%) and Africa (1%). The main importers in Europe were Lithuania (5.6 %), Poland (3 %) and Hungary (3.5 %). Other importers were less than 3%.

Appendix 4. The share of importers of taps, cocks, valves (HS 8481) from Ukraine in 2013-17

6.5 The EU market for Taps, Cocks, Valves

EU taps, cocks, valves sector is highly competitive and diversified.

According to ITC-Trademap, the EU imported 81.8% of taps, cocks, valves from 5 biggest exporters China (38%), USA (24.5%), Switzerland (9.8%), Japan (5.8%) and India (3.6%) in 2017. Ukraine made 0.08% of the EU import in 2017. The biggest share of Ukraine's export of taps, cocks, valves to the EU was in 2018 of 0.15% and in 2013 of 0.1%. The smallest share of 0.04% was in 2010.

Appendix 5. EU imports of taps, cocks, valves from biggest exporters and Ukraine in 2008-17

For different reasons the EU taps, cocks, valves manufacturers are united in relevant associations. European Association of Valve Manufacturers is the only European manufacturer's network and service provider for the sector, which is based exclusively on direct company memberships.²⁸ The European Association for the Taps and Valves Industry (CEIR) represents the common economic, technical and scientific interests of the European valve industries, in towards international authorities and economic and commercial circles.²⁹

6.6 Challenges for the Ukrainian Producers of Valves

Part of the Ukrainian market (about 60%) is dominated by imported products, but this concerns mostly small-sized sanitary fittings. Given the wide range of pipeline fittings presented on the Ukrainian market, talking about the cost would not be quite correct. To determine the price, it is necessary to compare the products with similar characteristics. And if according to technical parameters it is not difficult to do it, then by another, for example, the design is more difficult. Since many design requirements for piping and, in particular, sanitary fittings have advanced so far that, in addition to reliability, they already include ergonomic features. Naturally, all this cannot but affect the final cost.

According to experts, high-quality pipeline fittings are manufactured using modern technology and cannot have a cost "lower than factory". Overall, the trend is currently being positive - prices for fittings gradually approach the world level. The only exception (and problem) are products remanufactured or "repaired" by unknown or not trustable companies, which feed into products of the "black" market. Only those products undermine the perception of quality of Ukrainian fabrication.

The Ukrainian market of pipeline fittings has a significant potential for development. This is primarily due to the considerable wear and tear of the valves in the pipeline systems. The

²⁸ <https://www.eu-nited.net/valves/european-valve-manufacturers-association/index.html>

²⁹ <https://www.ceir.eu/>

increased demand for fittings is following the growth of the construction sector as well, as housing need several pumping and valve solutions (water, heating/cooling, sewage).



