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Trust and Reputation in Nigeria's Electoral Process: The Context and Conundrum

Abstract

Election is the hallmark of democracy. Any democratic regime that does not conduct election will be regarded as a dictatorship. The trust and reputation built on the electoral process impede its credibility and public acceptability. The higher the level of trust and reputation of the electoral process, the higher the acceptability of the leaders that emerges. The electoral process in Nigeria is in a state of total relapse, confusion and quagmire. To what extent does the reputation of the electoral process make Nigerians trust its process and output? How can Nigeria develop out of the electoral process conundrum credible leaders to emerge in the country? Modernization theory is used to explain the urgent need for Nigeria to develop its electoral processes. Methodology uses the Afrobarometer time series data. Rapid growth and development are products of the electoral process that has public trust.

Keywords: corruption, democracy, development, election, leadership

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Introduction

The electoral process is a whole complex system. It is the fulcrum on which the election and voting schedules, the behaviour of the election officials and observers are spelt out and the module that explains who does what, the time and the accepted procedures. In many democratic regimes, election processes are managed by an electoral body. This body is assumed to be independent after the government have saddled the body with the necessary responsibilities and as well the financial wherewithal, judicial and legislative backings and other logistic equipment. The process of election varies from country to country. Therefore, there is no universal standard for electoral processes but there are some necessary details that must be in place for an electoral process to be reckoned with.¹

The basic processes include the formation of a legal document. This will spell out the intended name of the electoral body, the statutory obligations and ad hoc functions of the body. It will also indicate the number of offices to be occupied by staffs and hierarchy of officials respectively. The process of the appointment of the officials by any of the arms of government, usually the executive, and the corresponding screening by the legislative body must be well spelt out. The source of finance and other forms of empowerment of the electoral body and staffs must be clear enough so as to make the electoral body free and independent from manipulations of the financial providers.²

¹ Aremu, Aluko (2016).

² Lawal, Aluko (2016).

In many cases, especially in developing democracies, the issue of who appoints the chairman or leader of the electoral body is suspicious.³ The executive president of the country is always saddled with the responsibilities of appointing the chairman of the electoral body and other key stakeholders in the electoral body configurations. Also, the president of the country in many instances serves as a financial adviser and financial advocate of the electoral body. Some local politicians, businessmen and international donors also support the electoral body financially.

In Nigeria, the major and initial documents that establish the electoral body were drafted by the military executive governments. This has no legislative input or checks and balances by the judiciary. The subsequent appointment of the chairman of the electoral body in the civilian dispensation is also under the executive prerogative order but ratified by the legislature. The fiscal allocation to the body is also drafted under close monitoring of the executive body. This may make the political neutrality of the electoral body to become gradually polarised, sectionalised and partisan instead of outright independent.⁴

On the surface, all these appointments, financial supports and other administrative and bureaucratic rigmarole shouldered by the executive arm of government, a few politicians or businessmen within and outside the country may have negative effects on the trust and reputation of the electoral process. It may jeopardise the credibility of the whole electoral process and the eventual winners of elections. The resultant effects of the polarised electoral body may continually

³ Omotola (2010), Abdullahi (2013).

⁴ Aluko (2016), Onwudiwe, Berwind-Dart (2010).

be reoccurrence of electoral disputes and violence. The international community may also see the country as a political demagogue and unenlightened.

Therefore, this study aims at answering how can an electoral body whose head and key officials are appointed by the executive president, who also oversees the financial operations of the body, training, logistic procurement approvals, be politically neutral, nonpartisan and independent? Can it actually gain the trust and be in good repute with the electorate? This is a socioeconomic and political conundrum. It may always leads to the poor performance of the perceived independence of the electoral body. The opposition, political and other socio-economic groups can always be suspicious of the government-of-the-day that it is politically biased, and not providing a level plain ground of political contest for all political parties and groups.⁵

The trust and reputation of such an electoral body that is not politically independent, not capable of making decisions of its own without conniving with the executive for political or financial advice may become unpopular in the country of operation. This may cause more political upheaval and confusion. This study will examine whether such claims are applicable to the political and electoral space in Nigeria. The central research question driving this study is to what extent does the reputation of the electoral process make Nigerians trust its process and output? Also how can Nigeria develop out of the electoral process conundrum credible leaders to emerge in the country? The implications and the possible remedies so as to have verifiable political and electoral processes will also be considered. The theoretical

⁵ Nachana'a, Yusuf, Auwalu (2014).

framework of the modernization theory will be used to explain why the electoral system in Nigeria needs to evolve from the primitive nature, characterised with partisanship politics and unresolved disputes to the actual independent electoral system. The adopted methodology is a descriptive analysis of the Afrobarometer data on the level of trust in the governance process in Nigeria.

Conceptual Clarification

Electoral Process

The electoral process is a process or procedure and institutional mechanisms that a nation or government put in place to organise and attain free and fair elections.⁶ In the opinion of Mapuva and Aluko⁷ the electoral process entails the political architecture and institutional support to ensure that citizens are free to elect and be elected under the rules and regulations that are clear to all contesting parties. The electoral process creates an opportunity for the stakeholders such as the political parties to be carried along in the procedures and they are not only aware of these rules, but willing to abide by them in the spirit of democratic elections and fair play.⁸ Some of the institutional and political mechanisms that the electoral process involves is the establishment of independent (and non-partisan) electoral institutions that seek to preside over free and fair electoral processes. The role of Independent Electoral Management Bodies (EMBs) or Electoral Commissions is crucial to the outcome of an election

⁶ Duodu (2010).

⁷ See: Mapuva (2013), Aluko (2018a).

⁸ USAID (2010).

as these electoral bodies derive their powers and mandate from the national constitution.

Generally, the processes of election may be difficult to ensure without proper administrations and procedures.⁹ Some of these procedures entail the legislative and executive actions. This will include administering and implementing laws regarding the registration of voters; overseeing the actual conduct of elections, supervising the ballot and the count; promoting transparency at all levels and being accountable to the public and parliament at all times. Lawal and Aluko observed that in Africa there is evidence that elections run by independent electoral bodies are more successful and the results respected.¹⁰ Odusote, also opined that in the countries where election results have been respected the state has ceded greater responsibility to the electoral administration such as the Electoral Commission in Ghana¹¹. In the same way, in the absence of administrative clarity and political will on the part of the Electoral Commission (EC) to enforce the rules, election results will always be viewed with suspicion by the public. In such an atmosphere, groups that feel abandoned by the electoral process will resort to non-democratic forms of protests.¹²

Aremu and Aluko also posited that for an electoral process to be considered as fair it must have some basic structures, which include: statutory provisions establishing the electoral bodies, delineation of districts/constituencies, registration of political parties, registration of voters, recruitment and training of ad-hoc staff, procurement of electoral material,

⁹ Grant (2019).

¹⁰ Lawal, Aluko (2016).

¹¹ Odusote (2014).

¹² Aluko (2018b).

logistic, screening of candidates, provision of polling agents, monitoring of agents, accreditation of voters, actual voting, counting of votes and providing avenues for settlement of disputed results¹³. In the Nigerian contest, the electoral process is spelled in the 1999 constitution as amended with the aim to have a credible election.¹⁴

Section 153 of the Constitution of the Federal Republic of Nigeria (CFRN) Third Schedule Part I, 14 (1) as amended establishes the Independent National Electoral Commission and gives the body the power to: (a) organise, undertake and supervise all elections to the offices of the President and Vice-President, the Governor and Deputy Governor of a State, and to the membership of the Senate, the House of Representatives and the House of Assembly of each State of the Federation; (b) register political parties in accordance with the provisions of this Constitution and the Act on the National Assembly; (c) monitor the organisation and operation of the political parties, including their finances; (d) arrange for the annual examination and auditing of the funds and accounts of political parties, and publish a report on such examination and audit for public information; (e) arrange and conduct the registration of persons qualified to vote and prepare, maintain and revise the register of voters for the purpose of any election under this Constitution; (f) monitor political campaigns and provide rules and regulations which shall govern the political parties; (g) ensure that all Electoral Commissioners, Electoral and Returning Officers take and sign the Oath of Office prescribed by law; (h) delegate any of its powers to any Resident Electoral Commissioner; and (i) carry out such other

¹³ Aremu, Aluko (2016).

¹⁴ Federal Republic of Nigeria Constitution (1999).

functions as may be conferred upon it by the Act on the National Assembly.¹⁵

The powers and functions of INEC in the electoral processes are also guaranteed under Sections 1 and 2 of the Electoral Act 2011. This establishes and confers INEC with the following electoral functions: the Commission shall have power to: (a) conduct voter and civic education, (b) promote knowledge of sound democratic election processes, (c) run any referendum required to be conducted pursuant to the provisions of the 1999 Constitution or any other law or the Act on the National Assembly. INEC is required to be independent. Odusote noted that the 2011 Act has not only added more responsibility to INEC's Constitutional responsibilities as the electoral umpire, it has also made the organization to be able to address new and recurring political problems.¹⁶

A prominent example of new or reoccurring problem in the electoral process in Nigeria is the implementation of Section 33 of the Constitution of the Federal Republic of Nigeria. It provides that: "A political party shall not be allowed to change or substitute its candidate whose name has been submitted pursuant to section 31 of this Act, except in the case of death or withdrawal by the candidate". While section 141 provides: "An election tribunal or court shall not under any circumstances declare any person a winner at an election in which such a person has not fully participated in all the stages of the said election". These provisions are made to cure the general complaints and upheaval that followed the Supreme Court decision in Amaechi's case.¹⁷

¹⁵ Ibidem.

¹⁶ Odusote (2014).

¹⁷ Ibidem.

Theoretical Framework

The modernization theory emerged in the 1950s as an explanation of how the industrial societies of North America and Western Europe developed.¹⁸ The theory argues that societies develop politically, economically and socially in fairly predictable stages through which they become increasingly complex.¹⁹ Huntington further noted that development depends primarily on importation of technology as well as a number of other political and social changes that emerge at the points of interaction. Modernization theorists are concerned with economic growth within societies as indicated, for example, by measures of gross national product.²⁰ Mechanization or industrialization is an ingredient in the process of economic growth. Modernization theorists study the social, political, and cultural consequences of economic and political growth and the conditions that are important for industrialization and socio-political and economic growth to occur.

Although there are many versions of the modernization theory²¹, the major explicit tenets include the following: (1) societies develop through a series of evolutionary stages; (2) these stages are based on different degrees and patterns of political and social differentiation and reintegration of structural and cultural components that are functionally compatible for the maintenance of society; (3) contemporary developing societies are at a pre-modern stage of evolution and they eventually will achieve economic growth and will

¹⁸ Smelser (1964); Levy (1967).

¹⁹ Tipps (1976); Huntington (1976).

²⁰ Stockemer, Sundström (2016).

²¹ See: Stockemer, Sundström (2016); Wennerlind (2017); Domingues (2017).

take on the social, political, and economic features of Western European and North American societies which have progressed to the highest stage of social evolutionary development; (4) this modernization will result in complex compatibility of Western technology importation with traditional structural and cultural features of the developing countries.

Domingues and Tilly among others, noted that the sociological concept of modernization does not simply refer to becoming current but rather specifies particular contents and processes of societal changes in the course of national development. Rostow's five stage model of development sheds more light on modernization as a socio-political change. Stage 1 is the traditional societies whose economies are dominated by subsistence farming. Such societies have little wealth to invest and have limited access to modern industry and technology. Rostow argued that at this stage there are cultural barriers to political and social development. Stage 2 is the preconditions for take-off – the stage in which western aid packages bring western values, practises and expertise into the society. This can take the form of: science, politics and technology – to improve agriculture and the political spheres; infrastructure – improving roads and cities communications; industry – western companies establishing factories. These provide the conditions for investment, attracting more companies into the country.

Stage 3 is the take-off stage – the society experiences economic growth as new modern practices become the norm. Profits are reinvested in infrastructure, etc. and a new entrepreneurial urban class emerges that is willing to invest further and take risks. The country now moves beyond subsistence economy and starts exporting goods to other countries. This generates more wealth which then trickles down

to the population as a whole, who are then able to become consumers of new products produced by new industries there and from abroad. Stage 4 is the drive to maturity – more economic growth and investment in education, media and birth control. People start to realise new opportunities opening up and strive to make the most of their lives. Stage 5 is the age of high mass consumption. This is where economic growth and production are at high levels like in the Western countries.

In the political system, whenever these stages are attained, the advancement in the electoral system and political processes will be the major indicator. The traditional views on politics will be modified to follow a conventional standard. This will take off the electoral system into technological innovations which will beat down the usual malpractice formulas in the society. The drive to sustain the new technology and attainment of good governance will drive the political and electoral processes to maturity²² This will eventually attain the level of high acceptability, good reputation from within the local electoral space and outside the country. The trust and reputation of the electoral process will be unquestionable.

However, there are some hindrances to political development and modernization quests of countries. The political and cultural barriers to modernization are seen as internal to countries. The table below shows the traditional values that hinder development, trust and reputation in political systems and the aspired to modern values that can make the process grow optimally.

²² Plasser (2017).

Table I

Traditional Values	Modern Values
Prevent economic growth and change.	Inspire change and economic growth.
Simple division of labour, less specialised job roles, individuals rely on a few dozen people in their local communities for basic needs to be met.	Complex division of labour, individuals tend to have very specialised jobs and rely on thousands of others for basic needs to be met.
Religious beliefs and tradition influence daily life (resistance to change).	Rational decision making (cost benefit analysis and efficiency) are more important.
Stronger community and family bonds and collectivism.	Weaker community and family bonds mean more individual freedom.
Affective relationships.	Meritocracy – people are more motivated to innovate and change society for the better.
Patriarchy.	Gender equality.

Sources: Thompson (2015) and Researchers' updates (2019).

Economic and political barriers to development are barriers which may make developing countries unattractive to investors. These include lack of or inadequate infrastructure, lack of technology, lack of skills in the work force, political instability, poor electoral processes and systems, and lack of capital in the country²³. Some of the criticisms of Modernisation Theory include that the Asian tiger economies combined elements of traditional culture with Western capitalism to experience some of the most rapid economic growths

²³ Ward and Rustow (2015).

of the past two decades²⁴. Crossman further noted that it ignores the crisis of modernism in both the developed and developing worlds. Many developed countries have huge inequalities and the greater the level of inequality the greater the degree of other problems: high crime rates, suicide rates, health problems, drug abuse. Ethnocentric interpretations tend to exclude contributions from thinkers in the developing world. This is a one size fits all model, and is not culture specific.

However, in modernization and political sphere, modern societies are characterized by high levels of urbanization, literacy, research, election technology such as card readers, electronic voting, electronic vote transmission, healthcare, secularization, bureaucracy, mass media, and transportation facilities. Kinship ties are weaker, and nuclear conjugal family systems prevail. Birth rates and death rates are lower, and life expectancy is relatively longer²⁵. In the political realm, the institution of governance in the society will be reputable and attract more trust. It will become more participatory in decision-making processes. Technology will be the driving force for typical institutions in-charge of election management, political parties, civil service bureaucracy, and the parliaments. Traditional sources of authority are weaker as bureaucratic institutions assume responsibility and power²⁶. In the economic realm, there is more industrialization, technical upgrading of production, replacement of exchange economies with extensive money markets, increased division of labour, growth of infrastructure and commercial facilities, and the development of large-scale markets.

²⁴ Crossman (2018).

²⁵ Ward and Rustow (2015); Wennerlind (2017).

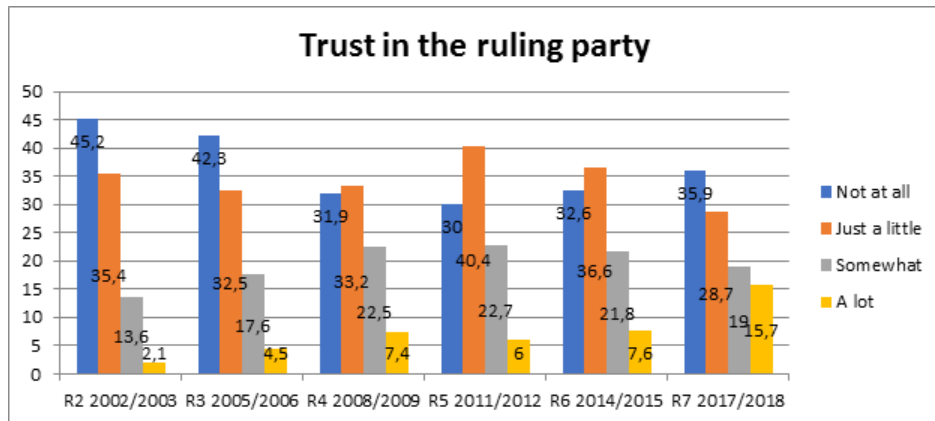
²⁶ Plasser (2017).

In the case of Nigeria, the primitive electoral space needs to be transformed into a self-regulated system driven by modernised technologies. This will be independent of the political party's leaders manoeuvring the electoral body and government manipulation. It will be people driven and sensitive of the desire for growth and development in the country. The level of literacy and technological introduction to the system must exceed a local technology which can be compromised but becoming a high and efficient technology which has gained much trust and reputation across the globe.

Methodology, data presentation and analysis

The methodology uses a quantitative method of data analysis for secondary sources of data. The time series data collected by Afrobarometer from 2002 to 2018 are analysed descriptively. This is divided into rounds one to seven. For each year, about 2,400 respondents' data were retrieved and analysed. In line with the research questions 'To what extent does the reputation of the electoral process make Nigerians trust its process and output? How can Nigeria develop out of the electoral process conundrum credible leaders to emerge in the country?' The following survey questions will be measured on the basis of the data set from the Afrobarometer 2002-2018 time series survey so as to generate data for analysis and answers for the research questions. 1. Trust in the ruling party; 2. Trust in opposition political parties; and 3. Trust in the national electoral commission.

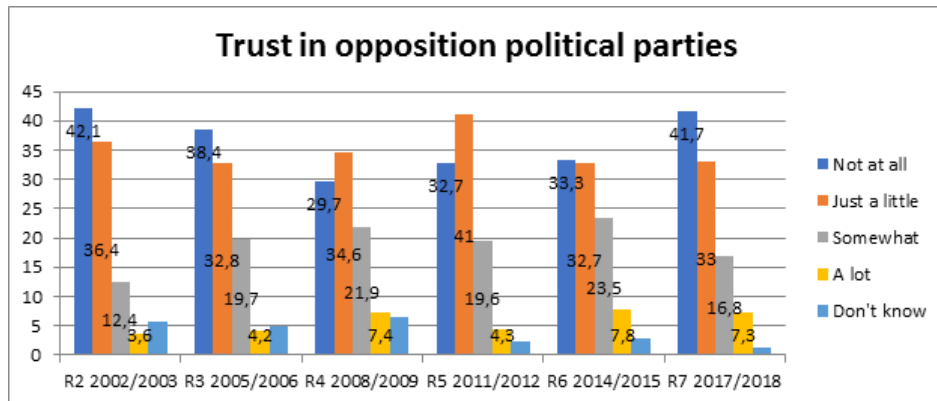
Figure 1: Trust in the ruling party



Source: Afrobarometer (2018).

Figure 1 above, concerning trust in the operations and reputation of the ruling political party in relation to the electoral process and other political matters, shows that in 2002-2018 an average of thirty six percent (36.3%) of the people did not trust the ruling party 'at all'. This was at its peak in 2003 and at its lowest in 2011. However, the trend rises steadily in 2015 and 2018 respectively in the build up to the 2019 general elections. The average of the people with 'just a little' trust is thirty five percent (34.5%). The peak of the 'just a little' trust is in 2011, while its lowest is in 2018. This implies that an average of seventy one percent (71%) Nigerians did not trust the ruling parties in the years 2002-2018. The average of about twenty percent (19.5%) and seven percent (7.2%) of the people had 'somewhat' and 'a lot' of trust for the ruling party in the years 2002-2018 respectively.

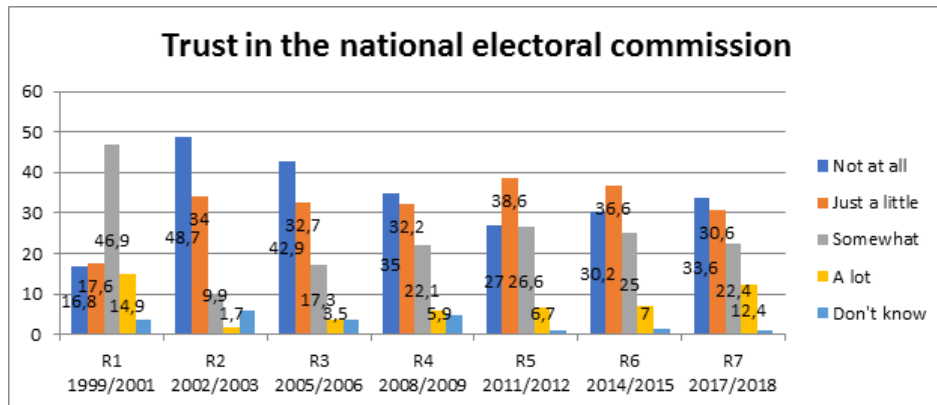
Figure 2: Trust in opposition political parties



Source: Afrobarometer (2018).

