

MASTER PLAN OF BOURGAS AIRPORT ECOLOGICAL EVALUATION

NON-TECHNICAL SUMMARY

June 2007

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The Report of the Ecological Evaluation of the Master Plan for development of Airport Bourgas is worked out under the circumstances of the 17th clause or the Regulation for circumstances and order for ecological evaluation of plans and programs (up, State Gazete, 57 from 2nd July 2004, ch. State Gazete №3 from 10th January 2006) by observing the range, definite by art. 86, para.3 of the Environmental Protection Law. The report is worked out by a group from "Institute of Air Transport". "Institute of Air Transport" is an author of reports for Evaluations of the influence on the environment, related to the Bulgarian Airports: for Airport Varna (2001) and for Airport Sofia (1996, 2000, 2001). Members of the group have participated in the preparation of reports for Ecological evaluation and analysis, related to airports, including Airport Varna (1996, 2002, 2004) and Airport Bourgas (2002, 2004).

The list of the report's authors is:

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Eng. Mirolub Bojinov	Investigated the factor "Waste".

General Aims of the Master Plan.

The general aim of the first phase of realization of the Master plan is solution of the problem facilities of passengers' service. According to that a new passenger terminal is supposed to be built. It will be built for 18-20 months, so it will start to operate in the end of 2009 or in the beginning of 2010. A new infrastructure, emergency power, water, sewage and drainage will be built, connected with the new passenger terminal. A new fire station will be built as well as other facilities for improvement of passengers' services and operations.

During the next phases - after 10, 15, 20 years-the passengers' services will be renovated and expended if necessary. An overlay of the runway and taxiway is supposed to be made after 15 years.

The stages of development of the Master plan are shown in figure 1 and 2.

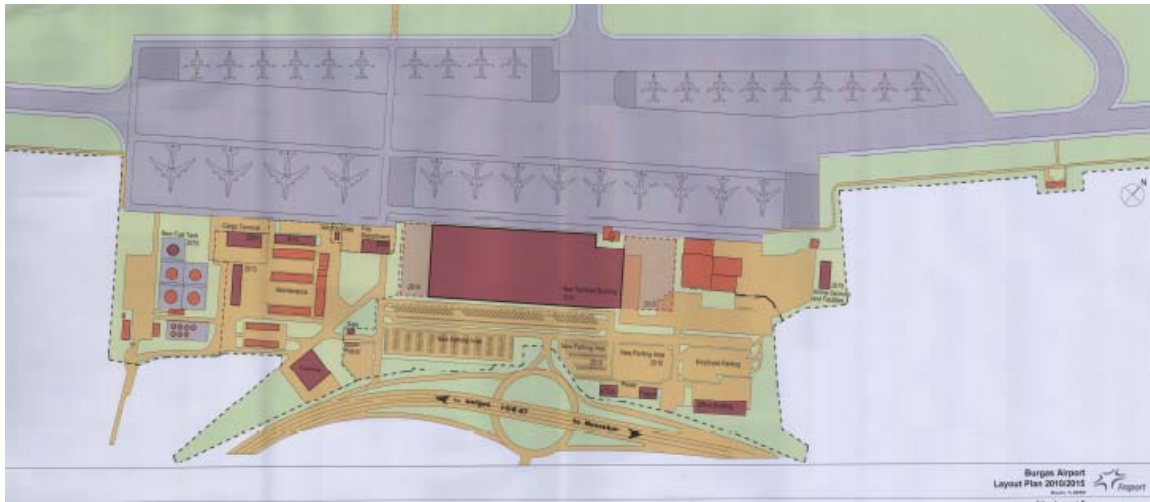


Fig.1. Master plan for development of Bourgas Airport 2010-2015



Fig.2. Master plan for development of Bourgas Airport 2025.

Atmospheric Air

The condition of the atmospheric air in the airport area is investigated. The organized stationary pollution sources, situated at Bourgas Airport are analyzed. The obtained concentrations of dust, SO₂ and NO₂ near the surface are considerably lower than the national limited standards. An evaluation of the emissions from the engine of the aircrafts, using Bourgas airport for landing and taking off is made.

There are not determined any evidences for existing of ecological problems, related to the component "Atmospheric Air" and the Master plan. The planed activities will not change the background pollution of the air in the area.

From the interpretation and analysis can be made the conclusion that Bourgas Airport does not pollute the atmospheric air of the neighbor areas above the standards.

Surfaces and underground water.

Near by the evaluated territory is situated the Atanasovsko lake, a region of significant ecological importance. The Black Sea is a sensitive zone, related to water protection. There aren't any other areas of water protection such as sanitary defense areas around the drinking water sources and mineral water.