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7 Appendixes

7.1 Appendix 1. Growth of Ukraine's imports of taps, cocks, valves (HS position 8481) in 2013-17 (Ukrstat, Thousand \$)

Country	2013 Value	% (+/-) to 2012	2014 Value	% (+/-) to 2013	2015 Value	% (+/-) to 2014	2016 Value	% (+/-) to 2015	2017 Value	% (+/-) to 2016	% (+/-) to 2013
TOTAL	250 604,3	9,4	171 305,4	-31,6	114 699,5	-33,0	152 081,0	32,6	179 762,8	18,2	-28,3
I. CIS COUNTRIES	42 202,1	0,2	20 269,4	-52,0	9 248,6	-54,4	9 236,9	-0,1	8 820,1	-4,5	-79,1
Russian Federation	40 301,0	0,2	18 668,3	-53,7	8 346,7	-55,3	7 683,7	-7,9	7 562,0	-1,6	-81,2
II. OTHER COUNTRIES	208 402,2	11,5	151 035,9	-27,5	105 450,9	-30,2	142 844,1	35,5	170 942,6	19,7	-18,0
EUROPE	151 025,1	15,2	98 261,0	-34,9	64 885,2	-34,0	91 784,1	41,5	109 325,4	19,1	-27,6
Austria	2 802,5	-4,9	2 677,1	-4,5	1 083,6	-59,5	1 302,8	20,2	3 300,9	153,4	17,8
United Kingdom	3 861,4	38,7	1 768,0	-54,2	1 703,9	-3,6	2 969,9	74,3	4 827,0	62,5	25,0
Denmark	3 872,7	-36,4	2 760,6	-28,7	2 452,0	-11,2	2 835,1	15,6	4 930,8	73,9	27,3
Spain	3 963,6	-87,1	4 653,0	17,4	1 279,5	-72,5	1 865,4	45,8	2 832,2	51,8	-28,5
Italy	27 886,8	-8,9	22 223,9	-20,3	14 190,5	-36,1	21 469,7	51,3	22 580,9	5,2	-19,0
Lithuania	1 239,4	124,5	2 132,6	72,1	1 151,9	-46,0	1 386,0	20,3	3 902,9	181,6	214,9
Germany	46 463,2	16,6	23 696,7	-49,0	16 468,7	-30,5	22 170,0	34,6	22 356,3	0,8	-51,9
Poland	14 528,3	5,6	12 747,7	-12,3	9 045,3	-29,0	12 626,2	39,6	14 156,4	12,1	-2,6
Romania	4 179,3	144,2	1 703,0	-59,3	777,8	-54,3	976,4	25,5	1 744,4	78,7	-58,3
Slovenia	3 442,2	36,2	1 709,0	-50,4	1 524,2	-10,8	1 799,4	18,1	2 810,4	56,2	-18,4
Hungary	3 183,5	6,9	1 106,6	-65,2	1 703,9	54,0	4 896,1	187,4	4 800,4	-2,0	50,8
French	11 206,1	104,1	5 856,8	-47,7	2 183,6	-62,7	3 699,5	69,4	2 580,2	-30,3	-77,0
Czech Republic	14 121,1	41,4	7 856,6	-44,4	5 832,7	-25,8	7 975,8	36,7	10 254,9	28,6	-27,4
Switzerland	1 789,2	31,4	2 261,1	26,4	783,9	-65,3	1 044,2	33,2	1 828,3	75,1	2,2
Sweets	910,2	-20,2	478,8	-47,4	297,6	-37,8	286,6	-3,7	1 828,3	538,0	100,9
ASIA	48 756,4	2,9	45 637,3	-6,4	35 452,5	-22,3	44 048,8	24,2	51 246,3	16,3	5,1
Israel	1 030,0	-4,3	2 850,8	176,8	1 161,7	-59,2	1 091,0	-6,1	780,6	-28,4	-24,2

China	40 861,6	2,5	36 509,0	-10,7	29 225,9	-19,9	37 108,5	27,0	43 816,5	18,1	7,2
Turkey	2 250,9	-3,8	1 999,7	-11,2	1 911,8	-4,4	3 227,7	68,8	2 978,0	-7,7	32,3
AMERICA	8 515,1	2,3	7 082,1	-16,8	5 085,0	-28,2	6 949,4	36,7	10 326,7	48,6	21,3
USA	7 813,1	6,6	6 399,0	-18,1	4 507,4	-29,6	6 204,9	37,7	8 786,4	41,6	12,5

7.2 Appendix 2. The main exporters of taps, cocks, valves (HS position 8481) to Ukraine in 2013-17 (Ukrstat, Thousand \$)