Figure 2 above, concerning trust in the operations and reputation of the opposition political parties in relation to the electoral process and other political matters shows that in 2002-2018 an average of thirty six percent (36.1%) of the people did not trust the opposition parties 'at all'. This was at its peak in 2002 and at its lowest in 2008. However, the trend rises steadily in 2011 to 2018 in the build up to the 2019 general election. The average of the people with 'just a little' trust is thirty five percent (35.1%). The peak of the 'just a little' trust is 2005, while its lowest is in the year 2015. This implies that an average of seventy one percent (71.2%) Nigerians did not trust the opposition political parties in the years 2002-2018. The average of nineteen percent (19%) and about six percent (5.8%) of the people had 'somewhat' and 'a lot' of trust for the opposition political parties in the years 2002-2018, respectively.

Figure 3: Trust in the national electoral commission



Source: Afrobarometer (2018).

Figure 3 above, concerning trust in the operations and reputation of the Independent National Electoral Commission (INEC) in relation to the electoral process and other political matters shows that in 1999-2018 an average of thirty nine percent (39.0%) of the people did not trust the national electoral commission 'at all'. This was at its peak in 2003 and at its lowest in 1999. However, the trend rises steadily in 2011 and 2018. The average of the people with 'just a little' trust is thirty one percent (31.0%). The peak of the 'just a little' trust is 2011, while its lowest is in the year 1999. This implies that an average of fifty percent (50%) Nigerians did not trust the national electoral commission in the years 1999-2018. This shows a significant and alarming challenge for the success of the 2019 general elections in Nigeria. The average of about twenty eight percent (28.4%) and nine percent (8.7%) of the people have 'somewhat' and 'a lot' of trust for the national electoral commission in the years 1999-2018, respectively.

Trust, Reputation And Conundrum In Nigeria Electoral Process

The level of trust on Nigeria's electoral processes as seen from the data presented above (Figures 1-3) is dwindling year by year. It is significantly low. The reason is not farfetched. Each election year and the build up to the subsequent ones have its peculiar crises. Such crises include poor pre-Election Day preparations by both the electoral body and the political parties. There are usually poor distributions of both sensitive and non-sensitive election materials to the appropriate polling units across the country. The introduction of voters' card and the subsequent upgrade to permanent voters' card has not been smartly and evenly done across the districts and polling booths across the country²⁷. The threat of vote buying by the political parties, ballot stuffing by electoral and party officials and the incessant outbreak of election violence due to perceived injustice at the polls or other reasons by the supporters of the political parties all contribute to the gradual fall in the level of trust in the electoral process in Nigeria²⁸.

The level of trust in the electoral process also dwindles because of the capabilities of electoral body in carrying out credible elections. The independence of the electoral body is seriously questioned by both local and international observers. There is a heavy reliance of the independent electoral body on the executive arm of government — the ruling political party for guidance, security, finance, appointments and general instructions before they can implement their ideas in an acceptable manner²⁹. The political parties and the electorates as well have little hope of getting their votes

²⁷ Aremu and Aluko (2016).

²⁸ Omotola (2010); Aluko (2018).

²⁹ Aluko (2016).

count in the Election Day due to the capability question, reliance and undue consultations and dependence on the executive arm of government.

The electoral process in Nigeria since the fourth republic (1999- to date) has gotten a swindling repute³⁰. At some quarters, the citizens and the international community praises it for the good outcome of the general and by-elections such as the 2015 election³¹. At some other quarters, is seen as a pariah body that is working contrary to the dictum of democracy and its principles. There are some reasons that have conditioned the reputation of the electoral process in Nigeria. These include: the interest that the electoral body is preserving and at the same time manifesting. If the interest it is serving is that of the ruling party or any political parties other than the citizenry, there will be disparity, favouritism, nepotism and unprofessional attitudinal displays.

The reputations of the electoral process in Nigeria might remain unclear and unpopular among the relevant agencies, the citizenry and comity of observers across the globe because of the following three factors. These are: the political culture in Nigeria, the voters' behaviours, and the composition of the electoral body. The political culture in Nigeria is in a subservient or passive state. It is not fully grown due to the level of civic education, economic development and high rate of political apathy. The voters' behaviour with respect to elections is at the lower ebb. A large chunk of the electorate does not vote and some vote and as well instigate more electoral violence. The composition of the electoral body in many cases is predetermined, calculated and

³⁰ Council on Foreign Relations (2015).

³¹ Aremu and Aluko (2016).

manipulated by the government of the day — the ruling political party. The appointments of chairman of the electoral body and resident electoral officers are mostly influenced by political, ethnic, friendship loyalty and other acquaintance reasons. All of these, among other things, are spots on the reputation of the electoral process in Nigeria.

Conclusion

The issue of trust may be relative according to the political, economy or social terrain. The political, economy and or social terrains in Nigeria show that the country's democracy is in its developing stage. Developing democracies usually have teething crises which will spill and rub over many other issues of governance and politics in the country. The electoral process in Nigeria is such that it has all kinds of developmental challenges. These include such symptoms as ethnic chauvinism, religious bigotry, political apathy, urban violence, patron-client relations, godfatherism, poverty, bribery and corruption, among others.

The modernization theory as adopted in the study revealed that there are stages of development and the society needs to be adjusted to the trend and dimensions of such development. The development must cut across all aspects of the society including the political and electoral processes. The analysis of Figures 1-3 above revealed that the extent of the reputation of the electoral process is very weak and gradually getting worse. Consequently, this makes Nigerians lose trust in the political and electoral processes and outcomes. There is deep conundrum and confusion in the technical aspects of the election management body organization. This is because the electoral body is financed, officials are

appointed, dismissed, promoted, transfer of staffs is done by the executive arm of government — or the ruling political party.

The question to be answered is how can Nigeria develop out of the electoral process conundrum credible leaders to emerge in the country? The political culture of Nigerians needs to be uplifted by engaging the political class and public office holders to be accountable for all the political and economic promises, and mandates. The problems of political apathy during elections should be addressed by prompt political education which should be championed by the civil societies and nongovernmental organizations. The appointment, financing and transfer of electoral officers should be done in accordance with the due procedures and separation of powers.

The issue of security during elections must be well addressed. Whenever the electorates are sure of the security of their lives before, during and after the polls, there will be greater public turnout for participation. The security apparatus should not be used by the ruling political party as an instrument of harassment against other opposing political parties, individuals, or perceived enemies. The political economy of poverty and unemployment must be replaced by rapid job creation. Poverty makes the electorate subservient in the political activities. The electorate turns into vote selling and 'stomach infrastructure'. Therefore, there is a need for economic revamping of the entire country so as to enjoy wide political participation. This will as well bring about free call for judicial review by any member of the public without fear of political harassment or imprisonment.

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Dambisa Moyo: An economist refusing western aid

Abstract

The purpose of this article is to expose an unusual vision regarding the topic of aid to African countries, and more precisely to briefly describe and analyse the thought of Dambisa Moyo's, a Zambian economist who heavily criticised the system of aid for the African continent sparking uproar and provoking reactions in Western societies. The debate underlines without any doubt the different viewpoint of the author, which is the most famous African economist on these topics, compared to western economists. This reinforces the relevance of the article.

Keywords: aid, Sino-African relationship, international economy, Dambisa Moyo, institutions, economic growth.

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I. Introduction

The debate regarding the functionality of aid policy is still existing and controversial, and authors come to different conclusions. Some works highlight how aid has had no effect on investments and growth, on a large sample of developing countries.² Certain other experts come to the conclusion that aid is positive only when it is followed by the exercise of appropriate and functional policies; otherwise it loses its effectiveness.³ Some researchers of the World Bank claim that aid contributes to the sustainability of growth and reforms in vulnerable countries.⁴

Another topic is the one concerning the relationship between aid and society, especially regarding corruption that has a negative impact on the growth of a country.⁵ Alesina and Weber in one of their works found that countries with corrupt institutions keep receiving a significant amount of aid;⁶ this may lead to a conclusion that there is a positive link between aid and corruption. Anyway, there are other studies that disprove this possible conclusion, underlining that aid has a positive effect on the receiving country's institutions.⁷

In the end, to understand some of the criticism stirred by Dambisa Moyo, it is interesting to mention one of Alesina's works, where it is observed how bilateral aid strongly depends on the colonial status. An emblematic case is the one

² Boone (1996): 289-329.

³ Burnside, Dollar, (2000): 847-868.

⁴ Tungodden, Stern, Kolstad (2003).

⁵ Mauro (1995): 681-712.

⁶ Alesina, Weder (2002): 1126-1137.

⁷ Tavares (2003): 99-106.

of Portugal that in the 20th century addressed 99.6% of its aid to its ex-colonies.⁸

II. Dambisa Moyo

Dambisa Moyo is a Zambian economist strongly critical of African politics adopted by the West in the last 60 years. Her theories caused a massive public outcry in the West, so much that Bill Gates in person strongly criticized her during a Bill&Melinda Gates Foundation⁹ conference.

She was born on 2 February 1969 in Lusaka, Zambia.¹⁰ After starting some chemistry studies at the University of Lusaka, the event of attempted murder of the then-president Kenneth Kaunda brought Moyo's family to leave temporarily the country and Dambisa finished her chemistry studies in 1991 at the *American University* in the United States, followed by a master's degree in *Finance* at the same University in 1993. After working for the World Bank, in 1997 the economist obtained a Master in Public Administration at the Harvard University's John F. Kennedy School of Government and finished the course of studies achieving a Ph.D. in Economics at Oxford University.¹¹

In 2009, Moyo published her first book entitled "Dead Aid" and subtitled "Why Aid Is Not Working and How There is Another Way for Africa". It is declarative about the author's approach to the topic of aid to the African continent.

⁸ Alesina, Dollar (1998).

⁹ Moyo (2013a).

¹⁰ The birth certificate was shown during a conference of Dambisa Moyo in 2013.

¹¹ The Editors of Encyclopaedia Britannica, URL = <https://www.britannica.com/biography/Dambisa-Moyo>.

The New York Times described it as a bestseller. The release of the work triggered a strong debate. In fact, Moyo analyses brilliantly and from the point of view of an African native how the great powers in the world: China and the West are involved in Africa; she puts a strong accent on the difference between the typical western aid delivery and the Foreign Direct Investment (FDI) delivery that is more common for the Chinese counterpart, and strongly criticises how the West relates itself with the African continent.¹²

Her very negative ideas on the relationship between the West and Africa have been indirectly object of one of her other works that has been announced a bestseller by the New York Times: “Winner Take All”, whose subtitle: “China’s Race for Resources and What It Means for the World” explains the focus. This work is focused on Chinese international politics, especially on Beijing’s relationship with third world countries abounding in raw materials: Dambisa Moyo shows how China reinforced its commercial link with these countries in the last few years, and also shows how the Chinese policy is perceived in a positive way by the local population as compared with the Western policy.¹³

In 2018, the Zambian economist edited a new book entitled: “Edge of Chaos”, the subtitle in this case was “Why Democracy Is Failing to Deliver Economic Growth - and How to Fix It”. The relationship between democracy and economic growth is the main point discussed in this work. Moyo argues that a government characterized by democratic institutions can not be in the ideal position for development; the example she uses to support her thesis is based

¹² Moyo (2010).

¹³ Moyo (2013).

on the current situation of the West that despite its democratic regimes in the last few years has become a spectator of a stagnation of the GDP, while, on the contrary, China records high levels of growth. The book discusses the problem of electoral systems and recent western policies is criticised, as the author says they are studied and planned for the short term instead of being designed for the long term. The inability to predict this incoming situation caused the weakening of Western economies.¹⁴

One last comment: it is interesting to observe how Moyo's entire educational background has occurred in West, but despite that, she is criticising Western policies for Africa.

After presenting Moyo's thought, we shall provide some interesting criticism offered by Western professors and African minds. In the end, there will be a brief conclusion.

III. Dambisa Moyo's thought

1. A history of mistakes

The history of the last 60 years is characterised by a collection of Western economic decisions that very often turned out to be wrong; Western countries could not and sometimes would not understand the political and economic situation of African nations causing the failure of the aid policy as clearly shown in the World Bank's data where it is clearly shown that the number of poor people is increasing.¹⁵

In the late 1950s, Western countries, mindful of the success of the famous "Marshall Plan", started to look at the African

¹⁴ Moyo (2018).

¹⁵ The World Bank (2019).

continent that was in the middle of the decolonisation process and displayed many difficulties: a very low educational level, low salaries, a barely existing fiscal system, inadequate infrastructures and big difficulties with respect to the global market access. That geopolitical picture was very complex: France and Great Britain wanted to keep a strategic control over the territories of their former colonies, while the United States and the USSR looked at the African continent for its natural resources.¹⁶ The relationship between aid and colonial interests seem to be confirmed by recent literature.¹⁷

In this context, in the 1960s massive delivery of aids with long term objectives was started, first of all the funding for the construction of infrastructures that could hardly be built by the private sector began. At the end of the decade, in one single year, \$950.000.000 have been delivered to the African continent. Some countries, especially those that were rich in raw materials, received big amounts of aid: Ghana in one year received \$90.000.000, while, on the other hand, Zambia, Kenya and Malawi in ten years received \$350.000.000 each.¹⁸

During the next years oil shocks occurred, and this phenomenon caused more and more trouble for African countries. In order to solve those problems European countries boosted their donations of aid.¹⁹ In view of the recent crisis,

¹⁶ This statement comes after reflecting on the article: Barbière (2015), Konbobo (2017).

¹⁷ Alesina, Dollar (1998).

¹⁸ Moyo (2010): 42, 43.

¹⁹ Development Assistance Committee of the Organisation for Economic Co-operation and Development, Geographical Distribution of Financial Flows to Developing Countries, Development Co-operation Report, and International Development Statistics database. Data are available online at: oecd.org/dac/stats/idsonline. World Bank population estimates are used for the denominator.

the donations were no longer used to build infrastructures, but to fight against increasing poverty which was aggravated by very high inflation that caused a consistent price increase of foodstuffs and commodities. Even the early 1980s was a very complex period for African states because due to the second oil crisis they had to fight against the risk of high inflation. Western countries adopted restrictive monetary policies and the nominal interest rate on loans increased. This caused big problems for African countries; they entered into a recession because of the high interests they had to pay on their loans, but also because of the fall of the oil and sugar prices. In the end, they had to face an accumulated debt that was unsustainable for them. The solution adopted by the Western countries and the International Monetary Fund (IMF) was to restructure the debt: IMF lent more money to defaulting nations to help them pay back the debt, thus causing for those countries an increasing dependence on aid policy,²⁰ says Dambisa Moyo.

The strategic objective planning was modified twice in two decades, and even the third one was been characterized by further changes: with the rise of neoliberalism, donors considered that privatisation of many sectors in the receiving countries was the priority and a crucial variation was introduced: most of the aid became non-repayable.²¹

The 1990s were characterised by the increase of importance of multinationals in delivering aid (they delivered 30%), but, moreover, they were characterised by the geopolitical change caused by the break-up of the Soviet Union and by reduction of the Official Development Aid (ODA) on the part

²⁰ Moyo (2010).

²¹ This deduction comes from the critical reading of the book *Dead Aid* by D. Moyo.

of individual states that decreased from the peak of \$17 billion in 1992 to \$12 billion in 1999,²² that is by some 30%.

Aid kept being an important component of the net income, while individual countries could not reach the expected levels of economic growth and poverty levels increased because of the strong presence of corruption in African countries, which denied the correct use of aid support.²³ An emblematic case is given by President Mombulu of Zaire, who, after asking for conditions less stringent on his country's debt of \$5 billion, hired a flight with state funds to fly to his daughter's wedding.²⁴ Donators started to consider the problem of good governance with particular attention because in many countries corruption reached very high levels and in many others there were autocratic or illiberal governments; therefore, to solve this kind of problems became a priority in order to encourage the development of democracy in every country.

These changes prove how till the end of the 1990s donators did not consider the problem of institutions and at the same time did not consider carefully the differences between post-WWII European institutions and African institutions the day after decolonisation.²⁵ In fact, whilst European countries in the 1950s had a solid institutional basis and needed funds to rebuild production facilities, African countries needed help to form political and social institutions.²⁶ Another point of debate is the relationship between democracy and

²² Moyo (2010): 58.

²³ Moyo (2010).

²⁴ NewYork Times (1987).

²⁵ Moyo (2010).

²⁶ As underlined by D. Acemoglu in 2007 in his Introduction to *Modern Economic Growth*, institutions are the main cause of economic growth for a country.

economic growth: Moyo theorises that a democratic system is not necessary to guarantee a GDP growth, but a direct relation between stable institutions and economic growth is needed. In this sense an example is China.²⁷ Even though China is governed by a totalitarian and oppressive regime, in the last 30 years we saw an impressive constant growth of the Chinese economy that brought about significant benefits for the population, proved by the escape from poverty of 300.000 people and by a decrease of the Gini coefficient that right now is not so far from the American figure.²⁸

The years of the new millennium are marked by the economic crisis in 2008 and by the globalization boom. In the eyes of those who are not experts these two events might have not happened with the failure of Western policies for Africa. In the book “How the West Was Lost” (2011) Dambisa Moyo gives some data that can be useful to verify this link. The current situation of Western countries is the first factor that should make us think: they are running out of liquidity, during the past 60 years they delivered \$1000 billion in aid to Africa and now they have very high public debts that are financed by Asian countries; moreover, they have tendentially negative trade balances towards the emerging countries. Another factor to consider is the decrease of the manufacturing sector in the advanced countries, with a strong displacement of production to the emerging countries where labour is generally efficient even for a small price. Low costs are caused by the systems where working conditions are extremely adverse, there are many cases of exploitation and human rights violations, but this details lie in the background

²⁷ Moyo (2018).

²⁸ Moyo (2018): 70.

compared to the profits of multinationals that made investments and moved their production to these countries.²⁹ India and China are two countries that at the very start of the delocalisation process received big amounts of investments and had the ability and the strength to buy know-how. Nowadays, China is the first world exporter since 2009 and is an innovator country with big funds to invest.

2. Delivery of aid

The Zambian economist claims that aid should be a tool used with the purpose to help the growth of the beneficiary country in the medium term, but in the long term it can be counterproductive and harmful. To explain this concept, Moyo gives a simple example: let's consider a town in an African country where a little mosquito nets factory is located which gives work to 10 employees, who shall provide for 15 relatives each. These mosquito nets are very useful to avoid the spread of malaria (Jungle Fever), but the factory cannot produce enough nets to solve the problem. If a Hollywood star would save \$1.000.000 and buy 100.000 mosquito nets to give to the town where the factory is, the immediate effect should be that every citizen of the town will have a mosquito net and will never get sick again. On the other hand, says Moyo, the local factory will be pushed out of the market because its business will not be needed anymore: so 150 people will no longer have an income to survive. We must consider the risk that in the long term those mosquito nets may be broken or unusable with the effect that malaria may

²⁹ This statement comes from the critical reading of the book *How The West Was Lost* by D. Moyo.

come back and hit that area again.³⁰ This little story is very useful to show the need for durable projects, reminding donators that if they would behave as a Hollywood actor their aid will underlie inability to prevent a future problem and would cause considerable damage to local economies as in the case of the mosquito nets factory. Beside the considerations in the middle term, according to Moyo, it is very important even how aid is delivered. Taking the no profit organisation “United States Food For Peace” as an example, till 2005 this group used its budget to buy American food and sent it to countries that needed it. Even in this case, local producers were strongly penalized because of the incoming American food in the market, risking the failure of the local activity. Only in 2005, the American Ong changed partially its mind-set and decided to use $\frac{1}{4}$ of the budget to buy local products and then distribute them to the citizens,³¹ This example is very simple and gives us a second consideration: aid should reinforce companies already operating in the territory with an aim to create a middle class or where it is already present - reinforce it. To reach this objective it is necessary to buy goods from the developing countries rather than buying finished products.

3. Negative effects of aid

When delivered without conditions, aid has different negative effects for African countries’ societies and economies.

³⁰ Moyo (2010): 83-84.

