Some Basics of Forming Marine-Transportation Clusters

Rezo Manvelidze  
Professor  
Batumi Shota Rustaveli State University  
manvelidze.revaz@bsu.edu.ge

Salome Japaridze  
Doctoral Student  
Batumi Shota Rustaveli State University  
salokoj@gmail.com

Based on global economic tendencies and international experience, in this article cluster is discussed as one of the priorities in the process of forming and realization of regional strategies. Exactly the cluster gives the opportunity to accelerate the developing of branch/region. Developing the effective clustering model by country helps to develop technological innovations, new models of business managing, simple adaptation of new technologies in market, management, marketing.

There are priorities of integration of Georgian economy and its involvement in international processes. It is proved that clusterization of logistics and operations connected with them will cause multifunctioning and more productiveness, integration of different investments will lead to effective functioning of logistic centres.

Existing the free economic zone, “Porto Franko”, Seaport, multifunctioning terminals, railway network, air and land infrastructure—all of these create extra basis of clustering formations in the region. This is strengthened also by involvement of the country in international transportation corridor, economic and infrastructural reforms.

There is also discussed the role of independent Georgia in the process of globalization as main linking transiting artery of east and west, south and north. This matter became actual for those big countries, such as: USA, members of EU, Turkey, Iran and China. This transiting artery is also important for Armenia, Azerbaijan and countries of Middle East in economic interests. In above context, it is discussed to separate Georgia as a corridor from Europe-Asia trade containering.

As conclusion, there is shown advantages of forming trade-transporting clusters, particularly:

Geolocation gives Georgia opportunity to play leading role in trade and international shipping;
Well-developed transportation-logistic infrastructure will help to grow the potential of country as transiting and rising competitiveness of transiting corridor.

Clusters can influence on public opinions, concerning ruling the territory, show the opportunities of attracting new investments and ensure the developing the economy not only in specific region, but also throughout the country;

Clustering approach of economic modernization, helps the developing of regional economy, grows the effectiveness of relations between private and state sectors, enlarges the investing opportunities of the region.

**Keywords:** Cluster, transportation system, hub, logistic infrastructure, transiting corridor, globalization.

**Jel Codes:** L91, O18, R40, R41.

**Introduction**

Taking into consideration social, economic and political factors in the world market, modern logistic infrastructure is special subject in developing of global relations. With the developing of information-communication technologies, the level of globalization will raise in every sphere and branch. Regionalising tendency is also developing gradually in the world, which helps countries to become independent subjects of global economic relations.

This research is also actual because of global problem—global changes in economy caused by coronal virus (covid-19), which also influenced relations between countries. Covid-19 made the necessity of using local recourses firstly and diversification of the ways of supplying.

Pandemy caused by covid-19 is a global crisis, which appeared to be a great threat not only for world health system, but also for global economy (UNDP). From the very beginning of pandemy, no one can predict about its negative economic and social results. Scientists call this period “Ice Age”. The Financial Times called this period destroying the global economy, noting that the microbe has defeated arrogance and reversed global production.

According to experts’ opinion, governments will do everything to stimulate economy of the specific country during the economic decrease, like developing the trade. Pandemy will push globalization to achieve mutually beneficial relations, for example it will increase mobility of top managers and white collars, who defined effectiveness of distance working on time.

Historically every pandemic situation is ended with the coordination of all strength to avoid same risks in future. As a rule, not every country has the power to provide safety for their population, so this causes the necessity of cooperation.
Restoration time after pandemy will cause some changes in global production networks and will help to develop multiple cooperation in a new, fresh and flexible way.

According to current situation, on the basis of global economic tendencies and international experience, we can admit that clusters play an important role in forming and realizing of regional strategies.

**Clusters in Marine-Transportation System**

As a rule, clustering policy is defined as unity of mechanisms which support particular firms and businesses, which helps to develop specific region/branch. In clusters and spheres related to it (Bergman E.M., Feser E.J. 1999, 13). Centres of main competence are created, which implies practise of knowledge accumulation, systematization, spreading and its effective utilizing and it is also connected with one of the courses of the organization. Its main goal is to ensure integration of knowledge and current processes for all interested and involved ones. These centres of competence are the base of long-term competence in the region (Czamanski S., Albas L. 1979,14).

According to theoretical, structural and organizational practise of clusters in different directions, we think that transportation cluster will be determined as a link of companies, firms and scientific-research centres, all of which are interested in cargo turnover, passenger touristic industries, which ensure stimulating growing additional cost by innovative instruments and more development of subjects, spheres, branches involved in unity.