The surface and underground water in the area of Bourgas Airport are evaluated. The water sources and geological environment are described. The ways by which the surface and underground water could be affected by the airport activities are analyzed. A special attention is paid to the potential sources of waste water.

It is shown that important for the airport could be only the underground water in the neogen, which are not protected from surface pollution and are an object of exploitation by two drillings.

The capacity and quality of out falling waste water are evaluated. It is established that no disturbance of the normative order is observed related to the indexes of out fall of waste water in the urban drainage.

In relation to the expansion of the airport, a new drainage system for the new terminal will be built and the existing one will be reconstructed. That is necessary because of greater amounts of waste water including the oil polluted water.

It is recommended that the areas of the stage for chemical treating (deicing) of the aircrafts should be drained. As an alternative in case of waste emitting in the Atanasovsko lake an out fall permission is required.

Emergency flood from the park tanks as well as discharge of deposit water from the waste oil tanks can lead to pollution of surfaces and underground water.

According to the analysis of the existing ecological problems and their relation to the aims of water protection, a conclusion could be made that a significant influence on waters of the Master plan for development of Bourgas Airport, which could prevent its realization is not possible. To achieve total equivalent to the standard water order a realization of a complex of administrative procedures, sanitary activities, technical requirements and monitoring are required. In the evaluation are presented some particular ways for achieving this aim. A realization of a plan for water monitoring is important element of this tendency.

Biodiversity . Vegetation.

The biodiversity of plants in the area of Bourgas airport as well as surrounding areas is described.

The results from the analysis of plant samples from the area of Burgas Airport, made in may 2007 show that the concentration of of Pb, Zn, As and Cd are not higher than the limited standard concentration.

There are not defensive natural areas from the National ecological net in the areas of Bourgas airport in the area of Bourgas Airport, as well as its surroundings. One kilometer to the southwest from the airport is situated the reserve "Atanasovsko lake".

The object of the investment proposal is bordered on the Defensive area of European ecological net - Atansovsko lake (cod BG 000270). The other nearby situated defensive natural areas are also described (Emine, Pomoriyski Lakes, Poda, Chengene skele, Vaya and mouth of Izvorska river).

As far as the changes in the new Master plan do not come out of the existing boundaries of the airport, the last will not cause extra harm to the environment of the defensive areas.

It is established that the realization of the changes in the Master plan of the airport would not lead to loss of habitants, fragmentation, disturbance in the biodiversity , because it will be made at a territory used as an airport for a long time.

The realization of the changes in the Master plan will not take away new areas from the defensive natural areas and will not exert extra negative influence.

The application of some limits which will prevent or reduce possible negative influence is proposed.

Biodiversity. Animal world.

Bourgas Airport is situated near by the Bay of Bourgas and the largest lake complex in Bulgaria – Pomoriisko, Atanasovsko, Bourgasko (Vaya) and Mandrensko lakes. This specific locality is of a significant importance for the formation of the fauna in the area.

8 amphibious and 17 reptile species are found in the area of the airport. Most of them are among those under the protection of Biodiversity low; 3 are in the Bulgarian Red Book. In the area of Bourgas airport there are many birds, locked in four large lakes around Bourgas, especially the neighborly Atanasovsko lake. In the different seasons of the year 316 birds species are found there. Almost all of them are under the protection of Biodiversity low and 6 are worldwide threatened with extinction. 17 of the 100 birds species, included in the Bulgarian Red Book, are nesting birds and other 60 could be found in the lake during the different seasons of the year.

In the area of Bourgas airport there are some mammals: hare, fox, marten, wild cat, jackal, wild-boar and the threatened with extinction otter (*Lutra lutra*).

At the times of migrations the area of Bourgas Airport is a place for gathering of birds of different taxonomic and ecological groups. They fly trough the so called „*Via Pontica*“, which is the second most important migratory way in Europe after the Atlantic way.

The dense concentration of birds in the area of Bourgas Airport is of importance to the flight safety. During the former years there were cases of bird crash with aircrafts.

There are a few defensive areas near Bourgas Airport. The most-close situated is this of a greatest importance – the reserve “Atanasovsko lake” (1074, 5 ha). In the area of Bourgas Airport are situated also some defensive areas from the ecological net Natura 2000(the defensive area “Atanasovsko lake” bounders to the east on Bourgas Airport; the defensive area Pomoriisko lake and the defensive area Emine, situated to the north from Bourgas Airport.)

In the management plan of the tended reserve” Atanasovsko Lake” is shown that Bourgas Airport causes an negative influence on the ecosystems, communities and populations of different plants and animal species.