³¹ Moyo (2010): 85.

3.1. The increase in corruption

There is an articulated debate between the economists, especially those dealing with development economics, as to the benefits brought about by aids. It is interesting to observe how corrupted youngsters still receive a big amount of foreign aid.³²

Uganda is an example: during the 1990s the level of corruption was so high that for every dollar spent on public education only 13 cents reached the goal.³³ It must be considered that aid, if awarded indiscriminately, sustains corrupted governments giving them money to spend with no control and encouraging the fall of the country, making it poorly attractive to domestic or foreign investments. This kind of situation leads to a reduction of economic growth and an increase of poverty levels. Thus, if the answer to this poverty increasing level is found in another aid delivery, a perpetual vicious circle is formed and this will lead to underdevelopment and economic failure of the country. The country will become poorer and poorer and aid dependent.³⁴

The phenomenon of corruption gains importance because it is intrinsic to the development of an addicted/dependent country and when it reaches high levels and infects the public system the results are a decreasing quality of public projects and an increase of the costs. Corrupted bureaucrats will tend to maximise the volume of the expense for their own interests, thus decreasing citizens' wellness.³⁵

³² Alesina, Weder (2002): 1126-1137.

³³ Reinikka, Svensson (2004): 679-705.

³⁴ Moyo (2010): 91.

³⁵ Moyo (2010).

In this regard it has been calculated that, according to the Transparency International Corruption Perceptions Index (CPI), the improvement of 1 point out of 10 in the corruption scale of one single country can increase the GDP percentage of that country by 4%. It is necessary to underline that some countries attained very positive economic results despite a high level of internal corruption. Some examples are China, which in 2006 received \$78 billion in foreign direct investments that contributed to a high GDP growth, and Thailand, which during the 1980s recorded a consistent growth in spite of that it was considered one of the most corrupted countries in the world according to ICC.³⁶

3.2. The effects on society

Africa needs a middle class and new entrepreneurs that can encourage the growth companies, but because of the large presence of aid in the country governments are less interested in developing entrepreneurship and politicians are more concerned about their own interests. The absence of a strong middle class contributes to stagnation because there is no force capable of questioning what the government does. There are two effects: first of all growth is very small compared to the potential, and secondly it is impossible to be an inspiration for the economic and political success of the country. This situation has implications for social capital that as a result is weakened even if it is crucial for a country's development: this happens because of the absence of laws, institutions, good governance, and consequently because of the lack of trust between individuals. This last

³⁶ Moyo (2010): 93.

aspect undermines all progress possibilities because the lack of expectations causes the weakness of the entire political and entrepreneurial system and consequently a country's growth is strongly penalised.³⁷

In conclusion, according to Dambisa Moyo, aid not only compromises relations between people, but increases social poverty and weakness, encouraging greater government's power and reducing personal freedom. Another circumstance to consider is a possible increase of civil fights caused by delivery of aid. We must note that in Africa most of the current conflicts are caused by the attempts to control the natural resources in the territory and by the coexistence of more ethnic groups together. In this context aid incites civil wars for one single reason: whoever can grasp power has access to a bigger amount of money. An example is the civil conflict in Somalia that according to Michael Maren is caused by the desire to control food aid sent into the country³⁸.

3.3. The effects on economy

Over the years, the effects of aid on economies have been observed and can be summarised in four main points:

- Reduction of domestic savings and investments;
- Considerable increase of inflation;
- Reduction of export;
- Difficulty in getting returns on the money that has been sent.

³⁷ Moyo (2010).

³⁸ Moyo (2010): 101-104.

The first point has been confirmed by economic studies that demonstrated how increasing aid is related to the decrease of national savings just because the funds sent will be spent on consumer goods instead of being saved. Moreover, banks will have less funds to lend for local investments because those funds will be taken away from them. In addition, what can be seen is that aid encourages private individuals to invest by offering them guarantees over loans and subsidising risky investments, high quality foreign capital investments are depressed/discouraged (crowded out).³⁹

Money sent to beneficiary countries augments the local demand for goods and services, usually not locally made, but having to be imported. This increase is not harmful per se, but the mechanism through which it is expressed is very important because it can cause an inflationary effect.

The Zambian economist explains the effect of reduction in exports by saying: let's suppose that Kenya had only 100 Kenyan shillings in its economy, that means around \$2. Subsequently, there comes a monetary aid of \$10.000 and this amount of money needs to be exchanged into Kenyan shillings because retailers accept only the legal currency. The value of the shilling has to grow because the demand for that currency is increasing, and thus Kenyan goods will become more expensive to export and the export sector of the country will decline. This phenomenon is called "the Dutch disease" and according to the IMF it represents one of the reasons explaining the lack of development in beneficiary countries: the quantity of the currency received by these countries provoked a growth of the exchange rate, a decrease of competition

³⁹ Moyo (2010).

in the exporting sector and cuts in salaries, employment in the sector and the growth of the sector itself.⁴⁰

The last economic effect is the difficulty for beneficiary economies to absorb these resources. This phenomenon is caused both by underdevelopment of the monetary institutions and the policies adopted by those countries: there is no sufficient competent staff to make use of aid in the most productive way.

4. The Chinese presence in Africa

By now we have analysed only the economic aspects of the aid system, without considering possible external measures within the continent. So, it is necessary to introduce the Chinese action/intervention in Africa to the analysis. It is characterised by different principles compared to the Western one: Beijing is intensifying its presence on the continent through investments, trade agreements and only in a small part with aid support. The Chinese policy towards African countries is driven by the continuous demand for extraction of raw materials such as oil, gold, brass, and for arable lands.

These kind of manoeuvres are implemented in nearly symbiotic relationships between African countries and China, in terms of long term dependence. In 2009, through multinationals Beijing extended loans in the amount of \$77 billion for long term extraction of oil and gas in different countries around the world, including Angola and Ghana.⁴¹

The West strongly criticised these policies, blaming the People's Republic of China for the attempts to colonize

⁴⁰ Moyo (2010): 108-111.

⁴¹ Moyo (2013): 83.

the continent. On this point Moyo is very categorical and says that these critics have no further proof. In her opinion it is clear why China has no interest in improving the social and economic situation of the African countries, China is interested in finding new commercial partners because of the insatiable appetite for resources to be used in its economic system in exchange for funds to build necessary infrastructures in those territories. Secondly, she thinks that the local populations consider these charges to be exaggerated and seem to approve these investments: according to the 2007 Pew Report , in Senegal and Kenya 81% of citizens support the Chinese intervention, in Ghana and Nigeria this percentage is around 75%, in Ethiopia 66%. Another data that should make us think is that in some countries interviewed people perceive the influence of the PRC better than that of the USA.⁴² Recent polls confirm the positive opinions in favour of Beijing's policy; the percentages are around 63% of the population of the entire continent.⁴³

5. Possible solutions to the aid system

Moyo proposes access to financial markets as a possible solution. If that is the case, African countries could have the possibility to issue bonds, which are equivalent to aid because they are loans but differ in that they bear higher interest rates, have shorter maturities and, above all, they involve very serious consequences in case of default. Entering the credit market is not complicated, says the Zambian economist, but requires first of all a state with its own rating and then the state

⁴² Moyo (2013): 166-167.

⁴³ AfroBarometer (2018).

must attract potential investors both with its credibility and an interest rate that reflects the capital risk. This process would imply the duty of governments and countries to show greater transparency so as to not drive away investors. The possible classification as a speculative country by rating agencies would cause a higher interest rate for the country but would not result in the absence of creditors. In fact, venture investors would be attracted by a chance of high profits and at the same time everyone who is looking for diversification of his own wallet would be inclined to buy these bonds. To reduce these risks, governments could follow two paths: the issue of regional bonds with the possibility to request one single rating. In this context, more developed nations could provide positive externalities to the others. The single rating, by the way, introduces the free-lender risk with respect to countries that would take more funds than necessary. This kind of problem could be avoided with the division of market shares based on the GDP growth (the bigger is the country the more money it will get) or following the need criteria. The second possible path is a supranational government or organisation that can pay back the debt in case of default of the receiving country. An example is the Pan-African Infrastructure Development Fund (PAIDF), formed in 2007 in South Africa: this organisation invests in projects that provide construction of infrastructures around the African continent, and the South African government guarantees those investments. Another possibility is to involve the World Bank, as happened in 2007 with Argentina. Argentina issued \$1.5 billion in bonds with 6 different maturities (1 year, 18 months, 2, 3, 4 and 5 years) and the World Bank at first guaranteed the first batch. After paying back the first issue the organization offered guarantees for the second batch and so on. This

kind of trick would allow countries with rather poor ratings to receive loans because the guarantor (the World Bank) is classified AAA.⁴⁴

According to Moyo, the second necessary solution to overcome the aid dilemma are FDIs. All in all, it is evaluated that the African continent receives too few investments. In 2006, \$37 billion received as foreign aid were more than a double of the FDIs carried out on the continent. This statistic underlines the seriousness of the phenomenon because in one year, one country (China) received around \$80 billion - five times the invested inflows on the entire African continent. This exiguity is caused by inadequate infrastructures and the various problems already discussed regarding corruption and inefficient bureaucracy.⁴⁵

Given the quantity of raw materials in the continent, this phenomenon is still unexplainable. In this context, China over the last 30 years has been building a different kind of a relationship and has been intensifying its presence on the African continent. Taking advantage of raw materials such as brass and cobalt, buying mines, railways and production facilities. In exchange China offers funds, not aid, and builds infrastructures or whatever it is asked to build by the governments China has contracted with. It is believed that this approach allows the African countries to obtain what they need at the moment.

⁴⁴ Moyo (2010): 127-153.

⁴⁵ Moyo (2010): 156.

IV. Some relationships

Dambisa Moyo's publications sparked an uproar and interest. The book that had the highest visibility is "Dead Aid" because for the first time it expressed the opinions of an African economist on the topic of Western aid. The following works are indeed very interesting because they reflect Moyo's thought on different topics, such as the crisis of 2008, China's interest in the African continent because of raw materials, the relationship between democracy and economic growth. Despite that they did not touch public opinion with the same intensity of the first book. The theses provided by the Zambian economist caused a stir in the West, especially because Moyo is the first African person strongly criticising the aid policy. The judgments expressed by Dambisa caused a debate between the insiders (some opinions will be presented) and aroused vigorous reactions among the celebrities actively involved in delivering aid to the African continent.

Bill Gates expressed the most vigorous reply to Dambisa Moyo's positions. The rich American entrepreneur, as known, assumed a progressive role in sustaining Africa, with different donations and in 2000 establishing the non-profit Bill & Melinda Gates Foundation with the purpose to improve the quality of life in African countries through donations for the development of schools and health service (especially providing vaccinations). The participation of the American billionaire in the activities for Africa's cause is so strong that in 2008 Gates left Microsoft to work full time at the Foundation.⁴⁶ In 2010, during a conference, a student asked him what his thought regarding Dambisa Moyo's theses was.

⁴⁶ Bill&Melinda Gates foundation, *HISTORY*.

The answer was categorical. Initially, he said that in the last 20 years aid halved the number of infant deaths and in a second moment criticised the economist maintaining that she had a wrong value system because the policy that helped attain those results cannot be seen as negative. Negative observations did not stop only there, as the founder of Microsoft concluded that the works such as the one of the *Zambian economist* are devilish because they could only generate an outcry and were based on moral high grounds.⁴⁷

Professor Paul Hoebink, director of the centre involved in international studies in the department of Nijmegen and author of various publications on the aid system, in the preface to his book “A Matter of Dishonesty. A Review of: Dambisa Moyo *Dead Aid: Why Aid is Not Working and How There is Another Way for Africa*” expresses many doubts over the efficacy of the *Zambian economist*. At first, he underlines that it is fair to affirm that aid has been used badly over those 60 years causing the increase of poverty, but then he goes on saying that we do not have to jump to conclusions and define that policy as totally negative. In fact, if it was applied in the correct way (here come responsibilities of the African governments) it could have brought receiving countries to higher levels of growth and to improvement of living conditions in general. The *Zambian economist*’s work, according to Hoebink, presents many critical issues, especially as regards the sources: the first real problem is the limited/poor use of empirical proof to support the theories that are the object of the discussion. In Chapters 3 and 4 of “*Dead Aid*”, where problems regarding aid and reasons why it should not be given are expressed, literature supporting the thesis

⁴⁷ Moyo (2013a).

is very poor for Hoebink and is full of statements that are not shared by many economists or have been replaced by more accurate studies. A second defect of Moyo's studies is total omission and failure to analyse works that theorize on the positive relationship between aid and economic growth in the receiving countries.⁴⁸

Another very interesting criticism is given by Paul Collier, an economic expert in the international relations' sector and author of the book "The Bottom Billion". He was the professor of Dambisa Moyo both during her master in Harvard and Ph.D. studies at Oxford University, has a softer position towards the economist and his review is less rude compared to the ones we have mentioned until now. It is necessary to underline how Collier proves that every thought expressed by Dambisa is her personal thought and the article testifies to the coherence of the Professor who discusses her thoughts in an objective way, both giving positive evaluations and breaking away from some statements of the economist. The scholar corroborates the fact that aid can cause many problems that are correctly exposed in "Dead Aid". Paul Collier states that it is fair to say that aid, if it consists in sending enormous amounts of money, is not the solution to Africa's problems. He agrees with the thought that is necessary to promote development through good governance, security treaties and commercial exchanges. Collier's thought differs from Moyo's as regards cessation of sending money: he thinks that it could be more useful to improve the terms and conditions of aid and make them more stringent with the purpose to reduce corruption in the receiving countries and help them reach higher growth levels.

⁴⁸ Hoebink (2009).

The scholar disagrees with the analysis of the causes of African underdevelopment: the African economist in many passages identifies aid as the main cause of the continent's problems. The Professor declares that the most serious question comes from western "transgressions" of the last two centuries such as colonialism, exploitation of the underground resources and African populations. He thinks that the position taken by Moyo is incorrect because many important factors are not included in the analysis.⁴⁹

Dambisa Moyo's thought, as said before, was a profound shock to both development economists and benefactors; her theses not only stirred up reactions from insiders and celebrities involved in donations, such as Bill Gates, but stimulated interest of political figures linked with the continent, one of them being Kofi Annan, from Ghana, who served as Secretary-General of the United Nations from 1997 to 2006, who released an interview where he says that the topics that are the object of the discussion may lead to a new approach towards Africa. In his opinion, Moyo's message is clear and shareable: it is time for the African people to take control of their economies and their political destiny, taking advantage of the opportunities to improve their living standards.⁵⁰

Paul Kagame, President of Ruanda, expresses his agreement with Moyo's thought: he thinks aid did not reach the intended goal, causing more poverty and instability in the African countries. Therefore it is necessary to think when to stop the delivery of aid and what are the best ways to do it.⁵¹

⁴⁹ Collier (2009).

⁵⁰ The Telegraph (2011).

⁵¹ Kagame (2009).

John Kufuor, President of Ghana, is very sceptical towards Dambisa Moyo because he thinks that the thought of African rich living is hardly credible⁵².

V. Conclusion

Aid policy is extremely complex to study: there are contrasting theories in literature and available data are very poor and not always reliable. The theses maintained by the economist are well-founded: the West made many mistakes in its relations with Africa and the idea that Western people behave as if they were superior persists. This is because of the imbalance presupposed by the aid policy where there are a donor country and a receiving country involved.

The arrival of China on the scene caused different changes because the Asian Colossus used a different approach which has been successful amongst the local populations except for poor cases, such as Zambia, where the Patriotic Front tried to redesign the relations with Beijing. By the way, the Front failed because of the symbiotic relationship developed between both countries.⁵³

The People's Republic of China represents the most controversial topic presented by the author because she defends the Chinese presence on the African continent against Western critics but at the same time many investments and policies aimed to improve African infrastructures only in order to facilitate trade between the two continents; moreover, as shown by the imposition of the principle "The one and only China",⁵⁴ there is little attention to human rights and

⁵² General News of Tuesday (2009).

⁵³ Sautman (2015): 127-143.

⁵⁴ Ricchiello (2015).

freedom of thought in the African countries; some countries base their economy on exports and the data confirm that in 2009 mining products, basic metals and gemstones formed 90% of total imports from Africa to China,⁵⁵ as an evidence of the attempt at new economic colonisation.

Coming back to the topic of aid, as observed by many authors in literature,⁵⁶ it is important to underline that aid was undoubtedly designed to keep some influence over certain territories that became independent countries or were about to become such. In addition, from an economic point of view aid should produce a growth in the medium to long term by making viable purchases of domestic goods and services from donators to reinforce small local companies. It must be observed that it is very hard to express an overall assessment in view of both the very different results reached by every country and the policies applied by the receiving countries: Botswana delivers a very positive image of aid policy, whilst nowadays there are countries where the percentage of aid in relation to the GDP is over 10%; in the case of Ruanda this percentage was around 27.1% in 2005.⁵⁷

In conclusion, we must observe a weakness of Dambisa Moyo's theses: the limited amount of data used to support her theories which very often are reduced to an ideological position.

This lack of statistics can be seen as a responsibility of Western countries that should have worked more accurately continuously monitoring the phenomena under consideration since they decided to take charge of the African issues.

⁵⁵ Eisenman (2015): 3-26.

⁵⁶ Alesina, Dollar (1998).

⁵⁷ World Development Indicators data.

One final comment: Dambisa Moyo's ideas opened up the debate over Africa, showing alternatives of intervention and providing an overall picture of the actual situation. Now the West and Africa should ask themselves and investigate the issues provided and give a concrete answer to them, developing a strategy that would lead to a growth for the continent. Only this way people who support the opinions expressed by the Zambian economist may change their minds.

I would really love to thank Professor Maria Stella Rollandi who has been a very precious guide for this work. Thanks to her high level of competence she helped me a lot both in the production of my degree thesis, from which the article comes, and stimulated my mind to reflect on certain topics, giving me the opportunity to face them and discuss with her the objects of my work.

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**Inclusion, integration, assimilation.
Conceptions of incorporation of Others and definition
of “freedom” in contemporary philosophy and political
thought of modern liberal democracies: considerations of
philosophers and cultural representations**

Abstract

Equality and freedom are the foundations of liberal democracy and the Western society. However, they can be differently defined, and their definition implicates the different conditions and shaping of both culture and society. The main line of distinction is the orientation of definitions of both equality and freedom: they can be individual-oriented or group-oriented. The philosophical dilemma about what is true freedom and true equality is also a practical problem: which definition should be applied in today's social politics and how to integrate individuals and groups into a single multicultural postmodern society. I shall demonstrate the main conceptions and potential consequences of their application. Then I shall analyse cultural representations of those conceptions. Such representations not only reflect but also influence popular thinking. Finally, I shall try to draw some conclusions regarding the implementation of different social conceptions.

Keywords: Assimilation, Difference-neutral, Difference-specific, Distinctiveness, Equality, Freedom, Individualism, Integration, Queer

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Thinking over the essence of freedom is in the very centre of contemporary philosophical and political problems. The controversy lies in whether freedom should be understood as an autonomy of the individual or as “group freedom”: one’s freedom to belong to any group, even if the group contains or restricts their freedom. Which means: can freedom mean voluntary deprivation of individual autonomy?

The question about freedom leads to a question about equality, which is another foundation of liberal democracy (in the classical meaning of the word as “the system based on liberties”) and indeed the entire Western civilisation. Equality and freedom have been the roots of it, either as the Greek and Roman heritage, or the Christian one.

In fact, equality and freedom as political notions were based on the exclusion of many people and embraced merely the minor (but considered major) dominant group - but as ideas they were universal. When the excluded started to claim or get the factual participation in those universal categories, the problems of definition emerged. The controversy over freedom and equality spread from the domain of pure philosophy to the domain of political philosophy and politics.

Equality

If “equality” means that democracy has to guarantee to everyone the freedom to achieve their goals, realize their desires (without harming others) and satisfy their needs,¹ then

¹ According to Arjun Appadurai and James Holston, there were two definitions of liberal democracy: one assumed that the nation state had been created thanks to the voluntary unification of people in order to achieve common goals, whereas the other assumed that the nation state had been created thanks to the unification of people who wanted

should it be *difference-neutral equality* or on the contrary *difference-specific equality*?² Arjun Appadurai i James Holston give the example of the maternity leave: should it be considered as a usual sick leave or should it be considered specifically?³

Some of the discriminated groups argue that their rights will never be truly equal as long as they are not difference-specific, taking in consideration their specific needs and values. Difference-neutral equality is tantamount to homogenisation and uniformisation of everyone on the example of one sample - the sample of the dominating group indeed. Such equality presume implicitly that everyone's desires and needs are the same - and the same as the needs and desires of the dominating group. Also the same are the means of satisfying everyone's needs and desires.