Country	2013		2014		2015		2016		2017	
	Value	%	Value	%	Value	%	Value	%	Value	%
TOTAL	250 604,3	100,0	171 305,4	100,0	114 699,5	100,0	152 081,0	100,0	179 762,8	100,0
I. CIS COUNTRIES	42 202,1	16,8	20 269,4	11,8	9 248,6	8,1	9 236,9	6,1	8 820,1	4,9
Russian Federation	40 301,0	16,1	18 668,3	10,9	8 346,7	7,3	7 683,7	5,1	7 562,0	4,2
II. OTHER COUNTRIES	208 402,2	83,2	151 035,9	88,2	105 450,9	91,9	142 844,1	93,9	170 942,6	95,1
EUROPE	151 025,1	60,3	98 261,0	57,4	64 885,2	56,6	91 784,1	60,4	109 325,4	60,8
Austria	2 802,5	1,1	2 677,1	1,6	1 083,6	0,9	1 302,8	0,9	3 300,9	1,8
United Kingdom	3 861,4	1,5	1 768,0	1,0	1 703,9	1,5	2 969,9	2,0	4 827,0	2,7
Denmark	3 872,7	1,5	2 760,6	1,6	2 452,0	2,1	2 835,1	1,9	4 930,8	2,7
Spain	3 963,6	1,6	4 653,0	2,7	1 279,5	1,1	1 865,4	1,2	2 832,2	1,6
Italy	27 886,8	11,1	22 223,9	13,0	14 190,5	12,4	21 469,7	14,1	22 580,9	12,6
Lithuania	1 239,4	0,5	2 132,6	1,2	1 151,9	1,0	1 386,0	0,9	3 902,9	2,2
Germany	46 463,2	18,5	23 696,7	13,8	16 468,7	14,4	22 170,0	14,6	22 356,3	12,4
Poland	14 528,3	5,8	12 747,7	7,4	9 045,3	7,9	12 626,2	8,3	14 156,4	7,9
Romania	4 179,3	1,7	1 703,0	1,0	777,8	0,7	976,4	0,6	1 744,4	1,0
Slovenia	3 442,2	1,4	1 709,0	1,0	1 524,2	1,3	1 799,4	1,2	2 810,4	1,6
Hungary	3 183,5	1,3	1 106,6	0,6	1 703,9	1,5	4 896,1	3,2	4 800,4	2,7
French	11 206,1	4,5	5 856,8	3,4	2 183,6	1,9	3 699,5	2,4	2 580,2	1,4
Czech Republic	14 121,1	5,6	7 856,6	4,6	5 832,7	5,1	7 975,8	5,2	10 254,9	5,7
Switzerland	1 789,2	0,7	2 261,1	1,3	783,9	0,7	1 044,2	0,7	1 828,3	1,0
Sweets	910,2	0,4	478,8	0,3	297,6	0,3	286,6	0,2	1 828,3	1,0
ASIA	48 756,4	19,5	45 637,3	26,6	35 452,5	30,9	44 048,8	29,0	51 246,3	28,5
Israel	1 030,0	0,4	2 850,8	1,7	1 161,7	1,0	1 091,0	0,7	780,6	0,4
China	40 861,6	16,3	36 509,0	21,3	29 225,9	25,5	37 108,5	24,4	43 816,5	24,4
Turkey	2 250,9	0,9	1 999,7	1,2	1 911,8	1,7	3 227,7	2,1	2 978,0	1,7
AMERICA	8 515,1	3,4	7 082,1	4,1	5 085,0	4,4	6 949,4	4,6	10 326,7	5,7
USA	7 813,1	3,1	6 399,0	3,7	4 507,4	3,9	6 204,9	4,1	8 786,4	4,9