**Geographic and Economic Basis of Cluster Formation**

The current processes in Georgia for last decade, its integration and involvement into international processes, appropriate geopolitical location of the country under which is meant its location on ancient crossroad, all of these factors supported cluster formation to be actual in Adjara region which is tightly connected with involving the country into the world economic relations. We should pay attention that the region has historic experience of existing free economic zones on its territory and historic experience of “Porto Franco” in 1878.

“Porto Franco”- free seaport is a name of Batumi in 1878-1886 years. This was the idea of England which demanded to declare Batumi as a Porto Franco on Berlin Congress. According to the 8th aspect of Berlin Treaty, Batumi was the third Porto Franco after Odessa and Vladivostok. (Japaridze 2017,34-39).
Declaration of Batumi as Porto Franco effected positively on the development infrastructure and industry. During this period Batumi was importing-transiting trade zone Participation in oil transportation gave Batumi the opportunity to become a knot in European transportation corridor and a large scaled transportation object of international meaning.

Nowadays, Adjara region, particularly Batumi, is important touristic and transportation centre of Georgia, which due to its unique location develops tight relations between neighbour countries, which makes the city sea resort and gives the function of sea and land gate of Georgia. Batumi seaport plays important role in the developing of Caucasus region by its index(table1):

**Statistic of Cargo Processed in Batumi Seaport**

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Dry cargo turnover, thousand MT</strong></td>
<td>1 721</td>
<td>1 203</td>
<td>1 046</td>
<td>862</td>
<td>795</td>
<td>1 189</td>
<td>694.5</td>
<td>913</td>
</tr>
<tr>
<td><strong>Oil&amp;oil products, million MT</strong></td>
<td>5.8</td>
<td>4.5</td>
<td>3.9</td>
<td>3.4</td>
<td>2.1</td>
<td>1.0</td>
<td>0.9</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Containers turnover, TEU</strong></td>
<td>72123</td>
<td>61980</td>
<td>54695</td>
<td>55781</td>
<td>76025</td>
<td>90002</td>
<td>116081</td>
<td>103302</td>
</tr>
<tr>
<td><strong>Ships call, unit</strong></td>
<td>714</td>
<td>585</td>
<td>570</td>
<td>663</td>
<td>527</td>
<td>584</td>
<td>578</td>
<td>589</td>
</tr>
</tbody>
</table>


Despite to its appropriate transportation-geographical location, during the Soviet reign, Georgia was in impasse and can have relations with other countries only after the permission of Moscow. After the restoring of independence, Georgia returned the function of international transportation crossroad.

From the period of Silk Road to Eurasian transportation corridor, Georgia always was an important crossroad, which carried transiting function. Exactly Georgia is a country which connects Europe and Asia. Currently, the most flexible, fast and main road goes through Georgia from Middle East and China to Europe.

After the getting independence, there was a great interest to Georgia as the centre of geoconomics attraction as on regional level also on international level. The main geopolitical goal of the country is to integrate in European structures and therefore it is important to form and implement geoconomics strategy by the cooperation with local and international allies (Tsitskishvili 2015,89-90);

After the implementing economic and infrastructural reforms in the country, transport and logistic sector in Georgia were successfully developed after the modernization of infrastructure, simplifying costume service and liberalization of services in main economic sectors the transiting and logistic potential of the country has risen, which provides international link with global markets.
For long-term economic development, for realization of Georgian potential as a regional hub, it is important to develop infrastructural, transportation, logistic, communicative, energetic, educational and financial hub, which is included in the state programme of 2021-2024. Accordingly industry of transport and logistic are driving of Georgian social-economic development. With supporting of cargo transporting, it is priority to develop passenger carrying. Improving of transporting network. Rising the level of transporting services and safety, is important for satisfying the demands of mobility and strengthening the potential of Georgian tourism.

Transiting Georgian corridor is a part of Europe-Caucasus-Asia corridor. Above mentioned corridor includes two main components: TRASECA corridor (table 1) and East-West energetic corridor. In 1993, in Brussel, EU held conference, where declaration was launched, according to which regional program was set up for the region of south Caucasus and Middle East-TRASECA1-the purpose of which was to modernize building of traditional ways of transport-railway, car, seaports, terminals and join with transporting corridor of Europe-Caucasus-Asia. TRASECA programme soon got dynamism and international declaration.

TRASECA helps empowering regional transporting dialogue and ensuring effective and reliable international Euro-Asian transporting relations, which serves to active development of economy.