In conclusion: the building of a new terminal at the territory of the airport will not lead to loose of inhabitants, fragmentation or biodiversity disorder, because the project is concerning an area, used as an airport since the middle of the former century. The realization of the Master plan will not cause ecological problems.

The building and the exploitations of the new terminal is not supposed to cause any influence on the animal word.

Factor “Waste”

As a result of the airport’s activity and the activities of other enterprises in the area, different kinds, characteristics and amount waste are generated. A detailed analysis of the kind and amount of generated waste is given in the ecological evaluation.

The applied system for collecting and treating of waste is descried. The stages for temporary waste deposition, management of the activities and the Program of waste management of “Fraport Twin Star Airport Management” – Bourgas Airport are analyzed.

There are not currently existing ecological problems, related to factor “Waste”. There are some points, devices or zones at the territory of and in the activities of Bourgas Airport, which are not current problem or source of negative influence on the environment at the moment of evaluation. Nevertheless these could turn into sources of ecological problems under certain circumstances. These are the incinerator, which activities are terminated, the over-ground tank for waste oil deposition, situated near the repair workshop, the under-ground tanks, near the petrol station, the over-ground tanks in the fuel depot, the runaway, taxiways and aprons and the disinfection tab in the stage for waste treatment area. In the Master plan for development of Bourgas Airport the requirements of the current order, related to the management of waste activities are taken under attention. The specific conditions for treating of urban, industrial, building and dangerous waste are reported.

In the Master plan for development of Varna Airport the requirements of the current order, related to the management of waste activities are taken under attention. The specific conditions for treating of urban, industrial, building and dangerous waste are reported.

A prognosis for increasing of general types of waste, related with the airport activities is made. According to it when there is a good organization and acquirement of the industrial activities, waste's flow and life cycle, as well as duly prognosis of the expected amount of waste, controlling, monitoring and preventing of the possibilities of emergency floods and other incidents, and sources for suitable collection, temporary deposition, transportation and treatment, a significant influence of the environmental factor "Waste" is not expected.

The preventive measures, related to the monitoring during the time of plan's application are described, as well as the administrative and management plan of self monitoring and emergency action plan.

According to the evaluation no significant influence of factor "Waste" on the environment is expected.

FACTOR "NOISE"

The Master plan is not directly related to the solving of "aircraft noise" problem.

Describing the current condition (2006) of the factor "aircraft noise", it is stated that in 2006 nearly 38000 of the citizens of the town of Bourgas live in buildings, situated in the contour of the maximal noise level area, due to the aircrafts flying. Respectively nearly 91 000 people live in buildings situated in the contours of permissible equivalent noise level at night time ($L_{A_{EQ}} = 55\text{dB (A)}$). The territory, concert from the permissible equivalent noise level at night time in 2006 is shown in fig. 3, and after 2006 – in fig. 4. The territory, concert from the maximal noise level in 2006 is shown in fig. 5. In fig. 6 the same contour in 2025 is shown.

The obtained noise contours $L_{A_{MAX}} = 85\text{ dB(A)}$, $L_{A_{EQ}} = 55\text{dB(A)}$ и $L_{A_{EQ}} = 65\text{dB(A)}$ can estimate the sanitary-defense area of Bourgas Airport in the terms of Order №7 for sanitary requirement for health defense of the urban area, view to the limited values of the maximal noise level, due to the aircraft flight over a defined territory, noise level at night and day time. Obviously the sanitary-defense area should be one that is supposed to correspond to the couture of the largest urban area. A counter of that kind is the contour of maximal noise level, due to the aircraft flight, so it should be the contour, describing the sanitary-defense area of Bourgas Airport. As it is shown in Fig.3 in 2006 the sanitary-defense area of Bourgas Airport includes a significant part of the urban area of the town of Bourgas. After 2006, thanks to the prohibition of aircrafts, which are not corresponding to the current standards. The counter of the equivalent noise level at night time area, as well as the counter of maximal noise level area has become significantly smaller.



Fig. 3. Noise contours around the airport in LAeq, dB(A), 8h, summer night.



Fig. 4. Noise contours around the airport in LAeq, dB(A),8 h, summer night 2025.