7.3 Appendix 3. Growth of Ukraine's exports of taps, cocks, valves (HS position 8481) in 2013-17 (Ukrstat, Thousand \$)

	2013		2014		2015		2016		2017		
Country	Value	% (+/-) to 2012	Value	% (+/-) to 2013	Value	% (+/-) to 2014	Value	% (+/-) to 2015	Value	% (+/-) to 2016	% (+/-) to 2013
Total	135 324,6	-4,9	111 227,2	-17,8	66 615,3	-40,1	48 809,9	-26,7	51 137,3	4,8	-62,2
I. CIS COUNTRIES	120 232,2	-7,0	100 531,4	-16,4	47 074,1	-53,2	29 179,0	-38,0	34 514,9	18,3	-71,3
Azerbaijan	584,0	-43,8	2 914,1	399,0	173,2	-94,1	709,6	309,8	267,7	-62,3	-54,2
Belarus	10 670,6	47,9	6 644,9	-37,7	3 439,4	-48,2	2 026,0	-41,1	3 630,8	79,2	-66,0
Kazakhstan	10 584,3	-7,6	7 219,9	-31,8	10 497,4	45,4	2 954,0	-71,9	1 919,9	-35,0	-81,9
Moldova, republic	1 090,3	-2,6	969,0	-11,1	597,0	-38,4	892,3	49,5	1 564,4	75,3	43,5
Russian federation	92 069,4	-12,6	78 747,4	-14,5	31 058,6	-60,6	20 991,8	-32,4	26 591,0	26,7	-71,1
Turkmenistan	3 226,9	85,6	1 929,4	-40,2	891,2	-53,8	485,7	-45,5	46,2	-90,5	-98,6
Uzbekistan	1 339,0	19,9	1 801,5	34,5	309,3	-82,8	879,6	184,3	277,0	-68,5	-79,3
II. OTHER COUNTRIES	15 092,4	15,8	10 695,8	-29,1	19 541,2	82,7	19 630,9	0,5	16 622,5	-15,3	10,1
EUROPE	5 842,9	15,8	5 751,6	-1,6	7 116,5	23,7	6 563,3	-7,8	11 148,6	69,9	90,8
Lithuania	572,2	4,2	593,5	3,7	1 722,8	190,3	1 793,5	4,1	2 875,5	60,3	402,5
Poland	650,2	-36,9	643,1	-1,1	414,3	-35,6	436,3	5,3	1 536,3	252,1	136,3
Hungary	727,5	93,1	1 177,9	61,9	1 227,3	4,2	1 509,9	23,0	1 765,0	16,9	142,6
Rumania	117,6	0,7	51,2	-56,5	0,6	-98,8	18,4	2904,6	106,1	476,2	-9,8
Slovakia	77,8	14,4	775,2	896,6	588,7	-24,1	299,6	-49,1	259,1	-13,5	233,1
Sweden	1 010,0	92,9	1 144,2	13,3	825,6	-27,8	774,3	-6,2	824,3	6,5	-18,4
ASIA	7 857,5	27,9	3 839,9	-51,1	11 041,0	187,5	12 236,1	10,8	4 223,0	-65,5	-46,3
Georgia	948,2	-8,0	411,0	-56,7	699,7	70,2	769,7	10,0	576,5	-25,1	-39,2
India	2 225,2	-24,9	1 401,4	-37,0	666,1	-52,5	1 420,1	113,2	1 029,1	-27,5	-53,8
IRI	1 692,5	20,1	322,9	-80,9	1 075,8	233,2	696,3	-35,3	168,8	-75,8	-90,0
China	1 872,4	863,2	627,1	-66,5	7 633,0	1117,2	7 517,6	-1,5	473,9	-93,7	-74,7
Pakistan	8,3	-92,0	142,1	1605,5	41,8	-70,6	273,8	555,0	1 122,1	309,8	13366,4
Turkey	57,2	-72,7	147,5	157,9	233,0	58,0	701,8	201,2	46,2	-93,4	-19,3
AFRICA	265,6	-65,9	355,9	34,0	677,4	90,3	299,5	-55,8	510,7	70,5	92,3
AMERICA	1 120,8	5,4	743,9	-33,6	704,8	-5,3	530,9	-24,7	738,7	39,1	-34,1

7.4 Appendix 4. The share of importers of taps, cocks, valves (HS position 8481) from Ukraine in 2013-17 (Ukrstat, Thousand \$)

