

FIGHT AGAINST POLLUTION IN CAR INDUSTRY – WORLD TRENDS

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Abstract: *The expansion of our needs in the space and many changes around us requires a change in attitude towards the environment. Research suggests that by 2030 in the world there will be 8.5 billion people. Planet is warming up and there is an increasing frequency of natural disasters: heat waves, floods, hurricanes. The public is aware that air pollution kills 3,3 million people per year. It is necessary to react quickly. In Paris at the end of 2015 the 21-st Conference of the UN on climate changes (COP 21) was held.*

Serbian association of importers reported that in recent years in our country about 20.000 new cars and about 100.000 used cars was imported. In Serbia there is no laboratory that could to accurately test the amount of exhaust gas according to European standards in effect. In our country still is in force the Regulation on technical inspection from 1984, so the allowed values of exhaust gases are completely downgraded. Today, in our capital city Belgrade we have been working on the improvement the identity of capital, as well as mobility and ecology. In 1892. in Belgrade the first Belgrade's tram - by a horse-drawn started, but during 2016, passengers will be transported by 5 electric buses of the Chinese company "Hager" with 10 years guarantee.

Hoping to realize the idea of manufacturers from all around the world, especially that pollution is reduced, and the environment in which we live protected, this work originates.

KEY WORDS: POLLUTION, CAR INDUSTRY, BELGRADE, FUTURE, ENVIRONMENT.

INTRODUCTION

The expansion of our needs in the space and many changes around us requires a change in attitude towards the environment. Research suggests that by 2030 in the world there will be 8.5 billion people. Planet is warming up and there is an increasing frequency of natural disasters: heat waves, floods, hurricanes. The World Health Organization reported that in 2012, about 12.6 million people have died due to living in an unhealthy environment. Unintentional injuries such as traffic accidents are also included in the violations related to the environment and in 2012 of them 1.7 million people were killed, since accidents are often caused by the poor condition of roads.

The public is aware that air pollution¹ kills 3,3 million people per year. It is necessary to react quickly. In Paris at the end of 2015 the 21-st Conference of the UN on climate changes (COP 21) was held in which the participants with the collective effort achieved an international agreement that would allow the limit of global warming to less than 2°C. In New York on the 22-nd of April 2016. the ceremony of signing "the Paris Agreement on Climate Change" took place and the President of the Republic of Serbia participated on that ceremony.

NEW TRENDS AND WORLD EXPERIENCE IN CARS FOR THE FUTURE

In France management of "Peugeot Citroen group" believes that during 2016. the first hybrid vehicle using air for propulsion will be launched at the market. Experts employed in this company believe that this system will reduce fuel consumption for 45% and due to the fact that the cars are most of the time ran by air, fuel consumption in inhabited areas would be reduced to 80%. The compressed air would be used primarily in cities and urban areas, and it would be set automatically when the speed of cars falls below 70 kilometers per hour.

However, it is necessary to remind that still in 1939. when at the market appeared the first "Volkswagen's bug" which is today the best-selling model, although the British Association of consumers predicted that this car is going to be sought for only 2-3 years. During 2016. the "Volkswagen" company invited their customers and gave them artistic freedom to present it in their ideas how the car of the future should look. And certainly, among ideas there was also one flying car. This is a concept called "Hover Car" or hovering car, the result of the project "the people's car", launched in China in 2015.

¹ In the world these ten cities have the worst air pollution in the world: most of them are in India (Lucknow city, Ahmedabad, Raipur, Gwalion, Patna and Delhi too, then Khorramabad, city in Iran is an agricultural hub, Rawalpindi, Karachi and Peshawar / with brick-making industry in the city/ in Pakistan.

Today we have for the first time in the history of aviation an aircraft² flying without fuel both day and night, showing the potential of clean technology that can be used to reduce the dependence of the world from fossil fuels, affecting the preservation of the environment and helping in solving many problems of pollution, which at the end of 2015 in Chinese cities has reached alarming levels.³ Cars of the future are in development, so it stands out revolutionary flying car called "TF-X". The designers believe that it takes another ten years of work on this model to the company "Terrafugia" to realize their idea and that the car "TF-X" will be able to fly 805 miles without stopping. It is interesting to mention the work of Korean experts, the car "Armadillo-T" which is reducing. It was made by the Spanish Hiriko concept.⁴

And today we are looking forward to the fact that "Mercedes-Benz C 350E" is embracing hybrids, proclaiming that it will have 10 new plug-ins in 2017. "Opel" will next year launch a revolutionary new electric car using batteries and this German brand will continue the greatest and the most far-reaching market offensive in its history with 29 new models between 2016 and 2020.

