

# СОЦІАЛЬНІ КОМУНІКАЦІЇ

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## SAFETY RISKS OF GLOBAL CLIMATE CHANGE

**Summary.** The problem of ecological risks that in 2018 are said to be the basic factors of providing of steady development of the world countries and will prevail in a 10-years-old prospect is considered in the article. The basic dangers of technogenic influence on the climate change are studied. The question of efficiency of application of the climatic models worked out on the basis of empiric data for prognostication of future weather cataclysms is investigated. The analysis of influence of global climate change on ecosystem, geopolitics, society and economies of the world countries is conducted. It is set that principal reasons of modern conflicts for resources are combinations of unsuccessful government, ineffective economies, disparitet of currencies, inflation, height of migration and high level of violence. Existent technologies and projects of stimulation of process of the global warming are considered.

**Keywords:** global climate change, climatic model, technogenic influence, natural cataclysms, conflicts for resources, economy, society.

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## БЕЗПЕКОВІ РИЗИКИ ГЛОБАЛЬНОЇ ЗМІНИ КЛІМАТУ

**Анотація.** У статті розглянуто проблему екологічних ризиків, які у 2018 році визнані основними факторами забезпечення сталого розвитку країн світу та будуть домінувати у 10-річній перспективі. Одними з найбільш вагомих викликів існуванню сучасного суспільства є глобальні зміни клімату, екологічні проблеми, нестача ресурсів, прискорення темпів втрати біорізноманіття, збільшення викидів парникових газів. Негативний техногенний вплив на навколишнє середовище, аномальні природні явища, масова міграція у пошуках придатних територій для існування та чисельні затяжні конфлікти за ресурси, жертвами яких стають тисячі людей, чинять суттєвий вплив на сучасну геополітику, глобальну економіку і безпеку. Все це наслідки неефективної екологічної політики країн світу, які можуть стати незворотними. Вивчено основні небезпеки техногенного впливу на зміну клімату. Досліджено питання ефективності застосування кліматичних моделей, розроблених на основі емпіричних даних, для прогнозування майбутніх погодних катаклізмів. Проведено аналіз впливу глобальної зміни клімату на екосистему, геополітику, суспільство та економіку країн світу. Встановлено, що основними причинами сучасних конфліктів за ресурси є поєднання невідлого врядування, неефективних економік, диспаритет валют, інфляція, ріст міграції і високий рівень насильства. У світі мінливої влади та відмінних цінностей, ймовірно, буде важко досягти прогресу у вирішенні загальних глобальних проблем. Такий прогрес потребує узгодження пріоритетів дій, стійкої координації та співробітництва урядів усіх держав світу. Розглянуто існуючі технології та проекти стимулювання процесу глобального потепління. Встановлено, що глобальні зміни клімату багато в чому є результатом багаторічного бездумного, споживацького господарювання, на зміну якому повинні прийти новітні нанотехнології та технології повного контролю клімату.

**Ключові слова:** глобальна зміна клімату, кліматична модель, техногенний вплив, природні катаклізми, конфлікти за ресурси, економіка, суспільство.

**Introduction.** One of the most impact risks of steady development of modern society are global climate changes, ecological problems, lack of resources, acceleration of rates of biovariety loss and increase of extrass of greenhouse gases [4; 18]. Negative technogenic influence on an environment in a past century is the result of ineffective ecological politics of the world countries and can be irreversible. According to the prognoses of the UNO, in the nearest 100 years even Arctic will be without ice, and thus and waterless [24]. It is an emergency danger for humanity, Earth and biological variety. The global warming causes the considerable losses of water through droughts in one regions and underfloodings as a result of deglaciation in other ones. In both cases it causes catastrophic consequences.

Raising of water level and heating of air, in opinion of scientists from NASA, will become main

calls for earthmen in the nearest decade. If a tendency will not change, already in 30 years a heat on a planet will become unendurable. With every year earth is heated all anymore and anymore [10]. And it is unknown that will be, if its temperature will grow to the critical level. Consequences are already today – numeral natural anomalies all over the world. The climate changes are very often perceived as a rise in temperature. In actual fact a climatic model changed on the whole.

**Literature overview.** Global climate change is one of the urgent problems of humanity. The study of the influence of global warming and abnormal natural phenomena on ecosystem, society, economy, and geopolitics has been conducted for many years both by individual researchers and by entire research state and international organizations and institutions. Among them are United Nations [24],

World Economic Forum [18], European Commission [8], NASA [10], The Intergovernmental Panel on Climate Change [19], World Meteorological Organization [27], National Geographic [11], educational and scientific institutes from many countries of the world, etc. In particular, M. Regelink, H. J. Reinders, M. Vleeschhouwer and I. van de Wiel studied the risks to the financial sector related to climate change [14]. A. Slechten investigated the effectiveness of international cooperation and the use of emission reduction technologies in order to eliminate the threats of global warming [15]. P. Laroche analysed the risks of climate change for society [9].