	2013		2014		2015		2016		2017	
Country	Value	%	Value	%	Value	%	Value	%	Value	%
Total	135 324,6	100,0	111 227,2	100,0	66 615,3	100,0	48 809,9	100,0	51 137,3	100,0
I. CIS COUNTRIES	120 232,2	88,8	100 531,4	90,4	47 074,1	70,7	29 179,0	59,8	34 514,9	67,5
Azerbaijan	584,0	0,4	2 914,1	2,6	173,2	0,3	709,6	1,5	267,7	0,5
Belarus	10 670,6	7,9	6 644,9	6,0	3 439,4	5,2	2 026,0	4,2	3 630,8	7,1
Kazakhstan	10 584,3	7,8	7 219,9	6,5	10 497,4	15,8	2 954,0	6,1	1 919,9	3,8
Moldova, republic	1 090,3	0,8	969,0	0,9	597,0	0,9	892,3	1,8	1 564,4	3,1
Russian federation	92 069,4	68,0	78 747,4	70,8	31 058,6	46,6	20 991,8	43,0	26 591,0	52,0
Turkmenistan	3 226,9	2,4	1 929,4	1,7	891,2	1,3	485,7	1,0	46,2	0,1
Uzbekistan	1 339,0	1,0	1 801,5	1,6	309,3	0,5	879,6	1,8	277,0	0,5
II. OTHER COUNTRIES	15 092,4	11,2	10 695,8	9,6	19 541,2	29,3	19 630,9	40,2	16 622,5	32,5
EUROPE	5 842,9	4,3	5 751,6	5,2	7 116,5	10,7	6 563,3	13,4	11 148,6	21,8
Lithuania	572,2	0,4	593,5	0,5	1 722,8	2,6	1 793,5	3,7	2 875,5	5,6
Poland	650,2	0,5	643,1	0,6	414,3	0,6	436,3	0,9	1 536,3	3,0
Hungary	727,5	0,5	1 177,9	1,1	1 227,3	1,8	1 509,9	3,1	1 765,0	3,5
Romania	117,6	0,1	51,2	0,0	0,6	0,0	18,4	0,0	106,1	0,2
Slovakia	77,8	0,1	775,2	0,7	588,7	0,9	299,6	0,6	259,1	0,5
Sweden	1 010,0	0,7	1 144,2	1,0	825,6	1,2	774,3	1,6	824,3	1,6
ASIA	7 857,5	5,8	3 839,9	3,5	11 041,0	16,6	12 236,1	25,1	4 223,0	8,3
Georgia	948,2	0,7	411,0	0,4	699,7	1,1	769,7	1,6	576,5	1,1
India	2 225,2	1,6	1 401,4	1,3	666,1	1,0	1 420,1	2,9	1 029,1	2,0
IRI	1 692,5	1,3	322,9	0,3	1 075,8	1,6	696,3	1,4	168,8	0,3
China	1 872,4	1,4	627,1	0,6	7 633,0	11,5	7 517,6	15,4	473,9	0,9
Pakistan	8,3	0,0	142,1	0,1	41,8	0,1	273,8	0,6	1 122,1	2,2
Turkey	57,2	0,0	147,5	0,1	233,0	0,3	701,8	1,4	46,2	0,1
AFRICA	265,6	0,2	355,9	0,3	677,4	1,0	299,5	0,6	510,7	1,0
AMERICA	1 120,8	0,8	743,9	0,7	704,8	1,1	530,9	1,1	738,7	1,4

7.5 Appendix 5. EU imports of taps, cocks, valves (HS position 8481) from biggest exporters and Ukraine in 2008-17

Eurostat data	EU import, Euro thousand
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PERIOD	Jan.-Dec. 2008		Jan.-Dec. 2009		Jan.-Dec. 2010		Jan.-Dec. 2011		Jan.-Dec. 2012	
PARTNER/FLOW	Value	%	Value	%	Value	%	Value	%	Value	%
EU28_EXTRA (total)	5 443 703	100,00	4 364 346	100,00	5 238 348	100,00	5 879 697	100,00	6 397 823	100,00
China	2 043 340	37,54	1 558 806	35,72	2 039 157	38,93	2 186 387	37,19	2 369 077	37,03
United States of America	1 177 102	21,62	1 049 516	24,05	1 195 231	22,82	1 344 996	22,88	1 516 247	23,70
Switzerland	630 830	11,59	505 804	11,59	592 891	11,32	679 079	11,55	659 652	10,31
Japan	362 189	6,65	219 532	5,03	317 330	6,06	398 603	6,78	363 594	5,68
India	182 432	3,35	149 857	3,43	144 169	2,75	207 821	3,53	251 619	3,93
Turkey	90 878	1,67	66 874	1,53	80 537	1,54	103 263	1,76	119 492	1,87
Korea, Republic of	85 464	1,57	88 364	2,02	89 011	1,70	100 728	1,71	114 808	1,79
Taipei, Chinese	150 876	2,77	101 478	2,33	115 073	2,20	143 690	2,44	144 403	2,26
Thailand	110 027	2,02	80 849	1,85	117 594	2,24	115 726	1,97	125 911	1,97
Norway	129 404	2,38	113 499	2,60	77 807	1,49	88 676	1,51	163 325	2,55
Ukraine	8 225	0,15	3 168	0,07	1 966	0,04	3 899	0,07	4 480	0,07