The US administration of traffic safety may soon recognize as a driver the technical device or a computer that controls the vehicle, what would pave the way for the introduction into service of vehicles with autopilot on the driver's seat. Self-driving cars bring as first association the terms safer driving, new mobility services. That represents the self-driving revolution.

Recently in Italy, in Milan at the "Week of design" designers from Japan represented „Toyota-s“ model called "Setsuna"⁵, a car that is almost entirely made of wood and cannot go faster than 90 kilometers per hour. This car model was created thanks to the traditional Japanese techniques, whose performance is not yet fully discovered.

Ten the most important new cars of 2016 (The team of auto experts has reviewed the full list of debuts and decided that these are the 10 most important new vehicles of 2016) are: - "Chevrolet"; - "Chevrolet Camaro"; - "Acura NSX"; - "Cadillac CT 6", now a purveyor of SUVs; - "Fiat 500 X", that has potential to double the

² The experimental aircraft "Solar Impulse 2" flies without fuel (there are more than 17,000 solar cells whose energy enables propellers to work also during the night)

³ Otherwise, from our inaugural flight in 1927. Air Serbia has been a leader in air travel. Since 1961. Air Serbia has been a member of the International Air Transport Association (IATA). And now with our new name and new identity, we are redefining the concept of comfort in the air across our growing network.

⁴ This micro car will develop a speed of 60 km/h and it will possess the ability to reduce the length of 2.79 meters to 1.65 meters electrically using an application for smartphones.

⁵ In Japanese that means "moment".

company's sales in America; - "Jaguar XE"; - "Lincoln continental concept"; - "Mazda MX-5 Miata" that represents the essence and spirit of Mazda; - "Tesla Model S" /seating for 7 people/; - "Toyota Mirai".

And in March 2016 in Geneva, 86-th saloon of cars with many premieres of new models announced by the world's largest producers was held. Increased are hybrid vehicles, where leads "Toyota" and they moved away far. The vehicle using hydrogen - "Mirai" ("future"), as well as the new "Julia" from the "Alfa Romeo", electric "Renault Zoe" and other models were presented. In the meantime, Switzerland has temporarily halted the import of "Volkswagen's" vehicles with diesel engines.

And only four days after the spring auto-saloon in Geneva, in our capital town Belgrade began the 5th Car Show "BG car show" and X International Fair of motorcycles.⁶ At the auto saloon in Belgrade vehicle "Toyota Mirai" was declared for the "eco-car" for 2016. This was decided by the jury composed of 73 journalists from 23 countries of the world on the International Automotive Industry Exhibition in New York.

However, it should be indicated that the Japanese manufacturer announced the withdrawal of 2.87 million cars worldwide due to problems with the seat belt in the event of a collision. The recall applies⁷ to "Toyota" sport model "RAV 4" /produced for the period from July 2005 till the August 2014/, as well as to another model produced for the period from October 2005 till the January 2016.

In September 2015. the public learnt about intention to fix the score of facts – information on emission of harmful gases produced by "Volkswagen's" cars. The fraud was discovered in America⁸, where otherwise more effective control in relation with production of harmful gasses is performed. United States Environmental Protection Agency (non-governmental organization International council for ecological transport⁹) discovered that "Volkswagen" had built in an instrument for fixing the score of tests of exhaust fumes emissions. This was the biggest scandal in the newer history of German and the world's car industry. This was an attack on the German economy as a whole, and in the company headquarters in Wolfsburg German state commission of inquiry has searched for appropriate documentation. On that occasion, the French Minister of Energy stated that "selling cars with fake environmental indicators is unacceptable and the victims are the workers whose job is now endangered, as well as deceived consumers and countries which provide subsidies for the purchase of environmentally clean vehicles". Volkswagen's fiasco with fixing the score of tests of exhaust gases destroyed the reputation of Germany. Meanwhile, the "BMW" was accused for fixing eco-tests. The discovery of American non-governmental organization International Council for environmentally friendly transport that are jeeps of "BMW" type X-3 when tested showed 11 times lower scores for gas emissions than those in regular traffic in USA. Unfortunately, engineers of "Mitsubishi"¹⁰ have cheated by fuel

⁶ From 17-th till 23-rd of March more than 300 exhibitors from 20 countries gathered.