TRASECA Route-Georgia

Table 2

![Image](http://www.traceca-org.org/en/home/)
Geopolitical location of Georgia determines the interest of neighbouring countries, also interest of European and Asian countries to use Georgia as transiting country. Therefore, railway is one of the safe, fast and ecologically clear way of transport. Important initiatives are middle and south-west corridor. Trans Caspian international transporting route – “middle corridor” includes transporting the cargo from China to Europe and back direction through Kazakhstan, Azerbaijan and Georgia. South-west corridor has a big potential for Georgia, because it joins the countries of Persian sea and India to EU countries through Georgia.

It is remarkable that through middle corridor, the amount of cargo transporting from China to Georgia and Europe, there is a sharp increase, for example, in 2019 it was 2,774 TEU which was more than in 2018, by 107.3%. Despite of some challenges caused by covid-19, that delayed trade and transporting, there is a growing tendency in 2020 also. For example, in 2020 through this route was transported 1,785 TEU during January-July which is more than in 2019 by 81.6% (983 TEU) (USAID 2017).

### Containering Transportation from China to Georgia European Countries in 2015-2019 through Middle Corridor (TEU);

*Diagram 1*

On diagram, it is shown the amount of cargo transported from China via middle corridor. According to analysis growing index of transporting we can underline some positive tendencies of Georgian railway corridor:

- To see Georgia as transiting country by international cargo transporting market;
- Through Georgia it is possible to transport that cargo which can’t be transported through other corridors;
- A new stream of cargo transporting is turned out.

The necessity of developing of logistic in Georgia is also shown in the index of World Bank logistics, (LPI), where according to latest data Georgia is on the 119th place in 160 countries. LPI is international rating which is evaluated by six criteria, which includes very important matters of logistic for countries, which is shown in the table 3.

### Factors which Determines Effectiveness of Countries’ Logistic

**Table 3**

<table>
<thead>
<tr>
<th>Resource: it is compiled by author according to the information taken from the Ministry of Economy and Sustainable Development of Georgia.</th>
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</thead>
<tbody>
<tr>
<td>Costums-Effectiveness of crossing the border and costums clearance;</td>
</tr>
<tr>
<td>Infrastructure-Effectiveness of infrastructure connected with logistics and transport;</td>
</tr>
<tr>
<td>International transporting-Simplicity of organization of transporting with competitive prices;</td>
</tr>
<tr>
<td>Competence in logistics-the quality of logistic services and competence;</td>
</tr>
<tr>
<td>Traceability and following-opportunity to trace and watch through the chain of supplying;</td>
</tr>
<tr>
<td>Indicator of providing the cargo on planned time;</td>
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</tbody>
</table>

There are identified main challenges in the direction of education in national strategy of logistic launched by Ministry of Economy and Sustainable Development of Georgia 2021-2030 years:

1. Standards on the educational market don’t coincide with international standards in the direction of transporting and logistic. Accordingly, most of these
programmes don’t respond to the international and local demands of the market.

2. Logistic is the high-developed branch. Accordingly, educational institutes which are involved in logistic sector, need high-levelled lab infrastructure and technique equipment. All of these are useful for qualified teaching. Currently, none of the educational institutes don’t provide appropriate high-technique material and technical base. (Not even TUG);

3. Academic staff in logistic sector don’t have qualification to conduct the process of teaching by high standards. German lingual programme in TUG has the problem of sustainability, after that Germany will cease the financing it (DAAD). Because there are no finances to over qualify academic staff, it is problematic to keep the quality studying.

4. Besides high education. There is also lack of short-term qualification courses in Georgia. Above mentioned is important because there should happen permanent employment and re-qualification of professionals employed.

5. There is also lack of qualified professional programmes. It is low involvement of private sector, in the direction of professional and high education programmes. When in Europe there is the best practice of actual involvement of private sector, in the direction of developing educational programmes, practise and dual teaching there is nothing done in Georgia. Companies of Georgia don’t participate in this process, except railway-transportation college, which was established by “Georgian Railway” with intellectual-financial supporting, which has appropriate accreditation.

6. There is a serious lack of qualified specialists in the branch of transportation. Despite of efforts taken by state and private sector, there is a challenge in the direction of automobile, sea, civil, aviation and railway transportation. There should be essential number of specialists and appropriate amount of qualification courses (STLG 2021).

It is important to discuss problems and challenges in the system of transportation the direction. A lot attention should be paid to four seaports, which are under private possession or rule. All types of cargo can be manufactured in Photi and Batumi seaports (dry, container, liquid). It is possible to process LPG, raw oil and oil products Kulevi seaport, as for Supsa -there can be recycled only raw oil and oil products. In these seaports cargo is mostly transiting. Negative influence has on dry, swarm and liquid decrease of economic activity in neighbouring countries. Inflexible availability was the main problem for Batumi and Photi seaport, but now there are some works concerning these problems.