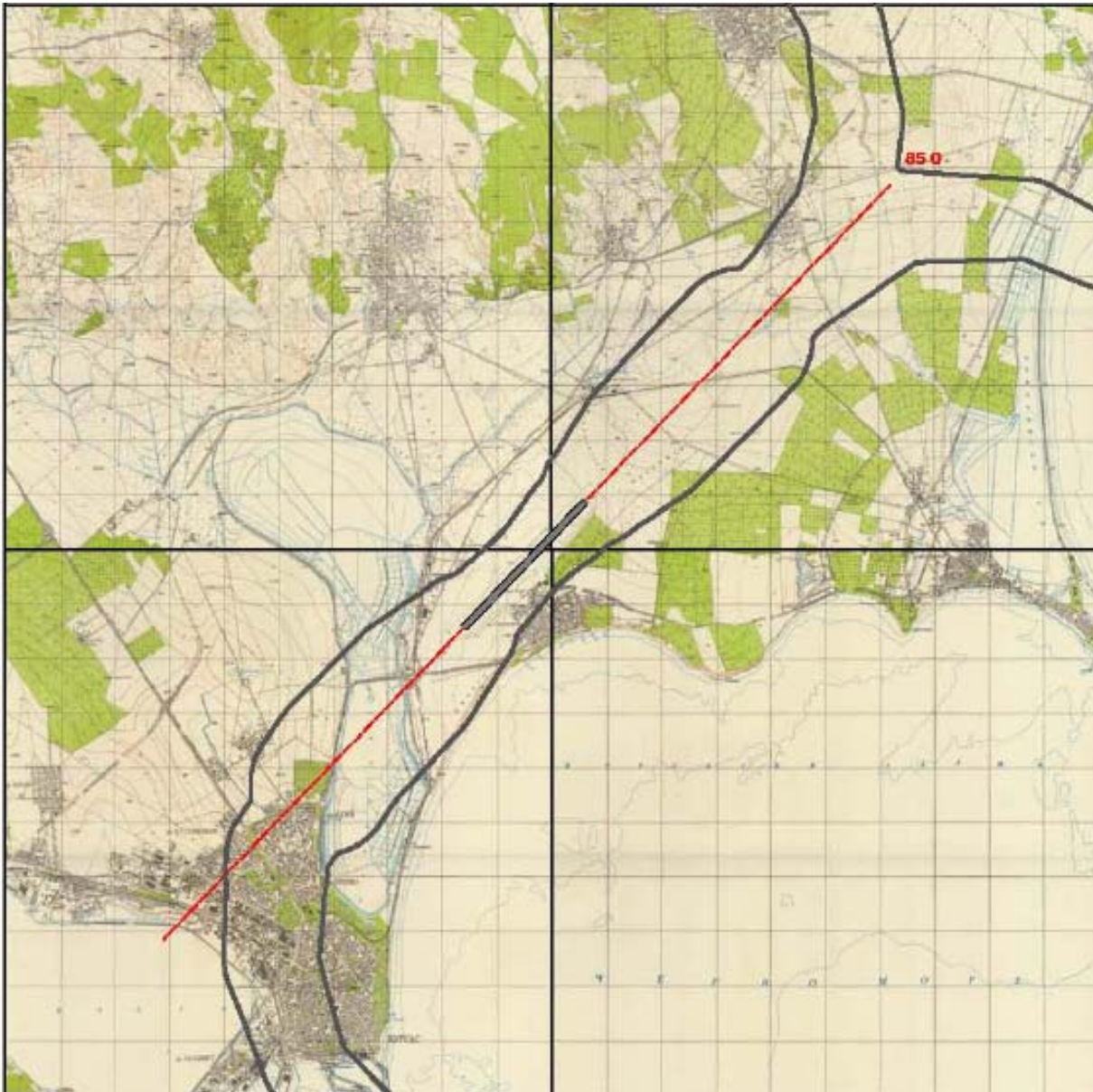


Fig. 5. Noise contours around the airport in LAMAX dB(A), pick summer twenty-four-hour period, 2006