However, difference-specific equality is practically problematic. If we are to consider the difference, then what degree of difference should it be? To what minor groups should we give group rights? Considering specific rights of ethnic minorities sometimes means increasing oppression of the groups within those minorities (of women or LGBTQ+ people). What is to be done with the groups that are vulnerable to intersectional discrimination, e.g. black women, lower-class gays? Should we consider such groups as distinct specific groups? Nonetheless, these groups are divided into smaller ones, e.g. black non-heteronormative women, Hispanic lower-class gays. This could lead to considering every

to assure themselves the possibility to achieve individual goals by everyone. Appadurai and Holston think that the latter definition is prevalent. (Appadurai, Holston (1996)).

² Appadurai, Holston (1996).

³ Appadurai, Holston (1996): 194.

individual as a specific group, which jeopardizes the existence of the law and society itself.

Freedom

The problem with freedom is analogical: it is the question about what is freedom or what kind of freedom is more important. Individual freedom codified in *human rights*, the basis of modern Western society, frequently undermines cultural freedom, the group rights of people to cultivate their own culture. Sometimes, cultural freedom of a group represses individual autonomy of its members or is even in conflict with *human rights*. The most appalling example is the cliteridectomy or female genital mutilation. It is a harmful operation consisting in cutting off external female genitalia. Yet, there are groups that consider it as being a part of their cultural heritage. A philosophical dilemma finds here its materialisation (or even embodiment - on the female body): should external society, the state, intervene in the name of individual freedom, human rights? Or should the state tolerate such practices in the name of cultural freedom, group rights? This dilemma does not disappear if the object of these practices agrees on them or even supports them. We can argue that a woman agreeing on cliteridectomy or inflicting it on her own daughter does so out of ignorance, indoctrination, fear, that she is miserable without knowing it, that she is manipulated or psychologically addicted to her male oppressors. Yet: is not medicalisation of people's behaviour oppressive?

The partisans of group rights and freedom based on distinctiveness seem to have ready-made answers to those

questions, absolutizing the cultural freedom.⁴ They are for maximum freedom, understood by them in terms of group rights. Their discourse, extremely emancipated in theory, paradoxically can be accused of non-emancipation, of waiving individual freedom, of propagating domination of the group over the individual. In a sense, the conservative discourse, sceptical about any freedom, individual or group, would be more freedom-oriented: opposing the practices considered as non-Western would be tantamount to supporting personal freedoms and liberties. This is, indeed, a paradox: supporters of pluralism who see individualism as one's right to choose their group belonging, at the same time put individual freedom above the community (society) and opt for oppression of the individual by putting (specific) group rights above those of the individual. On the contrary, those who claim that the community is primary above individualism would guarantee more personal freedom.

⁴ In a sense this conception is included in Hanna Arendt's texts, if we transpose her theories to the reality of the multicultural society. She is fascinated with ancient politics, differentiating the public domain of freedom and individuality from the private domain of a despotic, hierarchical household with its oppressive system of absolute rule of the master/owner/father of the family, the interior of which is never penetrated by external influences. This seems to support the view that public freedom is superior to private one. Moreover, a lack of freedom in private domain is a precondition of freedom in public domain. Applying this system in the multicultural society, we would accord to a person unlimited liberty to realize cultural freedom and profess one's culture in the public zone but at the expense of individual freedom in private domain. Polish citizens could be free in public domain only because they had slaves and subdued women in their households. Neither the women nor men were free, as the obligation to rule the inmates and kin restrained their freedom. The same would apply to the cultural groups in a modern society. Arendt, the preacher of individualism and diversity, would be a partisan of oppression.

It is important to note that those dilemmas apply not only to groups of so-called traditional, ethnic cultures, but also to contemporary subcultures of modernity and postmodernity. The problem of oppressiveness of male-female relations in some Islamic groups is the same problem that we encounter in inter-gender relations in other groups, among women who search for romantic love or transgressive sexual experiences and fall into an oppressive relationship.

On the other hand, individualism, which prevails in the Western discourse, understood as cultivation of individual liberties and individual autonomy, can (as I have written above) paradoxically become a part of the conservative narration, and even (post)colonialism and oppression. “Human rights” include, for example, the right to ownership, which in practice means that everything which is not a private property (or a property of a modern state) belongs to no one. For the colonisers, from American *conquistadores* to the British in India and North Americans in Latin America, this was an excuse for exploitation of the lands and taking them away from the natives - as in many native cultures the land belonged to the communities, and was not “private”. The “private property” was, moreover, a masculine category. Renata Hryciuk shows one example of Guatemala where the Indian system was different:⁵ the land belonged to indigenous communities but was distributed to families and inherited according to the filial system: the daughter inherited after the mother, and the son after the father. The Western system of private property caused concentration of all goods as family wealth, practically in the hands of the father and mostly male inheritors. The Spanish elites

⁵ Hryciuk (2019).

in modern times stole the Indian land by ignoring the system of common property and oppressing the native population structurally and culturally. The situation became even worse because of the neo-colonial politics of the USA, which dominates the Hispanic countries as a whole, both the elites of Spanish roots and, through them native Indians. Hryciuk quotes the example of Mexico, which, pressed by the US and Canada, introduced changes in its constitution depriving Indian minorities of their rights. American politics (including CIA interventions) have led to wars and genocide, whose victims have been usually the Natives. The migrations caused by those wars have met with xenophobic reactions in North America and have led to criminalisation of refugees.

Culture and society

The problem of freedom in contemporary political and social domains is in fact a problem of social organisation in the times of multiculturalism. Thus, it is also a problem of defining a culture and a society and their mutual relationship.

The classical definition of Johann Gottfried Herder does not differentiate between culture and society. They are one, inseparable and unified. Herder did not really approve of any kind of individualism (nor autonomy of the individual, nor the individual's right to choose the group of affiliation), neither freedom - nor individual autonomy, nor group rights. He did not think that in homogenous culture-society there would be any distinctive subgroups, or really distinctive individualities. The loss of homogeneity, individualisation, liberties, emancipation and pluralism of identities would change one culture into many cultures and by this, would destroy the society.

Herder's conception of culture claimed that culture is a source of social organisation, and is rooted in its people, that society and culture form a community in which all individuals form a single organism, a kind of ball or bubble. Postmodern multicultural conceptions are different. Society is a voluntary union of individuals which guard both their autonomy and the right to belong to different cultures.

Almost all international documents (UN, UNESCO, Council of Europe, European Union) acclaim multiculturalism, understood as citizens' integration with "the right to differ".⁶ "The postulate: <<integrate civically without unifying culturally>>"⁷ assumes a new model: one society - many cultures. "<<The Other>> as own belongs to inclusive <<us>>"⁸. Pluralism and individualism of the 20th century claim that they do not destroy the community since the group-orientation is not necessary to the creation and the maintenance of the community; on the contrary, the community is constructed through individualism, through individuals, not above them.⁹

⁶ Krzysztofek (2003): 81 (Author's own translation).

⁷ Ibidem: 81 (Author's own translation).

⁸ Ibidem: 81 (Author's own translation).

⁹ Hannah Arendt considered public domain, the community, as independent from the society. Society indeed cannot exist without some homogeneity. A *sine qua non* condition of society is that people act as if they were one big family, having only one opinion and one interest, and individuals who don't follow the rules are seen as asocial or abnormal. But society is the only possible form of a community. Arendt argues that the society is a hybrid of the private and the public. It is a modern creation, unknown in the Antiquity, especially in the Ancient Greek democracy, based on the idea of *polis*. *Polis* was a highly integrated community based on individuality, plurality and rivalry among individuals. The public domain was the domain of individuality, a place to show oneself. For Ancient Greeks, contrary to modern people, the public domain was a domain of freedom and individualism,

Nonetheless, some researchers have doubts. First, there are those who are sceptical of individualism and pluralism. Secondly, there are supporters of pluralism and individualism who have problems with defining them – the problems similar to those with defining freedom.

The fears of sceptics may be caused by identification of the community with Herder's idea of cultural unification. Still those fears have some serious foundations. Extreme pluralisation and individualisation impair social norms (sometimes even tend to form a normless society), even such norms as democracy or human rights, which are considered as just ones of many cultural creations in a multicultural society.

Those fears sometimes lead to extreme reactions. In recent years, we could observe not only the flourishing of conservative and nationalist movements, but even fundamentalist, fascist and suprematist ones. They all share the ideas and rhetoric of a return to the cultural identity understood as cultural sameness, to so called "roots".¹⁰ Contemporaneity is torn between two general tendencies and ideologies, needs and desires. They strengthen each other, as the existence of one is a reaction to the existence of the other: return

and the private domain was a homogenous space of duty and necessities of biological life, a space for satisfying only the basic needs of life. At present, it is the public domain and above all the social domain which is the domain of duty and oppression, and the private domain is a space of freedom, even though restricted by social oppression. Obviously, a return to *polis* is not possible. Today's world is far more populated than the Ancient one. Nonetheless, Arendt thinks that we can build a community based on individuality and plurality. She even claims that a true community cannot exist in any other way. Homogeneity is an end to the community. The source of the current social crisis is not plurality but mass society - as mass society is a standardised, homogenous one. Individualism is not a threat, but a cure. (Arendt (199*): 61-62 and 79).

¹⁰ Welsch (1999).

to national, conservative and even fundamentalist tribalism was a reaction to the process of globalisation and liberalisation. It is worth clarifying some important points here. Both globalisation and tribalisation are universal phenomena, although they have somewhat different forms in different places. Global culture is mainly based on Western culture. That is why in the West globalisation can be seen as opening to Others, or, in conservative optics, as contamination of “our” culture by Others. In non-Western cultures things are a little different. Those cultures are Western “Others”. For them globalism is, on one hand, a possibility to be closer to the West (if not becoming a part of it). But this means also resigning from at least a part of their own culture. Nationalisms and fundamentalisms of non-Western cultures have a different, more complicated countenance. A Westerner is perceived as better, but sometimes also as hostile. Things get even more complicated when a Westerner is a non-White at the same time. Ethnicity considered as worse concurs with provenance considered as better. To simplify the issue, I shall concentrate on the Western forms of contemporary tendencies.

The up to date blossoming of conservative and even ultra-right movements in Western countries are an answer to the progress of globalism and liberal governments at the beginning of this century. Particularisms are born out of fear of multiculturalism. Aspiration to homogeneity is a reaction to the aspiration to heterogeneity. “It is a psychological rule (...). Globalisation incites nationalism and ethnocentrism...”¹¹

Finally, on the psychological level, we can define this opposition as the tension between the need of security and

¹¹ Krzysztofek (2003): 90.

the longing for freedom. The sense of security is achieved thanks to the existence of social norms, automatic, innate belonging to a group and clear, simple identity and identification. Freedom is achieved thanks to the lack of oppression and restrictions, the absence of strict norms. Yet still it remains undecided what definition of freedom we should apply.

This exists in relation to two different integration strategies put forward by supporters of heterogeneity: assimilation and distinctiveness. The latter is divided into two types: one is “politics of identity” as Joanna Mizielińska called it,¹² and politics of *queer* (*queer* is usually associated with sexual minorities, but one of its pioneers, Gloria Anzaldúa, thought about identity of *queer* as identity of *mestiza*, mixed, *chicano*¹³). Strategy of distinctiveness is disturbing not only to conservatives but also to supporters of assimilation.

Assimilation is understood in a new “soft” way:¹⁴ assimilation not only changes the assimilated Other but also the assimilating society. The norm is widened, the changes are bilateral and occur within feedback. However, supporters of the distinctiveness strategy point out that even within the “softest” assimilation, the Other has to resign from an important part of their identity. Assimilation expands the boundaries of the norm to embrace those who are less different, less Other. Still, the most different ones, those who seem most Other, remain outside the norm. Inclusion is never complete. This happens in the case of homosexuality: monogamous relationships similar to heterosexual ones are accepted but

¹² Mizielińska (2012).

¹³ Anzaldúa (2010).

¹⁴ This can be caused by impossibility of “hard”, colonial assimilation. Acculturation of Otherness is unworkable because of the irreducible Derridian difference, best explained in the works of Homi Bhabha.

the rest is still subject to social exclusion. Strategy of distinctiveness aims not at widening the norm but at eliminating it, yearning for social acceptance of every Otherness.

Both strategies can be considered from the point of view of the dominating group (social mainstream) or from the point of view of the dominated, those longing for emancipation and equality. For the latter, the choice of strategy lies, according to bell hooks,¹⁵ in an answer to the question: do they want to join the dominating group (or advance in society) or do they want to change the society? Those questions can be asked of most of social revolts: liberal ones usually wanted just a change in the dominating group, a shift in domination or access of a wider range of people to the social mainstream. Such revolts were not led by the most oppressed, rather by those who were just merely different than the dominating group. Truly radical revolutions aimed at a complete change of social order, such as the equality of all people and social groups. Thus, Others can either adapt the liberal assimilation strategy, or the strategy of revolutionary distinctiveness.

The first one is the joining of the colonised to the coloniser. It can be regarded as egoistic: an Other or a group of Others cares only about their own position. If the change is done, this Other, or those Others will dominate over the rest (even over a wider group of their own origin), hand in hand with previous opponents, the dominating group.¹⁶ The second strategy, the strategy of revolutionary distinctiveness is the resistance

¹⁵ hooks (1989).

¹⁶ hooks (1989). The author describes here her own experiences and choices she had to make when, as a Black woman, she became a university researcher, joining the dominating group. She could have chosen either the path of forgetting her origin and assimilating with her new environment, or the path of resistance, remembering her distinctiveness and fight for acceptance of this very distinctiveness.

of the colonised against both discrimination and assimilation. The colonised want equality without having to resign from their own difference (Otherness). What they want is neither to dominate, nor to be dominated. They want to speak with their own voice and be heard. They do not want anyone to speak in their name, even to support their emancipation. They want to be Other and accepted at the same time.

This approach is, however, disquieting, and not only for conservatives and nationalists. There are serious doubts as to whether the Western society adapts everything, it will remain Western: “is it possible to contain multiculturalism in (...) the standard of Western democracy, and will this standard be Western then.”¹⁷ What to do with minor marriages, oppressive family structure and dramatically subordinate woman’s position, which some people treat as an integral part of their culture? Should they be accepted and will it not be the end of “Westernity” in the Western society? Or even the end of society in general, as one society will not be able to contain such a diversity; no one will be able to identify with it and society will break into small ethnic/cultural entities (Krzysztofek called them “bantustans”¹⁸), again built up on the rule of “one society - one culture”? The extreme emancipation of minorities will somehow, and in a deformed manner, fulfill the goal of conservatives. This fear finds its illustration in separatists ideologies which began to emerge in the USA in 1980s, inspired by discussions on multiculturalism.¹⁹

The rise of “bantustans” will be the final triumph of the group conception of freedom and individualism over the individual

¹⁷ Krzysztofek (2003): 81. (Author’s own translation).

¹⁸ Krzysztofek (2003): 77-94.

¹⁹ Śliz, Szczepański (2011): 18.

conception. Simultaneously, it will be the end of all freedom, as the “bantustan” society will dominate over its members, over individuals, uniform and homogenous, without any distinctive social groups inside. Fears of the decomposition of society and the rise of “bantustans”, and the fear of the supremacy of the group over the individual are associated with the identity politics within the distinctiveness strategy.

But there is another politics within this strategy. Politics/practice/strategy of queer is supposed to be a remedy to all tensions. Queer rejects both assimilation and identity (identification). It stresses the radical Otherness, but also undermines the existence of the norms that position and define Otherness. Queer claims that the strategy of identity is as normative as conservative thinking: every group has its norms, and norms are always oppressive. So is the group identity, always built upon exclusiveness. Gloria Anzaldua calls for existence outside, above and inter-ethnic groups²⁰. Joanna Mizielińska reminds that imposing a single identity on an entire group is oppressive. She thinks that building the identity of Others in opposition to the dominating group legitimizes the dominating discourse, which first introduced the division into “normal” and “Other”.²¹ Contrary to the politics of identity, the politics of queer transgresses the divisions. This is necessary as the boundaries of identities have always been artificial and unclear (e.g. historically it is very difficult to distinguish between homosexuality and transsexuality). Anzaldua wrote about Otherness in everyone. The politics of queer is somehow similar to transculturality of Wolfgang Welsch.²² Queer is extremely inclusive, it realises the group freedom

²⁰ Anzaldua (2010).

²¹ Mizielińska (2012): 287-300.

²² See: Welsch (1999).

by transgressing the very idea of the group and at the same time it is radically individualistic. Identity is a construction, flow, fluid and performed.

This is not always positive. Judith Butler and her followers claimed fluidity of identity which meant the lack of it. In the name of freedom, queer can deprive people of the satisfaction of their basic need: the need to identify. The extreme individualism destroys the individual, just as extreme group freedom destroys any freedom. Donna Haraway wrote about what we lose when we resign from some categories in the name of liberating deconstruction:

For example, “sex” as an object of biological knowledge appears regularly in the guise of biological determinism, threatening the fragile space for social constructionism and critical theory, with their attendant possibilities for active and transformative intervention, which were called into being by feminist concepts of gender as socially, historically, and semiotically positioned difference. And yet, to lose authoritative biological accounts of sex, which set up productive tensions with gender, seems to be to lose too much; it seems to be to lose not just analytic power within a particular Western tradition but also the body itself as anything but a blank page for social inscriptions, including those of biological discourse.²³

²³ Haraway (1988): 591. According to Haraway such an attitude is based on the same assumption as the science of “White Capitalist Patriarchy” (Haraway (1988): 592): on complete objectification. Whereas, if we admit his/her/their agency (agency of the body and of the world), we do not have to consider the object as a construct of the describing person and resign from referring to the object.

The realisation of Butler's postulates would be uniforming, homogenising, oppressive and destructive for individuality in the same degree as conventional, conservative culture. Thinking queer can fall in a trap of "disembodied vision"²⁴ that characterized phallogocentric, masculine, heterocentric and ethnocentric thinking. The complete lack of norms threatens the society and on the other hand may easily fall into mental totalitarianism. Such oppressiveness embraces not only theoretical thinking and definition of identity, but also the domain of practical social action.

Scott Kerpen, in his paper presented during „Gender (Non) Conformity” conference, talked about “queernormativity”.²⁵ He pointed out that nowadays the queer theory can be accused of exactly the same thing - “disembodied vision” - of which Donna Haraway accused postmodernity. Upper- and middle-class Whites of the Western countries are again privileged compared to the rest of the world, and so are cities - as opposed to villages. Queer is a metropolitan practice, metrocentric in a sense.²⁶ Queer, as everything that gets institutionalized and firm, consists in the privilege of power. It imposes its own conceptions of freedom on Others (undeveloped countries, working class, countryside). Freedom is defined exclusively as resistance against norms, whereas in reality people can feel free while keeping to the norms.

Queer excludes those who want to have a firm, well defined identity or, on the contrary, imposes a queer identity

²⁴ Haraway (1988): 590.

²⁵ Kerpen (2019).

²⁶ In non-Western countries, where queer is less popular and confused or mixed with other categories, like in Poland, those categories remain metrocentric. Joanna Struzik writes about the conception of “gayness”. See: Struzik J. (2012).

ex cathedra. Kerpen quoted examples of exclusion of non-binary people only because they did not want to identify as queer (they did not know the notion, did not understand it or did not want to use it). He also quoted examples of ostracism and shaming of people who decided to have the transsexual surgery as traitors who gave up on their fluidity and non-binary in order to assimilate. Queer contradicts itself by becoming an identity, normative, exclusive and oppressive.

Cultural representations

Analysing the cultural representations of integration of the Other, I focus on the Vampire Narrations, as the Vampire is *par excellence* the figure of the Other, and Vampire narrations are extremely popular in the 21st century, especially in the American culture on which I will focus.

The first years of the 21st century belonged the phenomenon of *Twilight*, both books written by Stephanie Meyer, and their film adaptations. *Twilight* is an affirmation of individualism. The heroine chooses her identity independently and on her own, she wants to become a vampire and she achieves it, and as a vampire she wants to be “vegetarian” (feed on animals only) and she is. Bella chooses her belonging, she is not defined by her origin, she constructs her identity.²⁷ Also Edward, her lover, is such a subject, as well as other

²⁷ Of course *Twilight* is neither the only, nor the first narration to show such a transcultural subject. Wolfgang Welsch quotes examples of V.S. Naipaul and Salman Rushdie. Both writers consider themselves as transcultural subjects and create such heroes in their works. In *Midnight's Children* the hero has several fathers, which is the best metaphor of a composite identity.

members of the Cullen family: they are vampires who remain human (contrary to the Volturis). Bella is a human who became a vampire. Both have a hybrid identity, and the fruit of their relationship is a daughter, Renesmee, half-human, half-vampire, literally a hybrid. *Twilight* is a pop cultural illustration of Welsch's statement that people can make their own choices about their belonging and should have the right to do so.