In order to discharge traffic jam near the seaport, in the entrance of Batumi it was built new four-striped Estacada, in 2018, which separated roads of terminal containers and entrance in Batumi, so traffic jam was discharged. There were some investments to grow the productivity of container processing, ferry and
container spaces were separated and warehouse was added. (ses2021).

The network of car roads is the basis transportation system in Georgia. It also plays important role in linking of those countries that don’t have exit on seas in south Caucasus and Central Asia. Highway of East-West as the direction of North and South is she main axis, which gives opportunity for every region and city to have access. Accordingly building the highway I the priority for Georgian government. As it is shown in table, international cargo transporting has stable growing dynamic for last years. In 2019,10,7million cargo was transported by car, which is more than in last year by 16,8%. Growing tendency is in 2020 also.

### Car Transport Loaded with Lorries, the Amount of Transported Cargo.

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</thead>
<tbody>
<tr>
<td>Georgian export</td>
<td>692.0</td>
<td>910.6</td>
<td>968.9</td>
<td>1,430.8</td>
<td>1,253.7</td>
<td>1,513.0</td>
<td>723.9</td>
<td>619.5</td>
</tr>
<tr>
<td>Growth compared with last year</td>
<td>-</td>
<td>31.6%</td>
<td>6.4%</td>
<td>47.7%</td>
<td>-12.4%</td>
<td>20.7%</td>
<td>-</td>
<td>-14.4%</td>
</tr>
<tr>
<td>Georgian Import</td>
<td>2,975.8</td>
<td>2,952.1</td>
<td>3,299.0</td>
<td>3,705.0</td>
<td>3,894.7</td>
<td>4,376.6</td>
<td>1,871.7</td>
<td>1,972.9</td>
</tr>
<tr>
<td>Growth compared with last year</td>
<td>-</td>
<td>-0.8%</td>
<td>11.8%</td>
<td>12.3%</td>
<td>5.1%</td>
<td>12.4%</td>
<td>-</td>
<td>5.4%</td>
</tr>
<tr>
<td>Georgian Transit</td>
<td>2,638.3</td>
<td>2,708.4</td>
<td>2,886.1</td>
<td>3,628.5</td>
<td>3,992.5</td>
<td>4,783.2</td>
<td>2,209.5</td>
<td>2,509.2</td>
</tr>
<tr>
<td>Growth compared with last year</td>
<td>-</td>
<td>2.7%</td>
<td>6.6%</td>
<td>25.7%</td>
<td>10.0%</td>
<td>19.8%</td>
<td>-13.6%</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>6,306.1</td>
<td>6,571.1</td>
<td>7,154.0</td>
<td>8,764.3</td>
<td>9,141.0</td>
<td>10,672.7</td>
<td>4,805.1</td>
<td>5,101.6</td>
</tr>
<tr>
<td>Growth compared with last year</td>
<td>-</td>
<td>4.2%</td>
<td>8.9%</td>
<td>22.5%</td>
<td>4.3%</td>
<td>16.8%</td>
<td>-</td>
<td>6.2%</td>
</tr>
</tbody>
</table>


Nowadays, there are three international airports (Tbilisi, Kutaisi and Batumi) and three local airports (Mestia, Ambrolauri, Telavi and Natakhtari), two of which are in private possession, others are in own of government and belongs to state company ltd Union of Georgian Airports. According to concessional contract Tbilisi and Batumi International Airports belong to Tav Urban Georgia, Kutaisi Airport is under the control of ltd union of Georgian Airports. All these three airports have been modernized through last decade. Tbilisi Airport can receive any plane of any capacity.
According to data in 2019, there were 5.2 million passengers were in Georgian airports, which is more than last year by 3.4%. From January to July were only 0.7 million passengers in 2020, which is less by 71.0% compared with 2019, which is logical due to the pandemic situation.

After studying the experience of European marine clustering models and implementing practical researches is rational to offer our model of marine-transportation model (table3), where priority is cargo turnover with safe carrying of passenger and tourism.

Transportation Cluster Model

Table 6
In our opinion, in order to make every member active and get mutual success, effective cargo turnover in each sphere, state structure should set up rules and each participant should act according its cluster.

**Conclusion**

Above mentioned indicates, that the geolocation of Georgia gives the opportunity to play important role in international trade and cargo turnover. The well-developed transportation-logistic infrastructure supports the growth of the transiting potential of the country and raises the competitiveness of transiting corridor.