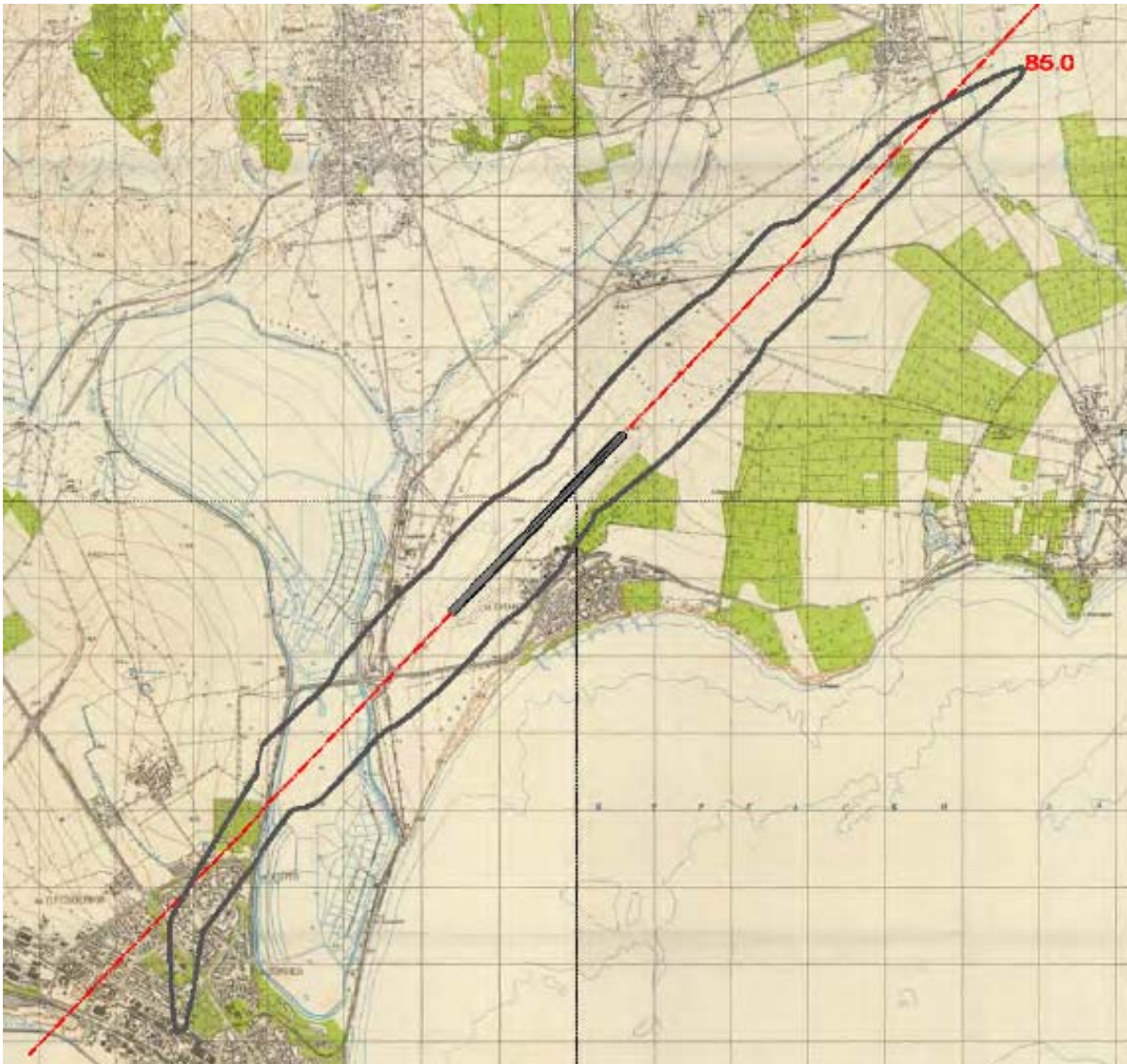


Fig. 6. Noise contours around the airport in LAMAX dB(A), pick summer twenty-four-hour period in 2015.

The analysis show that the general reasons for the relatively great negative influence of the aircraft noise, caused by aircrafts, which are landing and taking off from Bourgas Airport are:

1. The bad urban plan, which led to expansion of the town close to the airport, disrespecting any sanitary-defense zone.
2. The lack of the effective system for management of the air traffic, which gives priority to that kind of managing, which minimizes the flights over the town.
3. The lack of objective control over crews, who do not obey the recruitment, related to minimization of noise over the area.
4. The lack of effective order base, allowing to sanction people, breaking the noise reduction rules for flights.

According to these statements the following general measurements for restricting of the influence of the aircraft noise over the town of Bourgas can be applied:

1. Creation of an organization for obligatory observance of the procedures for noise reducing in the area of Bourgas Airport.
2. Creation of a monitoring system for the traffic in the area of Bourgas Airport and restricting to the objective minimum (considering to performance of the aircrafts, metrological conditions and safety of flights) of over flight.
3. Conformation of the sanitary-defense zone of Bourgas Airport. It should correspond to the maximal noise level couture.
4. In the limits of the sanitary-defense zone (according to point 3) the building of houses should be forbidden. The possibilities for noise reduction for the already existing buildings should be investigated.
5. A regulatory order that allow the airport administration and respectively the concessionaire to fine for braking the define rules for decreasing the noise, caused by aircrafts traffic in the airport area. The collected resources should be used for the measure in point 4.

In conclusion: The realization of the Master plan for development of Bourgas Airport does not worsen the indexes, related to the factor "Aircraft noise."