⁷ 1,3 million automobiles is covered in North America, 625.000 in Europe, 434.000 in China, 177.000 in Japan and 307.000 in other regions of the world (by France press).

⁸ In vehicles /diesel cars/ dedicated for American market the software cheaters were built in. Unfortunately, software cheaters were also built in the vehicles of class 1.6 and 2.0, which are sold in Europe. It is not precisely specified of which models of their respective diesel vehicles is spoken about. It is alleged that 11 million of these vehicles with a cheater, poisoned the air of the planet with about 948,691 tons of poison gas / nitro poison /. The public found out that in Germany 2.8 million cars in which the cheater was built in were sold. Scam also relates to trucks from this auto company.

⁹ It was confirmed that the CO2 emission measured during tests in normal European traffic is 40 times greater than what the vehicles showed during laboratory testing.

¹⁰ The sixth Japanese car manufacturer.

consumption data in around 625,000 vehicles sold in Japan, with intention to show them more economical. These data were revealed by competition.

At the same time, the best cars of the last 2015. were cited on the following list: Aston Martin DBX, Audi prologue concept and Audi prologue avant concept, Bentley exp 10 speed 6 concept and Bentley grand convertible, Buick avenir concept /French for „future“/, Chevrolet chaparral 2X vision GT and Chevrolet bolt and FNR concept aside from the Tesla model S most mainstream electric cars on the market. Then, Honda civic concept and Honda concept D, Hyundai Santa Cruz concept, Infiniti Q 60 concept, Nissan's premium brand and Infiniti QX 30 concept and Nissan sway concept too. Also Kia sport-space concept, Lincoln continental concept, Maserati Alfieri concept, Mitsubishi concept XR-Phev and Toyota FT-1 concept, the Swedish Volvo lounge console concept, Volkswagen C coupe GTE with advanced plug-in hybrid system and Volkswagen sport coupe concept GTE.

It is also interesting to mention the findings from 2015 Tokyo Motor Show and the best concept cars as: - **Mazda RX-vision**; - **Nissan IDS** concept that allows the driver to choose between manual or automated driving or possibility of taking over driving the vehicle completely allowing driver to relax. Then - **Nissan Teatro for Days** that serve for daily transportation needs and - **Nissan Concept 2020 vision gran turismo**; - **Nissan Gripz** is powered by the Pure Drive e-Power series hybrid system based on EV technology /uses electric motor/; - **Nissan** cars really have innovation and represent world leader of the vehicles 100% electric (- **Nissan Leaf, la familiale 100% électrique**); - **Toyota Kikai's** with 3 person cabin and - **Daihatsu D-base**, a version of a future environmentally-friendly car.

I especially liked "Renault Twigo" from the limited series **Cosmic**. But we have to mention too that these are the most popular European cars in the United States of America: **Volkswagen Jetta** produced in 1979, **BMW 3-Series** produced in six different generations, **Mercedes – Benz C- class** introduced in 1993, **Volvo S 80** that came out in 1998, **Mini Cooper**, **Audi¹¹ A 4** sporty, stylish and reliable, **BMW 5-Series** manufactured since 1972, **Volkswagen Golf¹²** is the Volkswagen's best-selling model, **Volkswagen Passat CC**, **Volkswagen Beetle**; although they stopped making the original Beetle in 2003, Volkswagen came out a new version in 1998.

Meanwhile American car company "Tesla Motors" reports that the number of orders for new, affordable electric car "model 3"¹³ significantly increased and there is the possibility of opening another plant.