Continued EU import of taps, cocks, valves (HS position 8481) for liquids from biggest exporters and Ukraine in 2008-17

Eurostat data	EU import, Euro thousand									
	Jan.-Dec. 2013		Jan.-Dec. 2014		Jan.-Dec. 2015		Jan.-Dec. 2016		Jan.-Dec. 2017	
PARTNER/FLOW	Value	%	Value	%	Value	%	Value	%	Value	%
EU28_EXTRA (total)	6 374 903	100,00	6 732 887	100,00	7 558 387	100,00	7 421 390	100,00	7 828 918	100,00
China	2 292 630	35,96	2 488 106	36,95	2 777 174	36,74	2 773 554	37,37	2 977 207	38,03
United States of America	1 596 374	25,04	1 680 583	24,96	1 944 049	25,72	1 849 121	24,92	1 914 993	24,46
Switzerland	647 798	10,16	656 259	9,75	690 567	9,14	701 124	9,45	770 669	9,84
Japan	344 480	5,40	371 894	5,52	390 103	5,16	433 287	5,84	456 963	5,84
India	234 650	3,68	230 393	3,42	282 400	3,74	252 872	3,41	284 559	3,63
Turkey	133 199	2,09	147 188	2,19	144 015	1,91	157 064	2,12	187 585	2,40
Korea, Republic of	124 324	1,95	132 626	1,97	204 063	2,70	194 911	2,63	166 124	2,12
Taipei, Chinese	132 766	2,08	136 982	2,03	151 108	2,00	147 903	1,99	164 393	2,10
Thailand	142 469	2,23	148 939	2,21	159 406	2,11	137 521	1,85	153 262	1,96
Norway	158 771	2,49	132 666	1,97	168 190	2,23	122 141	1,65	92 880	1,19
Ukraine	6 290	0,10	5 341	0,08	6 002	0,08	4 770	0,06	6 177	0,08