Of course, some researchers see this as a threat to the society as well as to the individual. Richard Sennett wrote that in a non-homogenous society an individual becomes more vulnerable,²⁸ because they can feel lost. That is why Rebecca Housel writes that Bella was a victim²⁹. Her relationship was oppressive. However, this can also be attributed to the fact that Meyer's vision of the society is only seemingly transgressive; indeed the heroine still lives in the patriarchal, quite uniform society.

The first years of the century witnessed the blossom of liberal governments, globalism and multicultural conceptions - and also of such Vampire Narration as *Twilight*. Then the rise of conservative and rightist movements in many countries of the West coincided with the rise of the Evil Vampire Narrations, with the most recent Netflix series *Van Helsing* as the example.

The Evil Vampire Narration was historically the first: it arose in the 19th century, while the Positive Vampire Narration only emerged at the end of the 20th and the beginning of the 21st century. The Evil Vampire Narration, with a bad Vampire as a symbol of dangerous abject Otherness

²⁸ Sennett (1992): 127.

²⁹ Housel (2009).

has never completely disappeared, but in the second decade of the 21st century it re-emerged with the re-emergence of conservatism, nationalism, tribalism, etc. Of course, the 21st century narrations cannot be identical to those of the 19th century, the pre-war period or the 1950s and 1960s. Some changes cannot be undone, the social borders have been irrevocably shifted, some groups have been deeply assimilated. A black man was a President of the United States and this cannot be crossed out from history books. Although the conservative movement wants to go back to cultural homogeneity of the society, this postulated homogenous Western culture will necessarily have wider borders than in the 19th century. Nonetheless, they try delimit the borders as narrowly as possible, and homogenize culture within those borders. It may embrace an Asian-American or Afro-American, but they must be sufficiently "American". And this "Americanness" consists mainly in the WASP and the conception of the "melting pot", Anglo-conformity, with small modifications. This is cultural racism and it finds expression in pop culture. Black, Hispanic or Asian are positive heroes of films and TV series, they are representations of the American society and culture, they fight dangerous Others and defend "our" people and "ourness" in action, war, fantastic and horror narrations, including Vampire Narrations. Women are heroes in the *Van Helsing* series, one of them being a black lesbian, an Asian is a hero of *Hemlock Grove*, and a Hispanic ranger – of the *From Dusk Till Dawn* series. They oppose Others: terrorists (mainly Islamic ones), mafia (mainly Russian, East European or Hispanic) or imaginative monsters. They oppose sexual and cultural Otherness which usually overlap and condensate in the imaginative East, nowadays rather associated with Eastern Europe and the Middle East than with the Far East.

It happens that a positive American hero opposes the Evil of the same ethnic origin or the same sexual orientation. This occurs in the *From Dusk Till Dawn* series, in which a Hispanic Texas Ranger defends the US border against the invasion of Mexican vampires. The border between “ourness” and otherness does not depend on the ethnic belonging but on the cultural one - and culture is again understood as homogenous, even though this homogeneity is a little more flexible than the 19th century one. This is demonstrated by the *Van Helsing* series. “Ourness” contains such values and phenomena as democracy and monogamy, it embraces homosexual, gay and lesbian relationships, but it does not embrace polyamory, sadomasochism, female domination, transsexuality, incest and despotism. The media of such anti-values are again Eastern Others: from Russia (Dmitri and his women, including his sister Atanasia) and from Asia (she-vampire B’ah from China and the female leader of Sisters - probably from China as well).

In today’s pop culture the Vampire works which support heterogeneity, definitely assimilation strategy is dominating. Assimilation seems to be the most popular integration strategy nowadays, despite the claims of official documents. There are very few stories in which Vampires remain vampiric, drink human blood, hunt, kill and manipulate, and yet are positive heroes. Perhaps *The Originals* series is the only such narration. The rest of the works point out the necessity of norms. Even if there are some distinctiveness threads and the positive hero is shown as completely Other, even demonic, finally the prevailing message is that the boundaries (of individualism) exist and must exist. This is the message of *Hemlock Grove*, in which only Schelley, a monstrous girl looking like the Frankenstein Creature, remains truly positive

- because she finds her place in the community. This is also the message of the *Penny Dreadful* series, in which the heroine is guilty and condemned not because she copulated with Satan, but because she surrendered to the temptation of egoism and sacrificed the world to fulfil her needs of acceptance and love. *Hemlock Grove* directly condemns queer theories showing the failure of shifting the bodies experiments.

Conclusion

Equality and freedom are the basics of liberal democracy as well as Western society and culture. However, they can be differently defined, and their definitions implicate different definitions and shaping of both culture and society. Equality can be difference-neutral or difference-specific. Freedom may mean individual autonomy or group liberties. Individualism can be understood as realising one's own autonomy or as a freedom to choose one's group of belonging even if this means waiving one's autonomy. Briefly, freedom, which is a right, but not a must, to differ, can be individual-oriented or group-oriented.

The philosophical dilemma about what is true freedom is also a practical problem: which definition should be applied in today's social politics and how to integrate individuals and groups into one multicultural postmodern society. As I demonstrated, each conception, if developed to its extreme consequences, annihilates not only other conceptions, but also annihilates itself, leading to no freedom at all. This leads to the conclusion that balancing different conceptions is needed.

This is again a question of borders, not of normative social rules, but of the borders which every conception has to put

on, or rather include, in itself. Those are borders of self-preservation, built up in order to save the idea from consuming, contradicting and devouring itself. Of course this statement does not solve all the problems. Far from that, it implicates the need of describing those borders in practice. Nonetheless it is a basis for further reflection.

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China's technological transformation and the future of Sino-American competition

Abstract

This article aims to explore the significance of China's technological transformation for the future of the Sino-American superpower competition. It examines determinants, motivations, strategies, and policies introduced by the Chinese authorities with an aim to close the technological distance to the most advanced economies. The author also attempts to assess policy initiatives and efforts made by China in relation to its main economic rivals, particularly the United States. The paper concludes that technological transformation remains at the forefront of China's development strategy, and its successful implementation will be the key to achieving the superpower status and effectively address domestic and international challenges. The article concludes that China has made a significant progress in some specific areas such as R&D expenditure, Global Innovation Index, ICT industry or patents. However, contrary to the Party's bold rhetoric, reliance on foreign technology, especially on imported advanced machinery and semiconductors, has remained.

Keywords: China, United States, technology, patents, R&D

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Introduction

This article aims to explore the significance of China's technological transformation for the future of the Sino-American superpower competition. It examines determinants, motivations, strategies, and policies introduced by the Chinese authorities with an aim to close the technological distance to the most advanced economies. The author also attempts to assess policy initiatives and efforts made by China in relation to its main economic rivals, particularly the United States. The paper concludes that technological transformation remains at the forefront of China's development strategy, and its successful implementation will be the key to achieving the superpower status and effectively address domestic and international challenges. From Washington's perspective, China has the potential to undermine the American position not only in terms of industrial output but also with respect to high-value-added goods and most advanced technologies. For that reason, impeding China's technological and economic expansion has been set as a priority by the administration of Donald Trump, and this assessment is likely to be maintained by future presidential cabinets. The author further finds that in numerous fields such as R&D expenditure, Artificial Intelligence, 5G networks China has made a remarkable progress, catching up or even surpassing the US. Yet, in general terms, the US upholds the advantage especially as regards human capital, productivity, and efficiency, crucial software, military technology, and semiconductors. Given the economic weight of China and the US, their military and nuclear capabilities, any open military confrontation would bring devastating costs to both sides and the international system. Due to these concerns, technological and economic dimensions

are becoming an increasingly important area of US-China strategic rivalry as they enable both nations to compete for power without major turbulences. For these reasons, China's pursuit of 'innovation-led' growth will be of pivotal importance both as regards its pursuit of superpower status and Washington's efforts to preserve the unparalleled position of the United States.

Recent literature attempting to grasp the essence of the Sino-American competition tends to favour the explanatory value of factors other than technology, such as systemic structural pressures generated by the rise of anew potential superpower,¹ nationalism and perceptual factors,² the significance of an alternative vision of international principles and order³ or the importance of enduring American military alliances.⁴ There is also a growing body of literature oriented toward demystifying claims that the US is declining and China's rise to the hegemonic status is by any means inevitable.⁵ In most of the above-mentioned works, the issue of China's technological advances is usually briefly dealt with and it serves a secondary or tertiary role. This paper aims to complement these deficiencies by focusing almost exclusively on China's technological transformation.

The paper proceeds as follows: 1) in the first section, it reflects upon the limitations of military component and the increasingly significant role of economics for a peaceful resolution of the US-China strategic competition; 2) secondly,

¹ Mearsheimer (2014); Allison (2017); Ross (2006); Shifrinson (2018) Zhao (2015).

² Schweller (2018).

³ Ikenberry (2008).

⁴ Christensen (2015); Friedberg (2011).

⁵ Nye (2015); Beckley (2012); Wohforth and Brooks (2015).

the author analyses which factors played a decisive role in China's development in the post-1978 era and whether they can exert similar influence in the first half of the 21st century; 3) the third section traces how the issue of technological transformation is depicted in China's strategic documents; 4) the final section assesses the impact of selected policies on China's technological sophistication.

Old logic of conflict, new grammar of commerce

In the early 1990s, Edward Luttwak argued that the post-Cold War international relations will turn from geopolitics to geoeconomics, especially as regards relations among most powerful states.⁶ Luttwak concluded that the growing economic interdependence driven by globalization increases the costs of conventional warfare and limits the usefulness of the military in foreign policy. In his view, the settlement of conflicting interests between the rivalling powers will therefore largely shift from the military realm to trade relations, technologies and economic competition. For Luttwak, the Clausewitzian logic of conflict (zero-sum game) among states remains topical, and what has changed is the set of tools and methods they employ. Similar conclusions were drawn by Robert Blackwill and Jennifer Harris, who critically concluded that the United States 'too often reaches for the gun instead of the purse'. Blackwill and Harris⁷ advocated adopting a more 'geoeconomic' approach toward rising China, which could help achieve strategic goals without devastating consequences of an open or even a local conflict.

⁶ Luttwak (1990).

⁷ Blackwill and Harris (2016): 1.

In fact, they preceded the actions of Donald Trump administration which initiated trade war with China and imposed a series of sanctions upon Chinese 'national Champions' such as Huawei and ZTE.

While the sense of using the prefix 'geo-' and the theoretical foundations of 'geoeconomics' remain questionable,⁸ the aforementioned authors underline the significant dynamics of contemporary international relations. On the eve of the third decade of the 21st century, observations made by Luttwak are even more topical than they were in the 1990s. The military component remains essential for providing security of every state and can serve as an indispensable tool for securing the interests abroad (USA), even despite economic weaknesses (Russia). It can also play a vital role in deterring intervention of a foreign power (North Korea, Iran). Nevertheless, it is the position in the global value chains and technological sophistication that largely defines a state's power and its ability to advance in the international hierarchy. William Wohlforth and Stephen Brooks argue that the material power of each state is essentially an outcome of three interrelated factors: technology, economics and the military.⁹ A strong economic foundation is necessary to ensure military expenditure and the flow of innovative technologies from the civilian to the military sector. Effective application of civilian technologies in the military field, in turn, allows a state to gain advantage over other actors. What is even more significant, if one confines a conflict to economy and technology, a power shift occurs in a relatively peaceful manner free

⁸ Skarżyński (2017).

⁹ Wohlforth and Brooks (2015).

from territorial expansion, thousands of human casualties and destruction of property.

Since 1978 and the introduction of reforms by Deng Xiaoping, China has experienced rapid economic development which enabled its re-emergence as one of the world's leading powers. The material progress has not been accompanied by democratization expected to follow with greater globalization of the Chinese economy.¹⁰ Since the 2000s, the perception of China gradually shifted, as the American elites realized that China will not integrate with the West, the way Japan, South Korea or Taiwan had done. At that time, it was also accepted that China had the potential to undermine the US position as the world's sole superpower and therefore had to be approached more assertively.¹¹ American engagement in the Middle-East delayed reorientation toward Asia, but in the 2010s China clearly emerged as the defining theme in the US foreign policy. The problem faced by American decision-makers was associated with the a high level of interdependence between the Chinese and American economies and China's vital role in the international division of labour. Given the complexity of economic relations in the second decade of the 21st century, isolating China would be extremely costly for all parties to the dispute and would require a broad and determined international coalition. Economic containment of the USSR during the Cold War was possible due to the relative autonomy of two blocks, but even then it required a cohesive and determined coalition of American allies.¹² In the 21st century, a similar strategy toward China would be almost impossible since China has become deeply

¹⁰ Hveem and Pempel (2016): 196-232.

¹¹ Paszak (2019).

¹² Art (2010).

integrated with the world economy. American allies may limit China's advances in some areas such as 5G access or investments, but would not be ready to accept China's full economic isolation as it would turn against their interests. The only acceptable option for Washington was, therefore, a policy of limited economic containment which focuses on preventing China's advances in core sectors of technology and services without decisive break-up. This rational policy aims to exploit China's structural economic weaknesses and keep its development on a moderate level, so it would not endanger the US position. Trade war, sanctions against China's national champions and a broad campaign against the participation of Huawei in building the European 5G network have to be regarded as concrete measures to implement this strategy. This course of action is likely to be continued in the coming years with the Chinese authorities trying to mitigate the negative impact of deteriorating international situation.

China's imperative of transformation

Since the 1978-2007 period, China's economy has been growing continuously at almost 10% per year which led it to become the second-largest economy in terms of nominal GDP in 2010, and the largest economy in terms of GDP measured as PPP in 2014. China's economy has grown from modest \$149.5 billion in 1978 to \$13.68 trillion in 2018.¹³ But these spectacular material successes were possible due to the combination of a high rate of household savings and large inflows

¹³ World Bank (2019).

of foreign direct investments (FDI).¹⁴ Another crucial component of transformation was the reallocation of a vast workforce from the agricultural sector and rural areas to cities, where it could be used for the development of industry and later services.¹⁵ These processes helped with creating a cheap labour market, highly attractive to Foreign International Enterprises (FIE's) aiming to optimize their production costs. In short, China's economic growth was predominantly based on massive mobilization of resources such as labour and capital. As a result, China has become 'world workshop', largest trading nation, and quickly moved from producing low value-added goods to more sophisticated commodities such as machinery and electronics. Despite great advances, China still significantly lags behind most developed countries when it comes to GDP per capita, Human Development Index, productivity, efficiency, and indigenous innovation. Almost two-thirds of value-added of high-tech exports are in fact completed by FIEs¹⁶ and, in contrast to South Korean or Japanese industries, the bulk of China's high-tech exports comes from assembling imported components. China's energy efficiency in manufacturing amount roughly to one-quarter of the United States and around one-tenth of its labour productivity.¹⁷ Stephen Brooks and William Wohlforth further argue that it is relatively easy to move from an underdeveloped to middle- or upper-middle-income economy, and what constitutes a real challenge is to achieve a developed-economy status.¹⁸ Given the aforementioned indicators, China faces the great-

¹⁴ Khalid (2012): 48.

¹⁵ Regis (2019).

¹⁶ Gao (2012): 198.

¹⁷ Gao (2012): 199.

¹⁸ Wohlforth and Brooks (2014): 26; Kharas and Kohli (2011).

est developmental challenge since 1976. To maintain high growth rates without endangering its sustainability, China's authorities cannot rely anymore on cheap labour, massive investments and assembling products for transnational corporations. The future goal is to build domestic technological capacity, innovative and efficient industries, increase domestic consumption and the role of services.

The world financial crisis has demonstrated that overreliance on exports is a double-edged sword that alongside multiple benefits can also cause substantial damage to the industry and workplaces.¹⁹ To reduce negative implications of the drop in demand and falling exports, the Chinese authorities were forced to launch an economic stimulus program worth \$586 billion, but total net new bank lending was increased to \$1.4 trillion in 2010.²⁰ These trends were accompanied by deteriorating investment return rates – the consequence of massive governmental anti-crisis programmes. The economic model adopted in the 20th century focused primarily on mobilization of resources rather than improvement of efficiency. China's economic growth since 2010 has been steadily falling, and in 2018 dropped to 6.6% - the lowest level in 28 years. In 2019, it further shrank to 6.1% and the IMF forecasts that in 2020 the growth rate will drop to 5.8%.²¹ While it is still an impressive rate, it clearly shows that the Chinese authorities have to find different sources of growth to address rising social pressures. Intensified American pressure, aging populations and rising social expectations make transformation an imperative. The inability to sustain economic growth means that China will not

¹⁹ Cai and Chan (2009).

²⁰ World Bank (2010).

²¹ IMF (2019).

become a superpower comparable to the United States and therefore will share the fate of other failed potential superpowers of the 20th century, such as the Third Reich, the USSR, and Japan. The authors of the 2019 China Defense White Paper are therefore right in concluding that China has entered ‘a critical stage of its historical development.’²² The issue of transformation has become one of the most persistent topics in the official Party discourse. The failure to address the structural problems of the economy will result in China’s waning chances of becoming a truly global superpower. Therefore, the technological sphere in the third and fourth decade of the 21st century will likely witness intensification of the US-China competition, as Beijing will try to climb up the ‘ladder’ of international division of labour, and Washington will attempt to impede these efforts.

Technological modernization in light of strategic documents

The realization that to withstand and overcome internal and external pressures the CPC has to introduce qualitative reforms of China’s economy resulted in significant efforts made by the Party to build domestic technological capacity. In fact, since the very establishment of the People’s Republic of China, self-reliance both in economic and technological aspects was one of Mao’s greatest ambitions. It could not be fulfilled due to the devastating impact of ‘the Great Leap Forward’ and the Cultural Revolution on China’s economy and social life. After Mao’s death and Deng’s election by Politburo as a chief leader, the door to rational economic reforms and technological advances has been opened. On the conceptual

²² PRC State Council (2019).

level, there has been a higher degree of continuity between the 'revolutionary' and 'reform' eras than is commonly recognized.²³ Self-reliance, even if unreachable at that moment, has been a pervading idea resonating within the Party. In the post-1978 era, science and technology were identified as one of the 'four modernizations' – the guiding and overarching concept of Chinese transformation, later inscribed into the Party and state constitutions.²⁴ Technological progress has been pursued mainly through Foreign Direct Investments (FDI) based on the principle 'Market for technology' or *Quid Pro Quo*.²⁵ This model of technological advancement, despite some tangible gains, has failed to deliver expected progress and domestic innovative capacity. Since the early 2000s, the approach toward the issue has been changing, but it was in 2005-2006 when China started pursuing an ambitious national innovation agenda in earnest.²⁶

In 2005, the Chinese administration issued *Outline of Medium and Long-term National Plan for Science and Technology Development* (MLNP). The plan emphasized the innovation-driven development and prioritized specific areas for improvement. MLNP pushed for advancement in particular as regards core technologies, agriculture, defense industry, and human capital. The document set the following goals for China to be achieved by 2020: rising Gross R&D expenditure (GERD) as a share of the GDP to 2.5%, contribution of S&T to economic growth to reach 60%, dependency on foreign technology to fall below 30%, China among

²³ Kerr (2006).

²⁴ Hsü (1990): 92-94.

²⁵ Holmes, McGrattan, Prescott (2015).

²⁶ Ding and Li (2015): xxi.

five leading nations in terms of patents granted per capita.²⁷ Most of these expectations were beyond China's real abilities (as 'leapfrogging' technological leaders), however, the document set the direction for the 11th, 12th and 13th Five-Year Plans (FYPs) which set out more rational targets. The course has been maintained or even strengthened since Xi Jinping took power in China in 2011. The trade war with the United States further accelerated the debate about 'technological autonomy' and 'decoupling', and strengthened the position of CPC hardliners.²⁸ These efforts include both the level of strategic planning and practical implementation of set out goals. China's 12th and 13th FYPs made it clear that the restructuring of the economy has to be treated as an imperative for China's future development. The 12th FYP (2011-2016) concludes: "Scientific progress and innovation will support the transformation [...] China should upgrade its capabilities in indigenous research and innovation in science, technology and administration, train more innovative talents and improve education for workers."²⁹ The document also stressed the significance of increasing R&D spending and achieving technological autonomy, which can be translated as a drive to reduce reliance on American software and hardware. For that reason, the US and the governments of major innovation leaders criticized this policy for its discriminative approach toward foreign enterprises.³⁰ The 13th FYP has to be regarded as a clear continuation of the 12th and 11th FYPs as it reiterated major goals envisioned by the preceding documents, which aimed to rebalance and restructure the Chinese

²⁷ Ding and Li (2015): 10-11.