SERBIAN CASE

Serbian association of importers reported that in recent years in our country about 20 000 new cars and about 100,000 used cars were imported. In Serbia there is no laboratory that could accurately test the amount of exhaust gas according to European standards in effect. In our country still is in force the Regulation on technical inspection from 1984¹⁴, so the allowed values of exhaust gases are completely downgraded.¹⁵ Otherwise, the first time after 2008. in Serbia, there was an increase in car sales, compared to 2014. Also, for the first time after more than half a century, on the Serbian market appeared "Mustang" in two versions, classical and as a convertible.

In Serbia, in Kragujevac "Fiat", after a pause, during November 2015, is working again in three shifts, and during each shift employees produce 210-220 large "Fića" or " Fiat 500L". In

¹¹ "Audi" is part of the Volkswagen group.

¹² "Volkswagen Golf" has won many awards throughout its history, one of which was the World Car of the Year 2009.

¹³ This car has a panoramic glass roof and is equipped with the autopilot and numerous safety systems, and can travel 350 km before the batteries run down.

¹⁴ "Official Gazette of Federal Republic of Serbia", no. 23/84.

¹⁵ And "Jugo" is technically within the allowed limits, although it has no catalyts and similar devices.

three shifts approximately 650 of these cars is produced. Production of these cars today is done on the basis of demand, which is weak, particularly in the North American market, but the export of these cars on the Russian market has been announced. After more than 1.5 million copies produced "Fiat" has introduced a redesigned "Fiat 500". Back in 1957 public first saw the original "Fiat 500", and 50 years later the Italian company introduced a modern version of city vehicle with retro design that experienced a great success. It is interesting that in the northern city of Serbia, in Subotica, a landowner, cyclist Lajos Vermes (1860-1945) for the purposes of Palić Olympiad built the first bicycle path in this part of Europe, in elliptical form 500 meters long.

Today, in our capital city Belgrade we have been working on the improvement the identity of capital, as well as mobility and ecology. In 1892. in Belgrade the first Belgrade's tram - by a horse-drawn started, but during 2016, passengers will be transported by 5 electric buses of the Chinese company "Hager" with 10 years guarantee. It is predicted that by 2018. in the capital of Serbia¹⁶ the town center will gradually transform into a pedestrian zone. The plan to build the Tesla Tower, as a new symbol of Belgrade, was emphasized by the President of the Serbian Academy of innovation Sciences.

In recently conducted free review carried out on 5000 cars, it was found that 39% have a malfunction. These are the results of the action "Vehicle in order - safe vehicle" organized by the Automobile Association of Serbia with the Administration of Traffic Police of the Ministry of Internal Affairs and the Association for technical inspections.

The immediate cause of the accident may not be just a malfunction of the vehicle, but also a bad road and weather conditions. When a traffic accident occurs, representatives of the judiciary often call the astronomers, searching for information on the exact time of sunset, in order to determine the conditions of visibility on the ground.

In our country since the beginning of the year 2015 until the beginning of August 2015, 4 people were killed and 94 were harder or easier injured in 91 traffic accidents, in which the immediate cause was a technical defect of the vehicle, according to the data from the Serbian Ministry of Internal Affairs. Unfortunately, in the accidents in the New Year, on the Serbian roads in the first three weeks of 2016, 16 people were killed.

CONCLUSION

Actual state of pollution represents the real danger for the man and ecosystem. Understanding the necessity of environmental protection, hoping to realize the idea of manufacturers from all around the world, especially that pollution is reduced, and the environment in which we live protected, this work originates.

Each society fights against the possibility that modern technologies cause catastrophic consequences for people by making and application of legal regulation, equipment and organization of the protection management. For enforcement of regulation of environmental protection, there are extremely important and already known principles: integration, prevention and precaution, natural values preservation, sustainable development, application of motivation measures. Due to a number of global environmental problems principle of protection, the preventive action principle and precautionary principle in the environmental law must be respected.

With hope to introduce soon new car models that pollute less environment on our roads, in order to preserve our environment and have less accidents, cooperation of all decision making factors at national and international level, especially in exchange of experiences, will be very valuable.

LITERATURE

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¹⁶ We have regular city tours through our capital organized by the Tourist Information Centre of Belgrade and a streetcar named "Belgrade" runs every Friday and Saturday.