7.6 Appendix 6. Underperformance of taps, cocks, valve sector in Ukraine in 2008-17

Eurostat data

	Jan.- Dec. 2008		Jan.- Dec. 2009		Jan.- Dec. 2010		Jan.- Dec. 2011		Jan.- Dec. 2012		Jan.- Dec. 2013		Jan.- Dec. 2014		Jan.- Dec. 2015		Jan.- Dec. 2016		Jan.- Dec. 2017		
Euro thousand																					
TAPS, COCKS, VALVES; PARTS THEREOF	IMPOR T	%	IMPOR T	%	IMPOR T	%	IMPOR T	%	IMPOR T	%	IMPOR T	%	IMPOR T	%	IMPOR T	%	IMPOR T	%	IMPOR T	%	
CHINA (PEOPLE'S REPUBLIC OF)	2,043,3 40,141	37.5 4	1,558,8 05,909	35.7 2	2,039,1 57,396	38.9 3	2,186,3 87,382	37.1 9	2,369,0 76,911	37.0 3	2,292,6 29,953	35.9 6	2,488,1 05,987	36.9 5	2,777,1 74,305	36.7 4	2,773,5 54,407	37.3 7	2,977,2 06,895	38.0 3	
UNITED STATES	1,177,1 02,497	21.6 2	1,049,5 15,681	24.0 5	1,195,2 30,808	22.8 2	1,344,9 95,926	22.8 8	1,516,2 47,175	23.7 0	1,596,3 74,261	25.0 4	1,680,5 83,143	24.9 6	1,944,0 48,982	25.7 2	1,849,1 21,029	24.9 2	1,914,9 93,491	24.4 6	
SWITZERLAND (incl. LI->1994)	630,83 0,299	11.5 9	505,80 4,495	11.5 9	592,89 1,428	11.3 2	679,07 8,756	11.5 5	659,65 2,256	10.3 1	647,79 7,580	10.1 6	656,25 8,650	9.75	690,56 6,941	9.14	701,12 3,620	9.45	770,66 8,548	9.84	
JAPAN	362,18 8,797	6.65	219,53 1,780	5.03	317,33 0,002	6.06	398,60 3,233	6.78	363,59 3,911	5.68	344,47 9,992	5.40	371,89 4,434	5.52	390,10 2,874	5.16	433,28 7,487	5.84	456,96 2,513	5.84	
INDIA	182,43 1,890	3.35	149,85 7,110	3.43	144,16 9,145	2.75	207,82 1,059	3.53	251,61 9,427	3.93	234,64 9,742	3.68	230,39 2,952	3.42	282,40 0,290	3.74	252,87 2,203	3.41	284,55 8,600	3.63	
TURKEY	90,878, 210	1.67	66,874, 306	1.53	80,536, 597	1.54	103,26 2,607	1.76	119,49 1,539	1.87	133,19 8,814	2.09	147,18 7,572	2.19	144,01 4,556	1.91	157,06 4,116	2.12	187,58 4,512	2.40	
KOREA, REPUBLIC OF (SOUTH KOREA)	85,464, 489	1.57	88,363, 582	2.02	89,010, 674	1.70	100,72 7,986	1.71	114,80 8,337	1.79	124,32 4,483	1.95	132,62 5,941	1.97	204,06 2,704	2.70	194,91 0,930	2.63	166,12 3,800	2.12	
TAIWAN	150,87 5,853	2.77	101,47 7,563	2.33	115,07 3,147	2.20	143,68 9,640	2.44	144,40 3,230	2.26	132,76 5,669	2.08	136,98 1,942	2.03	151,10 8,116	2.00	147,90 3,315	1.99	164,39 3,215	2.10	
THAILAND	110,02 6,681	2.02	80,849, 432	1.85	117,59 3,760	2.24	115,72 5,779	1.97	125,91 1,332	1.97	142,46 9,143	2.23	148,93 9,368	2.21	159,40 5,815	2.11	137,52 1,021	1.85	153,26 2,116	1.96	
NORWAY (incl.SJ excl.1995,1996)	129,40 4,340	2.38	113,49 8,756	2.60	77,806, 667	1.49	88,675, 842	1.51	163,32 5,384	2.55	158,77 0,723	2.49	132,66 6,232	1.97	168,19 0,499	2.23	122,14 1,488	1.65	92,880, 039	1.19	
UKRAINE	8,224,5 73	0.15	3,168,3 06	0.07	1,966,0 00	0.04	3,899,2 89	0.07	4,479,5 84	0.07	6,289,9 08	0.10	5,340,8 12	0.08	6,002,1 51	0.08	4,769,7 02	0.06	6,176,6 29	0.08	
EU28_EXTRA	5,443,7 03,233	100. 00	4,364,3 46,018	100. 00	5,238,3 47,777	100. 00	5,879,6 97,129	100. 00	6,397,8 23,362	100. 00	6,374,9 02,614	100. 00	6,732,8 87,319	100. 00	7,558,3 87,168	100. 00	7,421,3 89,569	100. 00	7,828,9 18,128	100. 00	

ITC data																					
	Jan.- Dec. 2008		Jan.- Dec. 2009		Jan.- Dec. 2010		Jan.- Dec. 2011		Jan.- Dec. 2012		Jan.- Dec. 2013		Jan.- Dec. 2014		Jan.- Dec. 2015		Jan.- Dec. 2016		Jan.- Dec. 2017		
Euro thousand																					
PRODUCT	EXPOR T	li	EXPOR T	li	EXPOR T	li	EXPOR T	li	EXPOR T	li	Export	li	EXPOR T	li	EXPOR T	li	EXPOR T	li	EXPOR T	li	
CHINA (PEOPLE'S REPUBLIC OF)	6,644,3 75	2.83 5050	5,415,2 62	2.83 0875	7,394,7 13	2.72 6255	8,534,9 69	2.53 5639	10,176, 267	2.43 7483	10,467, 752	2.33 9951	11,444, 680	2.29 9068	13,104, 436	2.19 3114	12,145, 499	2.34 0575	13,008, 519	2.28 7642	
UNITED STATES	4,786,7 14	2.26 6997	4,675,8 82	2.20 7362	5,890,1 95	2.00 6131	6,820,2 97	1.95 2000	8,079,5 43	1.96 4871	8,830,5 96	1.93 1395	9,703,4 34	1.83 1560	11,243, 393	1.78 9313	10,012, 221	1.89 2937	10,280, 829	1.86 1856	