²⁸ Wei (2019).

²⁹ PRC National People's Congress (2011).

³⁰ Koleski (2017): 7.

economy. The ongoing shift is expected to reduce overreliance on investments, infrastructure, exports, and base long-term growth on domestic consumption and innovativeness. To achieve that, the 13th FYP advocated greater emphasis on ‘innovation-led growth’ and more sensible investments with greater return rates. The analysed documents show considerable continuity and consistency as regards their vision of China’s development paths. While there were some modifications of targets or prioritized areas, they were cosmetic in character.

FYPs provide a general framework for more specific policies oriented toward more specialized areas, among which *Made in China 2025* (MIC) and *New Generation Artificial Intelligence Development Plan* are particularly significant as they cover critical technological areas. *Made in China 2025* was launched in 2015 as an ambitious attempt to create globally competitive companies in the core sectors of the economy and to reduce reliance on foreign technologies.³¹ The strategy pursues ‘indigenous innovations’ and ‘self-sufficiency’ which can be achieved by increasing the market share of Chinese suppliers for “basic core components and important basic materials” to 70% by 2025.³² Other MIC targets include 40% of mobile phone chips as well as 70% of industrial robots and 80% of renewable energy equipment to be manufactured domestically in China by 2025. The strategy identified ten sectors as crucial for future development: ICT, robotics, aerospace and aviation equipment, maritime equipment and shipbuilding, railway equipment, energy-efficient and new-energy vehicles, electrical equipment, new materi-

³¹ Zenglein and Holzmann (2019): 8.

³² Wübbecke, Meissner, Zenglein, Ives, Conrad (2016): 7.

als, medical devices, and agricultural machinery. The motivations underlying the MIC strategy are perfectly rational since a major share of equipment used in China's industry, particularly in high-tech sectors, is heavily reliant on imports of crucial components. Around 70% of China's advanced textile machinery, 80% of manufacturing equipment for integrated circuits, and almost all fibre optic equipment is of foreign origin. As Xuedong Ding and Jun Li concluded: "In this sense China is still a 'manufacturing country' rather than a 'creative country'."³³ The aforementioned goals have to be achieved both by raising R&D investments, tax/financial incentives, and a growing volume of Chinese FDI in developed countries. Mergers and Acquisitions (M&A) of high-end companies with established market access can further accelerate the process of transformation and enhance the position of Chinese enterprises on the Old Continent.³⁴

New Generation Artificial Intelligence Development Plan was officially released on 20 July 2017 by the PRC State Council. AI was identified by the Chinese authorities as one of the crucial technologies of the 21st century in which China has a real chance of becoming a true leader both as regards quantity and quality. The largest base of internet users, unconstrained access to a large amount of data, digitalization of everyday services and generous government funding are perceived as China's major strengths.³⁵ The assessment of AI's role as one of the leading technologies in the future was shared by McKinsey report which concluded that effective implementation of AI in nineteen identified sectors

³³ Ding and Li (2015): 9.

³⁴ Paszak (2017).

³⁵ Lee (2018).

can generate up to \$5.8 trillion annually.³⁶ The Plan outlines a three-stage strategy of building the world's leading industry by 2050. During the first stage (by 2020), it is expected that AI will become an important driver of economic growth and the value of the AI industry will rise to over RMB 150 billion with related industries worth RMB 1 trillion. The document anticipates that several Chinese companies will assume the leading role in some very specific technological fields, such as e.g. intelligent big data. The next stage (by 2025) includes dissemination of AI solutions to numerous areas and industries, such as digitalized industry, high-end healthcare, smart cities, smart agriculture, and national defense. The value of China's indigenous AI industry is set to rise to over RMB 400 billion with related sectors exceeding RMB 5 trillion. At this point, a new legal framework including practical and ethical standards as well as an institutional regime starts to take shape. The third and final stage envisages China as the global leader of the world's AI industry with most competitive enterprises, top-notch scientific and research capacity and the most sophisticated talent pool. By that point, AI is widely employed in manufacturing, services, military and public systems. The total worth of AI business in China hits RMB 1 trillion, and related industries account for over RMB 10 trillion.

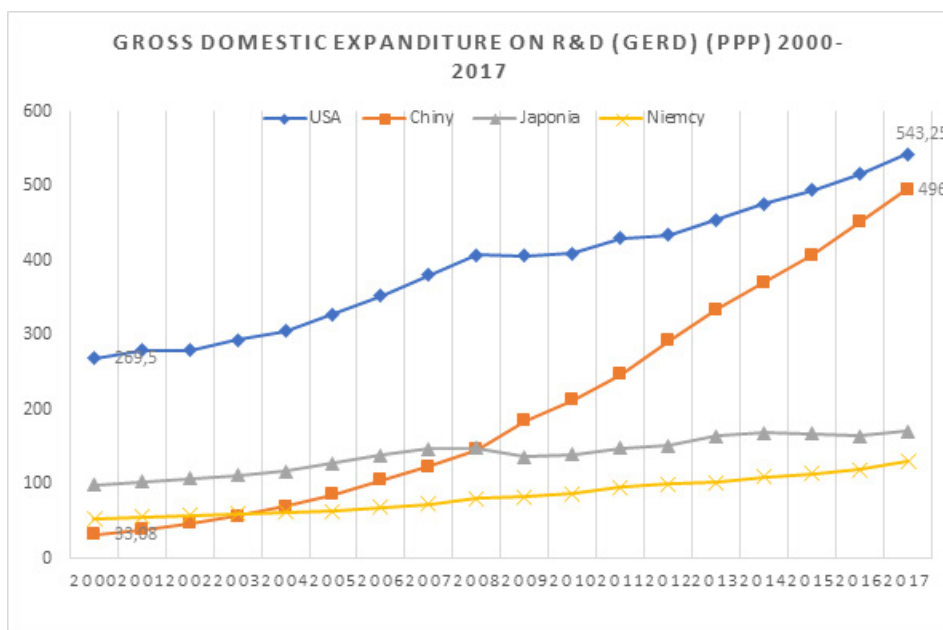
On the level of strategic planning, the Chinese authorities have accurately identified most important technological deficiencies, set many ambitious goals and incorporated several policies to achieve them. Nevertheless, previous experiences suggest that at least some of the targets might be unrealistic and China may reach very few if any of them. While strategic

³⁶ Kaniyar, Srivastava, Tisnovsky (2019): 18.

planning is necessary, very often it does not take into account that such things like ‘innovation’ or ‘technological advancement’ are a product of a complex interplay of multiple factors and cannot be centrally planned or designed.

Closing the technological gap

Increasing R&D capacity remains at the forefront of China’s efforts to become a technological leader and a developed economy as reflected in the priorities set out in the FYPs, MIC and official statements of top politicians. During the 2000-2017 period, China’s Gross domestic expenditure on R&D (GERD) grew from modest \$33.08 billion to \$496 billion while at the same time American spending rose from \$269 billion to \$543 billion.³⁷



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OECD (2020).

The US advantage remains significant, especially given the effect of GERD accumulation over the years and the efficiency rate of spending, yet this advantage has weakened considerably in relative terms. In 1991, China's R&D expenditure accounted only for 0.72% of its GDP, while in the case of the US and Japan it accounted for 2.5% and 2.7% respectively. Since the beginning of the 21st century, China's share of GERD in the GDP rose from 0.89% to 2.14% in 2017.³⁸ While some progress has been made, it is still below 2.5% set in the 13th FYP³⁹ and the indicators achieved by most innovative economies such as the United States (2.78%), Japan (3.21%), South Korea (4.55%) or Germany (3.038%).⁴⁰

Intensified spending in recent years, despite questionable efficiency,⁴¹ has brought some positive results such as improvement of the ICT-Index and the Global Innovation Index (GII). These indicators have been designed by Cornell University, INSEAD and World Intellectual Property Organization (WIPO) to measure international innovation trends. Since 2011, China has recorded a rapid rise in the ICT ranking, improving its rate from 28.4 to 74.5 points in 2019.⁴² Simultaneously, the US has also made substantial progress from 67.4 to 89.7 points maintaining a healthy advantage but relatively weakening. The ICT Index provides insights only into a narrow field, a wider picture is provided by GII which, apart from ICT, comprises multiple various factors. From 2011 to 2019, China improved its GII from 46.33 to 54.82,

³⁸ OECD (2020).

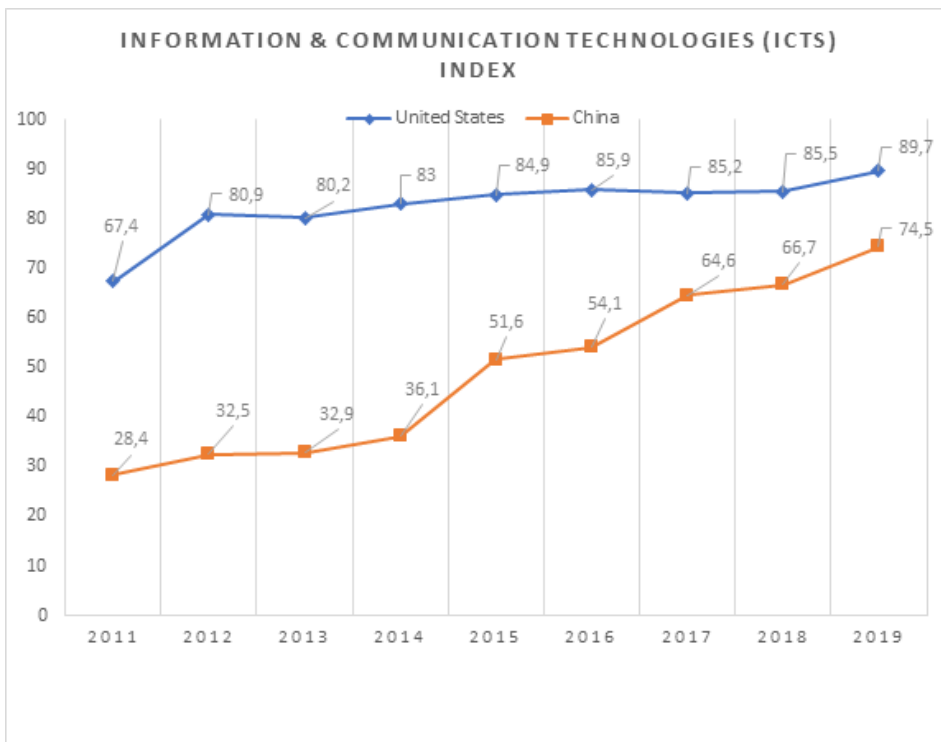
³⁹ China Power (2019).

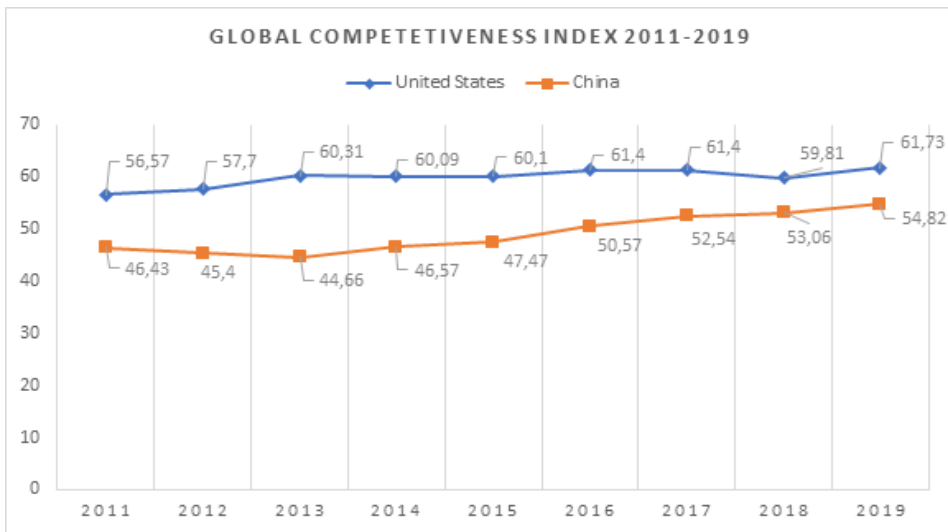
⁴⁰ OECD (2020).

⁴¹ Han C., Thomas S. R., Yang M., Ieromochnachou P., Zhang H. (2017); Hong J., Feng B., Wu Y., Wang L. (2016).

⁴² WIPO (2019).

while the US advanced from 56.57 to 61.73.43 Gains are not as striking as in the case of ICT, but nevertheless it helped China narrow the gap vis-à-vis the US. It is also worth noting that China started from a relatively low position, therefore at the initial stage gains were easier to achieve. The true challenge will be to continue the positive trend in an increasingly hostile international environment, facing exponentially more complex technical problems.





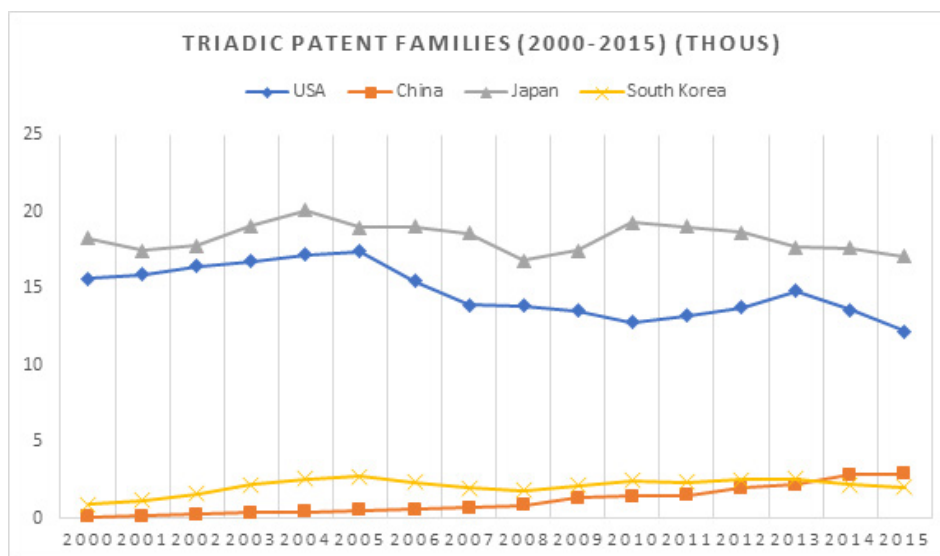
The dynamic rise of patent application both domestically and abroad can be also to some degree credited to innovation-oriented government policies and higher R&D spending. The total number of sophisticated patents is one of the indicators that reflect a country's level of innovation as well as its ability to protect key technological inventions. China's domestic patent applications have been rising sharply since 2011, with abrupt acceleration in 2014 that continued until 2017. The total number rose from 0.938 to 3.536 million and more than tripled over the course of six years. Despite an extraordinary growth, this process almost certainly does not precisely reflect China's improving innovativeness or effectiveness of R&D spending. The post-2011 situation resembles 'the Great Wall of Patents' after China's entry to the World Trade Organization in 2001,⁴⁴ when the number of applications rose sharply, but they were mostly of low quality. The sudden rise of applications coincides with the launch of policies and strategies and can be explained by the drive

⁴⁴ Hu and Jefferson (2009).

of local governments and companies to respond to the political pressure and financial incentives provided by the central authorities. The argument that quantity does not translate into quality can be supported by OECD data about triadic patents. Triadic patents are widely considered to be the 'gold standard' of patents since they are jointly filed in the Japan Patent Office, the United States Patent and Trademark Office and the European Patent Office. Patents granted by these institutions ensure real protection of intellectual property and its innovativeness, but are difficult and costly to obtain.⁴⁵ The graphic demonstrates that China has been making a steady progress in the ranking, surpassing South Korea but still lags far behind the US and Japan. Of all granted patents only 19% were recognized as 'inventions', the rest was split between 'utility models'(56%) and 'designs' (25%). Inventions constitute the most sophisticated category of patents, while utility models and designs are regarded as second-class patents. What is more, China's patents are largely concentrated in the ICT industry, due to the robust development of telecommunication champions such as Huawei and ZTE.⁴⁶ China is fairly innovative in ICT, as exemplified by its advances in 5G development, but fails to reach similar highs in other areas. Therefore, while the rising number of domestically filed patents can to some degree be indicative of positive changes in China's economy, it does not level with the position of global technological leader.

⁴⁵ China Power (2019).

⁴⁶ Ibidem.



Since 2014, the Chinese authorities have also intensified efforts to build an indigenous semiconductor industry, which could eliminate one of China's greatest technological vulnerabilities. Semiconductors/ 'chips' or integrated circuits (ICTs) are a vital part of most highly advanced electronic appliances such as computers, smartphones, medical equipment or industrial machinery. Their production is arguably one of the most knowledge-intensive and lucrative sectors of manufacturing.⁴⁷ What is more, it is also dominated by American giants such as Intel, Qualcomm, Broadcom, Micron or European (NXP, STM and Infineon), Japanese (Toshiba, Sony) or Korean (Samsung, SK Hynix) companies. This further complicates China's situations, since the potential sources of knowledge are located in the countries which are its strategic or industrial competitors. Chinese chipmakers account only for 5% of the world and 16% of domestic markets⁴⁸ and

⁴⁷ VerWey (2019): 3.

⁴⁸ SIA (2019): 3.

even devices made by Huawei, ZTE or Lenovo are predominantly based on imported components. Potential entry of any company into the semiconductor market encounters numerous obstacles, e.g.: ‘first mover advantages, economies of scale, brand recognition, stickiness and customer loyalty, intellectual property (IP), and most importantly, high and fixed capital expenditures’.⁴⁹ Sanctions imposed on Huawei and ZTE by the administration of Donald Trump demonstrated that semiconductors can also play a substantial role in the strategic competition between the two countries. It further convinced the Chinese elites that building a national and independent chip industry is necessary both for the economy and national security. In April 2016, President Xi warned that: “Internet core technology is the greatest “vital gate”, and the fact that core technology is controlled by others is our greatest hidden danger.”⁵⁰ In November 2018, he further asserted that: “Internationally, advanced technology and key technology is more and more difficult to obtain. Unilateralism and trade protectionism have risen, forcing us to travel the road of self-reliance.”⁵¹ In June 2014, the National State Council released *Guidelines to Promote National Integrated Circuit Industry* which highlighted the need to accelerate development of the chip industry by creating the National Integrated Circuit Industry Investment Fund and tax incentives. The first round in 2014 raised RMB 138.7 billion and the second round in 2019 collected RMB 200 billion primarily from governmental institutions and state-owned-enterprises. Despite numerous reaffirmations of the strategy, in 2018 China imported integrated circuits worth over \$300

⁴⁹ VerWey (2019): 4.

⁵⁰ Xi Jinping (2016).

⁵¹ Wildau (2018).

billion recording a staggering deficit of over \$200 billion.⁵² For the first time, this number exceeded \$300 billion, which means that China's dependence on imported chips is not increasing but weakening.

Expansion of Chinese Foreign Direct Investments (FDIs) intended to acquire high-end companies, improve market access and force technology transfers are another tool in the transformation process. One of the examples is the growing volume of Chinese venture capital in the US, which was growing steadily since 2009 and in 2016 reached a record-high level of \$46 billion.⁵³ Rising security concerns in the US prompted the government to introduce a screening mechanism designed to prevent unwanted transfer of sensitive technologies. As a result, in 2017, the value of investments fell to \$29 billion and in 2018 it dropped even further to a mere \$4.8 billion. Similar activities have taken place also in Europe. During the 2011-2013 period, the influx of capital from China tripled reaching €6-8 billion annually, yet the breakthrough came in 2014 when the inflow of Chinese capital into the EU rose to €14 billion. In the following years, this amount grew exponentially to €20 and €34 billion in 2015 and 2016 respectively.⁵⁴ Symptomatically, the share of M&A in all transactions ranges from 86 to 95%,⁵⁵ showing that Chinese investors are not interested in building new industrial sites (Greenfield Investments), but in seeking valuable assets such as: technologies, market access, valuable brands or organizational and managerial experience. Even more telling is the fact that as much as one-third of the invested capital

⁵² CSIA (2019).

⁵³ Hanneman, Gao, Lysenko (2019).

⁵⁴ Hanneman and Huottari (2017): 5.