Appropriate geolocation in Adjara, powerful seaport and proper infrastructure, powerful warehouse industry, attractive investment environment, development of different directions of tourism makes the best basis for creating a marine cluster.

Clusters can affect the views of public sectors in the direction of effective governing of the territory, show the opportunity to attract investments, and provide the development of regions and the whole country also.

The clustering approach to economic modernization helps the development of the regional economy, grow the effectiveness of using the potential of private and state sectors, grow and enlarge investing opportunities of the region.

In our opinion marine-transportation cluster can be established by using the following main structural components: government, seaport, educational institutions, recreative tourism, media resources PR institutes, financial institutes, transportation institutes, non-governmental organizations, recreative tourism, transporting companies, seaport operators, and industry connected with a seaport.

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საზღვაო-სატრანსპორტო კლასტერების ფორმირება საქართველოში

რეზო მანველიძე
პროფესორი
ბათუმის შოთა რუსთაველის სახელმწიფო უნივერსიტეტი
manvelidze.revaz@bsu.edu.ge

სალომე ჯაფარიძე
დოქტორანტი
ბათუმის შოთა რუსთაველის სახელმწიფო უნივერსიტეტი
salokoj@gmail.com

ეკონომიკური გლობალიზაციის შეუქცევადი პროცესი სულ უფრო მასშტაბურად დაინსცენზა საქართველოში საბჭოთა სფეროში. ეკონომიკურ გლობალიზაცია შეიქმნა ძირითადად ახალი ტექნოლოგიების მეჩრდენებით. გარდა ახალი ტექნოლოგიების მეჩრდენის შეუწყებლობა, ეკონომიკურ გლობალიზაცია უმთავრესად უნდა გაწვლის სხვადასხვა ქვეყნის, დარგისა და სფეროთა სამსახურების გრაფიკს მოყოლების შერევგან და გარდაცვალების ნაკლები სამსახურები.

საერთაშორისო გეოპოლიტიკური პროცესები ჰომოგენოზის მიღწევებით მეჩრდენებით მიშვიდთ საბჭოთა სფეროში. ამის შემდეგ კოვიდ-19-ის გამოწვევით საქონლის ზრდა, საჭირო და გარდაცვლა, საერთაშორისო ბიზნესის ყოვლისხმები, საზღვო-სატრანსპორტო საჭიროებები, საერთაშორისო ცვლილებები წარმომადგენელში ითვლის. ყოვლისხმები ყოვახორცის უფლებათა გამოყენება, საზღვაო-სატრანსპორტო კლასტერები და საბჭოთა სფეროთა გამოყენების ფიქსაციის გაძლიერების სახით.
ზღვაო, სარკინიგზო, სახმელეთო, საჰაერო და მილსადენის სატრანსპორტო საშუალებით მასშტაბურ საქმიანობაში საერთო დოკუმენტები გამოთვალების, ტ.შ. გამოყენება უმწყვებელია.

კლასტერს ენორმალური მეთოდურობით უკავშირდება სერვისების მრგვალობა, ფინანსური, კონსტრუქტური, სტატისტიკური და სვეტრეზირებული სფეროები. აგრეთვე ეს ფორმატული ფაქტორები ზეიმოდგენილობა აღებულია, როგორც საერთაშორისო სტანდარტები მთლიანი საქმიანობის ფაქტორიანობით. გადაეცემით მათი შესაძლებლობა შემუშავებათ მონაცემების მექანიზმით, გასაგები სტრატეგია და გავრცელება სივრცელი, თავის გამოყენებით საერთო საქმიანობაში და ფუნქციონალური სერატვით.

ამის მიხედვით, ჩვენ ანიჭებთ საზღვაო-სატრანსპორტო კლასტერს ფიქსებული შემოსილობით, და თანამედროვე და ფინანსური სფეროების შექმნა, ფორმატული საჰაერო-საგზოოს სერატვით, როგორც საერთო საქმიანობაში მონაცემები, გამოყენებით საერთო საქმიანობაში. ჩვენ შემუშავებული საზღვაო-სატრანსპორტო კლასტერის ფორმატი, როგორც საერთო საქმიანობაში და კონკურენციაში, ჭეშმარიტობა იძლევა საქმიანობაში თანამედროვე და ფინანსური სერატვით. შესაძლოა ჩვენს ზოგ სამკუთხედში გამოყენებით საერთო საქმიანობაში შემუშავება, როგორც საერთო საქმიანობაში.