SWITZERLAND (incl. LI->1994)	948,73 5	6.12 9736	755,61 6	6.58 3088	1,036,7 71	5.65 3656	1,131,2 27	5.94 1999	1,093,9 07	6.31 3723	1,105,2 66	6.26 1795	1,112,2 44	6.23 9670	1,268,7 86	5.63 2405	1,370,6 90	5.24 2719	1,634,4 98	4.71 2921
JAPAN	2,570,7 59	1.29 8817	2,114,7 89	1.02 0889	3,382,0 36	0.92 7620	3,824,0 77	1.03 1755	3,860,2 14	0.98 6180	3,397,3 60	1.08 3300	3,275,9 69	1.20 0512	3,423,9 22	1.17 9049	3,771,1 05	1.17 7630	4,115,8 51	1.10 9757
INDIA	453,44 6	3.70 8936	389,11 3	3.78 7475	405,83 1	3.51 2078	573,32 1	3.58 8012	783,45 6	3.36 2641	913,30 9	2.74 4913	864,61 2	2.81 7958	1,044,2 26	2.79 8641	1,000,7 20	2.58 9940	1,107,6 71	2.56 7839
TURKEY	223,20 6	3.75 3428	188,17 3	3.49 5024	241,26 1	3.30 0223	283,64 2	3.60 3585	350,97 3	3.56 4629	425,92 1	3.34 1163	450,69 3	3.45 3639	443,20 8	3.36 2601	401,67 2	4.00 7806	446,31 1	4.20 1132
KOREA, REPUBLIC OF (SOUTH KOREA)	862,44 9	0.91 3538	796,75 1	1.09 0684	857,60 2	1.02 6109	1,117,3 59	0.89 2318	1,583,2 33	0.75 9241	1,415,7 48	0.93 8203	1,352,6 15	1.03 6910	1,794,8 82	1.17 6533	1,925,7 19	1.03 7396	1,728,3 05	0.96 0768
TAIWAN	651,09 6	2.13 6234	479,55 4	2.08 1041	696,96 4	1.63 2303	810,30 9	1.75 5242	895,06 9	1.68 9162	886,10 7	1.60 0759	927,78 5	1.56 1359	981,25 8	1.59 3606	934,14 7	1.62 2796	1,098,0 32	1.49 6497
THAILAND	342,06 5	2.96 5265	280,28 1	2.83 6818	420,29 9	2.76 6069	444,80 4	2.57 5275	463,93 6	2.84 1565	511,10 6	2.97 8079	537,68 3	2.92 9341	590,49 8	2.79 3587	598,45 9	2.35 5244	627,91 7	2.43 9717
NORWAY (incl.SJ excl.1995,1996)	286,21 0	4.16 8101	289,10 1	3.86 0910	308,00 4	2.49 7454	250,90 6	3.49 8295	368,70 8	4.63 7907	353,86 5	4.79 3571	392,02 3	3.57 8784	446,54 2	3.89 7765	488,68 2	2.56 1758	327,63 1	2.83 3638
UKRAINE	88,998	0.85 1937	61,134 9674	0.50 9674	81,883 7371	0.23 7371	90,683 5620	0.42 5620	113,03 2	0.41 4942	104,35 7	0.64 3945	83,677 4975	0.67 4975	60,014 4977	1.03 4977	52,028 9627	0.93 9627	45,246 4515	1.36 4515
World Imports of product	50,184, 385	1.00 0000	42,920, 750	1.00 0000	51,788, 271	1.00 0000	58,199, 220	1.00 0000	66,985, 860	1.00 0000	68,108, 273	1.00 0000	71,201, 314	1.00 0000	78,217, 807	1.00 0000	76,065, 285	1.00 0000	78,254, 380	100. 00



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