⁵⁵ Ibidem.

goes to the high-tech sectors which are the main drivers of innovation and R&D. Geographical concentration of capital in the most powerful European economies as Germany, UK, France and Italy⁵⁶ further demonstrates that in the long run this process is oriented toward gaining competitive advantage and technological 'self-sufficiency'.

Conclusions

During the first two decades of the 21st century, China has emerged as the only potential challenger of the US hegemonic position in the international system. Since the beginning of Donald Trump's presidency, the competition between the two countries intensified but was largely confined to the economic and political realms. The devastating costs of a potential armed conflict make it an undesirable option for both sides, leaving technology and economy as a relatively peaceful setting for a resolution of the superpower competition. The severity of structural stresses imposed on the system by Sino-American rivalry will be determined by the ability of the Chinese leadership to sustain high growth rates. China faces an imperative of transformation as the previously employed model of development is not capable of delivering the desired outcomes. China's authorities cannot rely anymore on cheap labour, massive investments and assembling products for transnational corporations. The future goal is to build domestic technological capacity, innovative and efficient industries, increase domestic consumption and the role of services. Particularly important is the creation of cutting-edge AI industry, digitalization and

⁵⁶ Paszak (2017).

informatization of existing industrial sites, further development and expansion of IT and Telecommunication and other high-end sectors. Achieving 'self-sufficiency' and reducing dependence on software, semi-conductors and advanced machinery of foreign origin is another leading motivation. The trade war and American sanctions imposed on Chinese companies have exposed and exploited these technological vulnerabilities accelerating the debate about economic 'autonomy'. To achieve the envisioned goals, the CPC has recognized technological progress as a leading theme in strategies, policies and programs such as the 11th, 12th and 13th Five-Year Development Plans, Made in China 2025 or New Generation Artificial Intelligence Development Plan. In order to reach the ambitious goals set by the documents, the Chinese authorities have employed a wide array of instruments such as tax deductions and subsidies for R&D activities, public investments in crucial sectors such as semi-conductor industry, support for high-profile FDIs. These initiatives so far have brought mixed results. China has progressed in many fields: its GERD has risen to more than 2.1% share of GDP and its total value has reached almost \$500 billion in 2017; from 2011 to 2019, China improved its GII from 46.33 to 54.82 and the ICT-Index from 28.4 to 74.5 points;⁵⁷ the total number of domestically filed patents rose from 0.938 to 3.536 million. Contrary to the Party's bold rhetoric, reliance on foreign technology, especially on imported advanced machinery and semiconductors, has not decreased. The increasing number of patents, while impressive, does not tell the whole story, as it is driven primarily by low-end applications. In the case of China, quantity does not necessarily translate into quality.

⁵⁷ WIPO (2019).

Given that, China faces an enormous challenge. Successful transformation will help China sustain high growth rates in the long-term and enable it to become the next superpower undermining the US long-standing supremacy. Failure to address most pressing structural challenges will result in a stalled growth and waning chances of becoming a truly global superpower.

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Environmental impact of mishandlings on tankers

Abstract

Sea transport of liquid substances (petroleum and its derivatives) is done with the use of vessels called tankers. Their incorrect operation constitutes a great threat to the natural environment of maritime areas. Neglect of individual operations or failure to observe guidelines in many cases lead to oil spills the consequences of which are frequently irreversible and pose a threat to environmental safety.

This article analyses the threats engendered by improper operation of oil tankers and describes how the operations necessary in transport of liquid substances with the use of tankers should be performed. It is an important issue since elimination of the abovementioned threats at the same time favours the efforts aimed at the highest possible degree of safety of marine natural environment (or more broadly ecological safety).

The article also attempts to answer the following questions: *Is the majority of disasters involving tankers caused by a human factor? Are the disasters rather caused by political factors and armed conflicts?*

The answer to those questions may form a basis for further research aimed at raising the level of marine safety.

Keywords: tanker, environmental safety, ecological safety, marine safety, transport of liquids, crude oil

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Introduction

Oily liquid substances become dispersed on the surface of water very quickly. Negative effects of a leak are evident several minutes afterwards. Such leaks cause, *inter alia*, ecological damage, death of sea animals or financial losses. After a spill the marine ecosystem remains upset, and sometimes it becomes devastated.

The issues concerning marine safety are rarely encountered in Polish studies, more frequently in foreign ones, though they are mainly considered in the context of threats caused by adverse weather conditions or littering of water reservoirs and the adjacent areas.

Incorrect operation of oil tankers constitutes an enormous threat to the environment – especially seas. Petroleum products and crude oil are most frequently transported by tankers. They are characterized by large density and weight. Crude oil forms a barrier to oxygen and solar rays.

A well-insulated and equipped tanker reduces the possibility of a leak. The operational requirements concerning the construction and equipment of tankers are contained in Annex I of MARPOL Convention. Special emphasis is placed on the discharge of transported goods since this operation causes most of the pollutions getting into the sea. Good training of ship and terminal crews also prevents routine errors. The article will expound on these topics.

Threats caused by improper operation of tankers

Tankers are surface vessels capable of transporting liquid loads.¹ Sometimes the term *oiler* is used is used for *oil tankers*. Tankers are used mainly for the transport of petroleum and its derivatives. In case of a leakage of such substances the aquatic ecosystem becomes gradually upset.²

The contemporary dangers of tragic consequences arising from incorrect operation of tankers are leaks caused by an explosion, collisions of tankers with other vessels or stranding. However, a threat may arise at any time of the operation of a tanker, even during cleaning, sampling, probing or loading operations. According to the authors of the publication *Ropa naftowa w transporcie morskim (Petroleum in sea transport)* out of 38 oil leaks – 11 were caused by stranding, 11 by collisions, 8 by fire and collisions, and 8 by construction defects of the hull.³

Enormous quantities of petroleum get into the sea as a result of collisions of tankers, though the largest quantities of crude oil leak out into the water upon extraction.⁴ Nevertheless, tanker leaks continue to constitute a great threat to the safety of marine environment.

Tankers used for transport of combustible liquids are considered to be the most dangerous type of vessels. In the majority of cases their damage starts an ecological disaster.

¹ Wiewióra, Wesołek, Puchalski (2007): 19.

² <https://www.gospodarz.pl/encyklopedia-rolnicza/r/ropa-naftowa.html>, [access: 02.01.2020].

³ Wiewióra, Wesołek, Puchalski (2007): 123.

⁴ <https://histmag.org/Nie-tylko-Exxon-Valdez-czyli-jak-ropa-trafia-do-morza-8746>, [access: 02.01.2020].

Fires and explosions have been one of the greatest threats occurring on tankers since they started to be manufactured. The “black” month was December 1969. Three major explosions occurred in only one week:⁵ *Margessa*, *Maetra* and *King Haakon VII*. It is interesting to note that until then fifty explosions had occurred which had killed as many as two hundred fifty crew members.

It has been disclosed that the cause of the three accidents was probably static electricity which is generated during high-pressure washing.

An explosion, otherwise called a chemical burst, is a violent chemical reaction during which large quantities of gases and vapours are released. When a fire starts, it is not the liquid that is burning but its vapours which are so hot that they evaporate from the liquid. This happens when the mixture of hydrocarbon vapour and air become so concentrated that it becomes combustible. Therefore, the lower (LEL) and upper (UEL) explosion limits are distinguished. If the concentration of vapours is below LEL no combustion can take place because the excess of air will absorb the heat generated in the initial phase triggering the incident. On the other hand, UEL is the highest concentration of vapours of combustible materials in air at which combustion is possible under the impact of the trigger. If the concentration of vapours exceeds UEL – no fire will take place.⁶

Each component of the transported mixture has its LEL and UEL. When inert gas is introduced to the mixture of hydrocarbon vapours and air, its flammability limits will be narrowed (LEL will increase and UEL decrease). Alongside

⁵ Wiewióra, Wesołek, Puchalski (2007): 123.

⁶ Ibidem: 124.

growing concentration of inert gas, the gap between LEL and UEL will continue narrowing creating a flammable space. The greatest risk of entering the flammable area is generated by incorrect thinning with air or inert gas. The person performing this operation should be properly trained and possess the know-how when and how the thinner is to be used correctly.⁷

A serious step towards a disaster is also spontaneous combustion. It may be differently called the initiation of burning through slow but even warming of the combustible mixture in its entire mass. No external stimulus contributes to this process. To contain spontaneous combustion temperature of the flash point should be controlled. It is the lowest temperature at which liquid fuel can vaporize to form an ignitable mixture in ambient air. There are two types of flash point: in an open and closed crucible. The former is higher than the latter by about 6 °C, which is connected with hydrocarbon vapours in the open crucible method. However, the closed crucible methods is more commonly used.⁸

Carrying liquids over on open sea space always involves a fire hazard. However, flammability of each liquid is different and that is why over the year many liquid flammability classifications have been developed. Classification of dangerous goods is contained in the International Maritime Dangerous Goods Code (IMDG). There are three classes which are further divided into sub-classes. Crude oil as well as petroleum products are included in Class 3 – Flammable liquids. This means that they are most easily combustible liquid loads.

⁷ Ibidem: 127.

⁸ Ibidem: 128.

The majority of them are also volatile which also increases the possibility of a hazard during their transport.⁹

The dangers resulting from mishandling of a tanker may be innumerable, though most frequently they are crashes (as in the case of *Atlantic Empress* and *Aegean Captain*)¹⁰, earlier mentioned technical problems during washing, sampling, probing, loading and unloading of goods, tank ventilation and any single operation connected with a tanker. Any mistakes and flaws are the first step to an ecological disaster; therefore, it is extremely important to perform each operation caring for all details.

A large source of water pollution is also docking of vessels, bilge water and fuel as well as accidents of vessels carrying dry loads.¹¹

As commercial vessels tankers are also in danger of terrorist attacks. Petroleum and its products constitute one of major loads the aggressors desire to capture. Tankers practically have no proper safeguards and are unprepared to fend off a terrorist attack. Owing to a small number of the crew and high flammability of petroleum products tankers are not equipped with firearms (even for self-defence or as a deterrent). The additional features encouraging terrorists to attack is the autonomy and independence of vessels from supplies from land as well as their mobility and communications equipment. The cargo carried by a vessel may become an object of negotiations since it is not only valuable itself but may also be used as an explosive.¹²

⁹ Ibidem: 129.

¹⁰ <http://eszkola.pl/wos/katastrofy-tankowcow-7001.html>, [access: 02.01.2020].

¹¹ Włodarski (2001): 55.

¹² Szulczewski (2007): 31.

Oil Record Book

Each tanker with a displacement above 150 BRT (gross register tons) should have an Oil Record Book (ORB) on board. It is used for recording each operation involving pure crude oil, its derivatives and mixtures. Operations are divided into those performed in the engine room and loading/ballasting operations. Book records are coded as provided for in the MARPOL Convention. Each recorded information should be dated and signed by the officer responsible for its performance. The officer should also initial each page of the Book.¹³

Part I of the ORB (Machinery space operations) includes the following records:¹⁴ ballasting or cleaning of oil fuel tanks, discharge of dirty ballast or cleaning water from oil fuel tanks, collection and disposal of oil residues from fuel tanks, discharge of bilge water from machinery spaces.

In Part II, cargo / ballast operations are recorded, namely¹⁵: loading of oil cargo, internal transfer of oil cargo during voyage, unloading of oil cargo, ballasting of cargo tanks and dedicated clean ballast tanks (does not apply to SBT – segregated ballast tanks), cleaning of cargo tanks including crude oil washing, discharge of ballast except from segregated ballast tanks, discharge of water from slop tanks, closing of all applicable valves or similar devices after slop tank discharge operations, closing of valves necessary for isolation of dedicated clean ballast tanks from cargo and stripping lines after slop tank discharge operations, disposal of residues.

¹³ Ibidem: 64.

¹⁴ Ibidem: 65.

¹⁵ Ibidem.

Sometimes, in the case of a hazard to life or damage of a vessel, an emergency or other fortuitous event cargo must be discharged into the sea. Each such event should be recorded in the Book and the reason for the disposal of cargo should be stated.

Records should be entered on an ongoing basis and in clear hand. It must be at all times ready for making it available for inspection by the competent authorities. It must be kept on board of the vessel for three years from the time of the last entry.¹⁶

Hazard prevention and avoidance

In terms of safeguards tankers specializing in the carriage of crude oil and petroleum products are divided into two groups. The first includes vessels without an inert gas system (removed on new oil tankers of DWT 20000 and larger), and the other one vessels equipped with an inert gas system. In the first group, the most hazardous operations are as follows:¹⁷

- loading,
- unloading,
- tank ventilation (a safe process of thinning inner atmosphere in the tank with air),
- tank washing.

During the above mentioned operations the inner tank atmosphere may enter the so-called explosive area. The major factor is time and space the explosive mixture is contained in.

¹⁶ Ibidem.

¹⁷ Wiewióra, Wesołek, Puchalski (2007): 129.

In this case, utmost care must be maintained when the tank is being washed. It is important how much time will elapse from tank washing to its degassing. Several hours after unloading a homogeneous explosive or close to explosive atmosphere is formed within the tank. The rest remains in the hands of specialists, their care as well as the type of cargo and explosive area. Alas, many times in history explosions have occurred on tankers during this very procedure.¹⁸ In this connection, the review of the SOLAS convention¹⁹ (regulations 60, 61, 62) introduced the requirement of equipping tankers with an inert gas system.²⁰

Tankers equipped with an inert gas system are safer. The only hazards they face are associated with human error. At all times during their operation oxygen concentration is lower than the limit by 11.5% by volume, which given correct operation prevents entering into the explosive area.²¹

The application of an inert gas system is correct prevention which is aimed at eliminating all possible hazards or at least minimize them. The unloading operation may serve as an example. The combination of the unloading process with simultaneous feeding of inert gas leads to changes in the composition of the atmosphere so that it is far from the combustible zone. The same goes for any other process, e.g. washing or ballasting. Introduction of inert gas maintains the atmosphere at a safe distance from the explosive area.²²

¹⁸ Ibidem.

¹⁹ *Międzynarodowa konwencja o bezpieczeństwie życia na morzu z 1974* (Journal of Laws 1984 no. 61 item 318).

²⁰ Wiewióra, Wesolek, Puchalski (2007): 123.

²¹ Ibidem: 130.

²² Ibidem: 131.

Ventilation and degassing is required only when there is a need for human presence in the tank, e.g. for repair or inspection. Inert gas should be also introduced before degassing in order to thin the atmosphere and reduce the concentration of hydrocarbon vapours. It is important as in case of degassing with air the atmosphere will enter the explosive zone.²³

Four states of the atmosphere occur during washing:²⁴

- inert atmosphere – accompanies introduction of inert gas, incapable of combustion, oxygen concentration is reduced (it may not exceed 8% by volume),
- uncontrolled atmosphere – atmosphere with any presumed composition,
- overly poor atmosphere – owing to deliberate reduction of the concentration of hydrocarbon vapours below LEL it is unable to combust. It occurs when the concentration of hydrocarbon vapours is lower than 50% LEL.
- overly rich atmosphere – is neither capable of combustion owing to the deliberate increase of the concentration of hydrocarbon vapours above UEL. For volatile products (including petroleum products) this atmosphere is assumed to occur when hydrocarbon concentration exceeds 15% by volume.

In order to maintain the highest possible level of safety before the tank is washed in inert atmosphere it should be ventilated with inert gas to obtain hydrocarbon concentration equal to 50% UEL. The correct measurement is made with special thermoconductive devices based on dependence

²³ Ibidem.

²⁴ Ibidem.

between electrical resistance and thermal conductivity of gasses.²⁵

In the course of the tank washing procedure inert gas should be fed all the time in such quantity that would block air entering the tank. What is important is that oxygen concentration at half the height of the tank and at a distance of one metre from the deck should be less than 8% by volume. When this value is exceeded, washing should be stopped immediately and then oxygen concentration in the tank atmosphere should be reduced to below 8%. Each compartment of the tank should be measured separately and the correct pressure of inert gas should be maintained – it should be higher than ambient pressure. Should underpressure develop in the tank, the washing procedure should also be interrupted and pressure should be raised.²⁶

Washing in an uncontrolled atmosphere should be performed basing on many principles. First of all, all existing sources of combustion should be neutralized. Also the number of washers (used simultaneously) should be reduced to four or three (depending on their efficiency). Then conductivity of washing hoses should be carefully examined and they have to be correctly connected before the machines are put into the tank. When the machines are in the tank hoses must not be separated (they may be loosened in order to drain water but should be tied again). People involved in tank washing should also remember that closed circuits should not be used so as to avoid washing with oiled water (it raises static electricity); likewise no chemical additives and water hotter than 60 °C should be used (in certain case it is necessary

²⁵ Ibidem: 132.

²⁶ Ibidem: 133.

but then washing should be done in an overly poor or inert atmosphere). Under no circumstances it is allowed to feed vapour into the tank and it should be all the time dehumidified. In case any slop water does appear, washing should be stopped and the tank dried out. When any objects are inserted or when probing the procedure of washing in an overly poor atmosphere should be followed.²⁷

Washing in an overly poor atmosphere is the most difficult operation with the largest number of rules. Just like in the case of washing in an uncontrolled atmosphere the tank must not be washed in a closed circuit. On the other hand, washing in an open circuit is possible only on land (in compliance with the MARPOL convention). Washing in an overly poor atmosphere should be started with flashing the bottom of the tanks and removing residues, and then flashing of pipes and cargo pumps. Out of concern for the natural environment of marine areas slop water should be collected in residue tanks. Some vessels are equipped with a universal ventilation system. On such vessels, the tank that is being washed should be separated so as to prevent the flow of hydrocarbon vapours. The entire tank should be ventilated so that the hydrocarbon vapour concentration drops below 10% LEL. In order to ensure correct measurement, samples should be collected at several heights. The composition of the atmosphere should be checked throughout washing. The alert threshold occurs when the concentration of hydrocarbon vapours exceeds 50% LEL. In such case washing should be interrupted immediately and ventilation should be continued until the concentration drops to 20% LEL.²⁸

²⁷ Ibidem: 135.

²⁸ Ibidem: 133.

An important role is played by washer type. If mobiles washing machines are used hoses should be checked regularly for any obstructions. Hoses must be connected before they are entered into the Itank. In this case chemical additives may be used, though only when the water for washing is no hotter than 60°C. Probing or inserting objects into the tank may be done only with the use of probing pipes. Each metal object inserted into the tank must stay there grounded for five hours after the end of washing (if ventilation is used this time is one hour). It is prohibited to insert into the tank any synthetic fibres and metal devices on electric cables.²⁹

Only persons with specialist training are authorized to do washing in an overly rich atmosphere. This type of washing is not done frequently because it requires generation of an overly rich atmosphere. During such washing a drop in the concentration of vapours as a result of leakage should be reckoned with. When the concentration of hydrocarbon vapours falls below 15% by volume washing should be stopped immediately (for crude oil).³⁰

The procedure of washing tanks on tankers is very complex. Only the post essential elements have been presented above. In reality, the process is very complicated. Therefore, there is high possibility of *human error* which may lead to irreversible consequences. The washing process has been explained in detail in the publication *Mycie i czyszczenie zbiorników ładunkowych na zbiornikowcach (Washing and cleaning of cargo tanks on tankers)*.³¹

Apart from washing, another hazard generating operation is the exchange of gases in tanks. This involves earlier

²⁹ Ibidem: 134.

³⁰ Ibidem: 133.

³¹ Wiewióra (1994).

mentioned ventilation, inerting and degassing. The earlier mentioned ventilation means thinning of the tank atmosphere with air. Degassing is the complete removal of all gases from the tank and filling it with air in order to ensure safe entry. Inerting is the removal of hydrocarbon vapours with inert gas.³²

In order to perform safe ventilation before cargo is accepted on board without the inert gas system it is necessary to prepare the atmosphere properly. Its hydrocarbon concentration must be lower than 40% LEL. At inspections the concentration should amount to less than 1% UEL and the tank should be all the time ventilated effectively.³³

The types of ventilation in tanks prepared for cold and hot operations are different. In a tank prepared for cold operations the concentration of hydrocarbon vapours should amount to less than 1% UEL. It is necessary to control residues and sediments so that they do not cause a rise of this concentration. The tank should be all the time ventilated. Before entering the tank it is necessary to check oxygen concentration, which should amount to 21%. When the vessel is at the wharf it is necessary to get a permission for ventilation from a representative of port authorities. In a tank prepared for hot operations the concentration of hydrocarbon vapours should also amount to less than 1% UEL. Any residues and sediments should be removed within the radius of ten metres from the site where the operations are performed. Hydrocarbon concentration should be constantly checked and there should be an appropriately trained fire-fighter present on site. All pipelines have to be cut off and

³² Wiewióra, Wesołek, Puchalski (2007): 136.

³³ Ibidem.

the neighbouring tanks should be degassed, ventilated or even flooded with water. All the neighbouring bulk tanks should be kept under control. No hydrocarbons and toxic substances must get into them. High temperature can cause a penetration of heat through the bulkhead so that the adjacent space must be filled with water or fuel above the adopted level. It may be degassed as well. Due to the fact that high-temperature operations involve a greater risk of hazard it is more complicated to get a permission than in the case of “cold” operations. Work may be started only when check lists have been filled and a permission has been obtained, and if the vessel is at the wharf it is also necessary to obtain a permission of a representative of port authorities.³⁴

There are two general methods of the exchange of gases. The first one involved mixing (thinning). It consists in feeding a gas from the outside and mixing it with the original atmosphere in the tank. The gas must be fed with the speed of 10–45 m/sec so that it gets mixed with the gas within the tank. The other method involves displacement. This method also consists in feeding a gas into the tank but it must displace the gas originally contained therein. The feeding speed does not exceed 2 m/sec so as to prevent mixing.³⁵

In order to secure an appropriate level of safety during each of the above mentioned operations samples must be collected regularly at several heights and places in the tank so as to obtain a complete measurement and the effect of the operation. When sampling a mixture of air and inert gas special care must be observed as the mixture may turn out to be explosive.³⁶

³⁴ Ibidem: 137.

³⁵ Ibidem.

³⁶ Ibidem: 138.

One of major preventive procedures is measurement. Measurements are performed all the time and in every circumstances. Thus it is possible to determine quickly and accurately the quantitative composition of various gaseous mixtures. Physical, chemical and physical-chemical methods are used. Measurement are performed with diverse devices. In individual phases of tanker operation it is mandatory to perform measurements of the concentrations of:³⁷

1. oxygen in tank atmosphere,
2. oxygen in inert gas,
3. hydrocarbon vapours in air below LEL,
4. hydrogen vapours in air at any concentration,
5. hydrogen vapours in inert gas,
6. hazardous and toxic substances in air in trace quantities.

The people who supervise the safety of operations on tankers would be well trained and watch against falling into the rut so that each operation be carried out skilfully and accurately. The correct performance of operations on tankers is, therefore, mostly dependent on the human factor, namely: the awareness of the crew of the subject of atmosphere in cargo tanks, knowledge about the functioning of the inert gas system, knowledge of static electricity, knowledge of fire precautions³⁸ as well as the application of this knowledge in practice.

³⁷ Ibidem: 146.

³⁸ Ibidem: 123.

Procedure in case of a spill

Spills constitute the greatest threat to the natural environment of maritime areas. Each, even the smallest spill must be reported immediately notwithstanding whether the reporting person is responsible for the spill or has merely noticed it. The captain of the vessel from which the leak comes is obliged to report the incident to the nearest coastal country. The report must provide the following information:³⁹ name of vessel, radio communication frequency or channel, type of vessel, name, address, telex and telephone number of vessel's owner, incident description, damage description, position, vessel's course and speed, quantity of spilled cargo, other cargo on board, efforts made to prevent water pollution.

Moreover, the captain should also report the events and changes connected with the spill on an ongoing basis. Additionally, he should also adopt measures in order not to expose the vessel and the crew to danger. In case of a petroleum spill it is necessary to do the following:⁴⁰

1. shut off the pumps and close all valves in the system from which the spill occurred,
2. call the first mate,
3. notify the engine room crew and order them to feed water onto the deck,
4. prepare fire-fighting equipment,
5. notify the terminal,
6. promptly dry the spill on deck (with oil absorbents).

³⁹ Włodarski (2001): 65.

⁴⁰ Ibidem.

In order to draw more attention to sea pollution, international conventions and legal acts of individual states (relating to spills on territorial waters) provide for penalties for persons responsible for contamination of marine environment. The penalty depends on vessel's deadweight and type of spill. The United State of America set one of the highest penalties in the world. The maximum fine amounts there to 250,000 US dollars of fifteen years in prison. Failure to inform about a spill is penalized with a fine of 10,000 US dollars or one year imprisonment. Apart from civil penalties, also penalties for vessels are imposed. The amount of the fine depends on tanker's deadweight. Additional reductions are granted is the vessel was in good technical condition and the spill was not the result of neglect and breach of regulations. Penalties for vessels amount to from US\$2,000,000 to US\$100,000,000. Because of such high penalties each owner of a vessel larger than 2000 BRT has to have *insurance against liability for damage caused by sea pollution by the authorities of the flag state*.⁴¹

In marine areas, apart from water also air may be polluted. It is exposed to pollution in particular during loading operations, ballasting, degassing with air and ventilation of tanks with inert gas. As a result of the above mentioned operations ventilators eliminate hazardous hydrocarbons and inert gas and releases them into free atmosphere.

It is possible to prevent air pollution. During loading gas from the tanks should be returned to the feedback line to the terminal installation. With ongoing measurement of pressure, during ballasting gas may be fed into cargo tanks which are then being unloaded. The detailed rules

⁴¹ Ibidem: 67.

and regulations concerning air pollution may be found in Annex VI to the MARPOL convention and in local port regulations.⁴²

Adverse effects of hazards

The majority of human errors end with a fire, explosion and then a leak of cargo onto open waters. Most damage is caused by incidents involving crude oil and petroleum products cargo. Toxicity of individual types of crude oil is diverse and depends on its composition and sensitivity of the exposed organisms. This derives from four mechanisms of toxicity. The leading mechanisms are called physical and pharmacological, the third one, slower, is called mutagenic and/or carcinogenic, and the fourth one involves photoactivation.⁴³

The physical mechanism blocks nutrient access and thus impedes development of an organism. The pharmacological mechanism affects the physiology or development of an organism. The third mechanism is slower and in a lesser degree affects the genetic apparatus of an organism since it is limited to a specific group of hydrocarbons. The last mechanism of toxicity involves photoactivation of poorly soluble compounds with a larger molecular weight.⁴⁴

Crude oil toxicity increases at lower temperatures. It happens because when temperature drops vaporization of toxic components decreases. The time for which toxic components prevail after a spill depends mostly on the presence of organisms adapted to biological degradation of toxic components in a given ecosystem as well as the condition favouring

⁴² Ibidem.

⁴³ Surygała (2001): 37.

⁴⁴ Ibidem.

biodegradation, namely suitable temperature, amount of oxygen, pH and nutrients. Sometime physical and chemical detoxification is used, though does not prove effective in every case. On the contrary – in certain situations upon removal of the causes of toxicity other equally hazardous substances are introduced. Toxicity assessment should be performed in the specific ecosystem and for specific organisms so that it covers all possible scenarios.⁴⁵

The majority of negative consequences of oil spills can be observed immediately. Oil spreads very quickly on water surface, its lightest components vaporize while the heaviest ones fall down towards the bottom. Sea animals are the first to experience the negative effects of an oil spill. Apart from toxin poisoning an oil spill causes also mechanical harm. Thick oil glues feathers of birds and immobilizes them. It also takes away the possibility to get food by poisoning fish. Walruses and sea lions are also cut off from the possibility to catch food. Going deeper into the water fish, sea horses, sponges and all other organism living under water (including bacteria) are slowed down by thick oil, they have nothing to feed on, they become poisoned with chemicals contained in oil. Oil also glues leaves and roots of plants, which are unable to go through the process of photosynthesis. Moreover, oil does not let through air which results in the cut-off of oxygen. It also blocks sun rays. Animals, plants and bacteria, that is the entire ecosystem is dying and doomed to slow annihilation.

Oil remnant prevail in water areas for a long time. After the contamination is removed it will take a very long time for the new healthy ecosystem to be reconstructed. Sometimes

⁴⁵ Ibidem.

it is impossible (depending on the amount of the spill and site of the incident as well as sea organisms affected). What is more, crude oil and petroleum products destroy the colloidal structure of soil and substrata. They upset their primary, i.e. compactness, plasticity and viscosity, as well as secondary physical features, i.e. water, heat and air characteristics. Oil also causes loss of sorptive capabilities of soils, which leads to reduction of biological life underground.

It should not be forgotten that in terms of chemistry (toxicity of hydrocarbons) negative effects of a spill of oil and petroleum products will be felt also by man. Hydrocarbons are characterized by capability to penetrate live organisms and accumulate in them. It is worth noting that hydrocarbons may get into an organism through the skin and accumulate in fatty tissue. They can also penetrate a live organism orally and by inhalation. Hydrocarbons may be swallowed with food and inhaled during breathing. Hydrocarbons are easily soluble in fat thanks to which they quickly get into the nervous system and act as narcotics by paralysing central nervous system. Lipophilic hydrocarbon components from petroleum products penetrate cell membranes. Most of the metabolic process takes place in the liver and kidneys. In the course of metabolism toxins are oxidised producing alcohols (e.g. 2,5-Hexanedione), which sometimes have negative consequences for the organism. Epoxides derived from hydrocarbons may also have tragic consequences leading to gene mutations. They stop separation of chromosomes and distort the structure of nucleic acids and proteins. Some hydrocarbons from petroleum products are exhaled through lungs, while some are retained in fatty tissue. By accumulation in fatty tissue toxins devastate organs. The contaminated organism is susceptible to inflammation, degenerations, serum

exudations, etc. In case of drinking water contaminated with even a minute amount of petroleum blood haemoglobin decreases and the number of erythrocytes is reduced.⁴⁶ There are much more negative effects of oil spills and leaks of other chemicals.

Accidents involving tankers

Atlantic Empress was a crude oil tanker. It was built in 1974. It belonged to Greece. The accident involving Atlantic Empress could actually be called Atlantic Empress/Aegean Captain, because those two tankers took part in it. The accident has been recognized as the largest crude oil spill in history.

The accident took place on the Caribbean on 19 July 1979. Both vessels were fully loaded. Atlantic Empress had the capacity of 276 DWT, and Aegean Captain around 200 DWT. Around 7 pm. near the coast of the Tobago Island the two tankers collided. Atlantic Empress caught fire. The crew of 26 seamen were killed. The ship was burning down surrounded by crude oil.

Aegean Captain caught fire only in the bow section and the crew managed to contain further conflagration. The oil spill from that ship was insignificant.

However, the fire on Atlantic Empress did not cease. The burning tanker was towed away to open sea. The surrounding oil was also partially aflame. Two firefighting operations were carried out, but two explosions took place (23 and 24 July). The largest and most destructive explosion which enhanced the fire occurred on 29 July.

⁴⁶ <http://www.e-czytelnia.abrys.pl/wodociagi-kanalizacja/2007-1-263/raport-wod-kan-2150/zanieczyszczenie-wod-gruntowych-zwiazkami-ropopochodnymi-6881> [access: 03.01.2020].

The wreck started to sink on 2 August. Oil was seeping out into water faster and faster and the vessel was becoming lighter. Certain parts were still on fire inside the wreck. Finally, Atlantic Empress vanished behind a huge black cloud. On 3 August, only an oil pool of enormous dimensions was left behind on the surface.

As a result of that accident, which lasted for 2 weeks, 280,000 tons of crude oil was spilled into the sea. It is not known how much oil was burnt and how much dispersed on the sea. People had at the time lesser than today awareness about natural environment and the hazards involved in the transport of combustible liquids.⁴⁷

Photograph 1. Atlantic Empress on fire



Source: <http://www.counterspill.org/disaster/atlantic-empress-oil-spill> [access: 08.01.2020].

⁴⁷ <https://shipwrecklog.com/log/history/atlantic-empress/> [access: 08.01.2020].

Atlantic Empress lies on the bottom of the Caribbean Sea until now and is the largest wreck in history.⁴⁸

Amoco Cadiz was a tanker built in 1974 in Cadiz. It belonged to Spain. Its capacity amounted to 233,700 DWT.

The largest marine accident on European waters took place on 16 March 1978. Amoco Cadiz was on its way from the Persian Gulf to Rotterdam. In the vicinity of the English Channel the vessel encountered a huge storm. Early in the morning one of the waves damaged the rudder and the vessel was stalled. The Pacific – a German tugboat which was called for help, arrived after three hours. The Pacific was feeding ropes but they burst because of the gale. A towline was successfully attached at 8:55 pm. However, at 9:04 pm the Amoco Cadiz hit a rock which ripped a hole in the ship. With the exception of the captain and first officer the crew left the ship. About 5 am the captain and the officer were evacuated. Several hours later Amoco Cadiz broke up in two and the cargo of 233,000 tons of crude oil was spilled into the sea.⁴⁹

Amoco Cadiz is fourth on the list of largest oil spills in the world. The oil cargo formed a pool of 29 kilometres wide and 128 kilometres long. All in all, the area of 321 square kilometres was contaminated. Hundreds of thousands of sea birds nesting at the coast died.⁵⁰

⁴⁸ <http://www.portalmarynarski.pl/najwieksze-katastrofy-tankowcow/> [access: 08.01.2020].

⁴⁹ Ibidem.

⁵⁰ https://search.alexanderstreet.com/preview/work/bibliographic_entity%7Cvideo_work%7C1792362 [access: 08.01.2020].

Photograph 2. Amoco Cadiz on fire



Source: http://www.larousse.fr/encyclopedie/images/Mar%C3%A9_noire_Amoco_Cadiz_1978/1006248 [access: 08.01.2020].

Another ship owned by Amoco was **Haven** – a tanker of the capacity of 233,690 DWT. It was built in Spain but belonged to Cyprus. On 11 April 1991, the Haven was transporting 230,000 tons of crude oil to the Multego floating platform. It was situated seven miles from the coast of Genoa (Italy). Having unloaded 80,000 tons of oil the Haven was disconnected from the platform but the pumping continued. The cargo was pumped from two side holds to the central cargo tank. A fire broke out. First officer Donatos Lilis said: “I heard a very loud noise, like iron bars beating against each

other. Then there was an awful explosion.”⁵¹ The fire whose flames reached the height of even one hundred metres engulfed the tanker. There were several explosions which ruptured the Haven. Five seamen were killed.

40,000 tons of oil poured into the sea. The first to respond was Italy. The appointed appropriate service to fight the fire and control spillage. Already on the following day the Haven’s hull was towed to the coast. Attempts were made to prevent oil from spilling onto the Italian coast. Three days after the incident the remains of the Haven went under water.

For the next 12 years the Mediterranean coast of Italy and France was polluted, The total area of the spill was 20 kilometres. It was the largest contamination ever in the Mediterranean. The effects continue to be felt until today.

Photograph 3. Haven on fire



Source: <https://www.alamy.com/stock-photo-disaster-of-haven-oil-tanker-went-up-in-flames-and-sunk-in-front-of-84289953.html> [access: 09.01.2020].

⁵¹ <http://portalmarnarski.pl/najwieksze-katastrofy-tankowcow/> [access: 08.01.2020].

Despite an excellent and quick rescue operation and emergency management until today the remains of hydrocarbons have been spilling out of the wreck which lies on the sea bottom, where also residual amounts of tar may be encountered. Interventions are made to decontaminate the wreck in order to prevent any possible leak of lubricants and oils, which are probable owing to corrosion and subsiding of the wreck's structure. These are the first operations of this type in the Mediterranean. The area where the Haven sunk is also constantly monitored.⁵²

Exxon Valdez was a vessel which crashed in 1989 at the coast of Alaska. The oil spill amounted to 370,000 tons of oil, but the Alaskan environment is very specific. Exceptional species of animals and plants were killed,⁵³ including thousands of otters, seals and hundreds of thousands of seagulls.

On 23 March 2989, just before midnight, Exxon Valdez was going to circumnavigate icebergs which blocked its route to Los Angeles. It took place in the Prince William Sound. The ship carried 240,000,000 litres of cargo which had been loaded in the nearby Alaska port of Valdez.

Exxon Valdez was negotiating the hard to navigate sound. The tanker left the shipping lane and failed to return onto it. Four minutes after midnight the ship hit a rock. The sound was in this place much wider so the cause was not too little room. The cause was human error. At the time of the incident as well as just before it the ship was navigated only

⁵² https://www.researchgate.net/publication/273991890_The_MC_Haven_oil_spill_Environmental_assessment_of_exposure_pathways_and_resource_injury [access: 09.01.2020].

⁵³ <http://portalmarynarski.pl/najwieksze-katastrofy-tankowcow/> [access: 09.01.2020].

by the helmsman and third officer. The captain was taking a nap. An additional factor of human error on top of fatigue and sleep was consumption of alcohol.

Photograph 4. Huge Exxon Valdez



Source: <http://www.maritime-executive.com/article/india-s-supreme-court-allows-exxon-valdez-into-shipbreaking-yard> [access: 10.01.2020].

Within six hour over 20% of cargo leaked out of the tanker. The clean waters of the environs of Alaska became contaminated. This was the beginning of an ecological disaster. It is not known how much oil has remained in the water. Some of it was burnt using a fire-resistant ring, and the remain were collected.

Until 26 March 1989, everything was going according to the instructions and it was hoped that an ecological disaster would be prevented. Unfortunately, on that day a storm broke out in the Prince William Sound. There were solvents poured earlier on the surface of the water which were to help in removing the spill. The strong gale beat the mixture into

a foam which was dispersed alongside the Alaskan shore. Day after day oil was dispersed further into the sea. Finally, it reached 760 kilometres and 1900 kilometres of the shore were contaminated. Beaches were occupied by a mixture of oil and solvent. The disaster was exacerbated by spring tides which are characterized by considerable variability.

Rescue operations lasted for several months. Attempts were made to protect fish nursery areas and streams inhabited by salmon. Beaches were washed with high-pressure water. Initially hot water, which, however, killed the live organism which had already been weakened. Water temperature was considerably lowered, which also diminished effectiveness. Apart from people, also planes, boats and heavy machinery took part in the operation. About half of the spilled cargo was collected, though it did not stop ecological disaster. Sea birds dies in terrible agony with their feathers glued by oil. Otters and seals had their furs glued by oil. This reduced its insulation properties which led to death because of hypothermia. Moreover, animals were suffocated by oil and died because of poisoning. Invertebrates and seaweeds were also harmed by the spill as well as its cleaning.⁵⁴

A special committee called the Exxon Valdez Oil Spill Trustee Council was appointed for the cleaning operation. In 2004, it published investigation results which showed what animal species were affected by the disaster. It was over thirty species. Some of them have not been restored until today (cormorants, seals, harlequin ducks, pigeon guillemots, Pacific herrings, various bird species). Traces of oil could be found on Alaskan beaches for years.

⁵⁴ http://www.rp.pl/artykul/275010,275722_Zbrodnia__i_kara_Exxona.html?p=3 [access: 10.01.2020].

It is worth noting that the group established by the Exxon company – ExxonMobil assumed a position most convenient for its business. Already a few years after the incident it claimed that the ecosystem of the Prince William Sound had returned to the pre-disaster condition despite the fact that oil still remained on the beaches. Exxon has to pay a high compensation to the state budget as well as to the families affected by the contamination. The captain was sentenced to 11 years of community service during which he collected garbage and helped the homeless.⁵⁵

The Exxon Valdez spill is classified 35th on the list of major tanker accidents.⁵⁶ However, looking at that spill it is obvious that it should be ranked much higher because of the enormous losses of unique species as well as many years' presence of the hazardous substances in the sound.

There have been many more disasters in the history of tankers. A major one is **Braer** which spilled about 88,000 tons of crude oil into the sea. Another major spill was caused by a tanker called **Prestige**, which contaminated the shores of Galicia by spilling 63 tons of oil. That disaster, however, resulted in the enactment of a regulation banning the use of single-hull tankers (for carrying liquid raw materials).⁵⁷

Conclusion

As it has been explained above, the majority of shipping accidents involving oil tankers are caused by a human factor?

⁵⁵ Ibidem.

⁵⁶ <http://portalmarynarski.pl/najwieksze-katastrofy-tankowcow/> [access: 10.01.2020].

⁵⁷ Ibidem.

Transport of liquid substances involves a possibility of great threat to the natural environment of maritime areas.

The greatest damage to the natural marine environment is made by spills of liquid substances because they become directly mixed with water. They require immediate response. Oil vapour and the exuding toxicity of hydrocarbons bring about adverse consequences for the safety of natural environment.

Tanker accidents do not occur as often as accidents involving other means of transport, but even the smallest collision may constitute a great hazard for ecological safety.

It is a fact that oil and petroleum products are valuable raw materials for aggressors (terrorists, pirates). Not only because of its high price. A tanker filled with oil may be used by terrorists as an instrument of terror. Tankers are not sufficiently safeguarded against unexpected incidents.

The effects of spilling chemical substances into the sea last for a very long time. Frequently, it is impossible to eliminate them completely.

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