**Selection of earlier unsolved parts of general issue.** Many scientific works are devoted to research of questions of global climate changes. However, usually, basic attention is spared to the problems of contamination of environment. In that time as technogenic influence on the natural anomalous phenomena, mass migration in search of suitable territories for existence and the numeral protracted conflicts for resources, thousands of people become the victims of that, render substantial influence on modern geopolitics, global economy and safety and need more careful researches.

**Purpose.** The aim of work is study of problems and risks of global climate change, that present a danger for ecosystem, modern society, geopolitics and global economy.

**Main part.** Hurricanes, floods, anomalous heat or anomalous frosts, snow at summer, hail that destroys sowing and even breaks up airplanes, – it is only part of cataclysms into that humanity runs today. According to the data of researches of intergovernmental group of experts on the climate change after 2016, 3 quiet years remained for humanities. Then the world will submerge in chaos: catastrophes, floods and at the same time droughts, terrible heat and nipping frost, hurricanes and tornados. Leading climatologists and weather world forecasting produced a sensational lecture about pulling down of climatic weather catastrophe that had to begin in 2017. It was presented to the leaders of all countries, however for a wide association it was closed. At once after a publication a lecture was secret the governments of the most states of the world [19].

The results of computer model of future weather cataclysms that were presented in a lecture performances, on 80% coincide with those events that now take place in the world. So in 2016 next prognoses were carried out: catastrophic flood in Uruguay; flood in the REPUBLIC of south Africa, 8 people perished as a result of that, thousands were evacuated; anomalous rains and hail in Turkey; in China 5000 people suffered from floods; anomalous thundershowers and hail in Tajikistan; destructive thundershowers in Bangladesh entailed 45 human victims; ground frosts, tornados, anomalous rains, tornados, gales, hurricanes, floods, snow and hail in Russia. On territory of America hurricane Irma inflicted losses in a \$300 milliard, fully destroyed few islands and killed more than 60 people. After supervisions it is the most natural calamity for the last 10 years [11].

Many climatic models that are built by scientists on the basis of empiric data forecast the further height of temperature [2], what proved itself

in 90th of XX century. According to the data, published by climatologists, the annual increase of level of world ocean grows unstably. Its height is gradually accelerated. Scientists mark, that if this tendency will be saved, then previous prognoses in relation to raising of water in a world ocean on 30 cm to 2100 it will be possible to bravely increase it at least on two. Scientists assert that this height is caused, mainly, by a deglaciation in Arctic and Antarctic. Climatologists forecast, that already to the end of XXI century the level of world ocean will annually rise on 60 cm and anymore. As a result, it will create serious problems for off-shore cities [16].

In theory Earth must cool down, but it does not take place. Our planet, opposite, is heated. Today Earth became warmer, than it was 100 years ago. Most climatologists assert that it is a result of increase of level of carbon dioxide in the atmosphere. However, such processes took place in history of our planet repeatedly. An atmosphere works as a valve, supporting at certain level energy, it gets from sun. Today humanity lives in the period of the most sharp getting up of global temperature from times of end of ice-age and, according to the one of hypotheses, will run into the same dramatic consequences that took place before. To the prognoses of experts, more than million modern kinds on the measure of extinction according to the how a planet will continue to be heated.

More than 60 million cube kilometres of ice melted at the end of ice-age. Today, through 18 thousand years, humanity stands on the threshold of the new global warming. New researches show that already to summer in 2030 all ice can melt in Arctic. Every year the thickness of Antarctic ice becomes thinner on one meter, and mountain glaciers diminish in sizes in 3 times quicker than it was 20 years back. Melting of glacial caps can result in changes deeply under a terrene and to entail destructive geological activity and even change of mainlands. In particular, at the end of March in 2018 the crack of unbelievable sizes appeared on the African mainland. Break near-by the capital of Kenya Nairobi has over 15 meters of depth, and a width exceeds 6 meters. The extent of crack constantly increases, as well as other its parameters. Scientists until now do not have a general idea in relation to reasons of sudden dissidence. Many scientists accuse of this natural catastrophe frequent rains that the day before passed in Kenya. The most pessimistic hypothesis is a change of tectonic flags. If it will find confirmation, then already soon two Africa can appear on our planet. However, such scenario of development of events is possible only through 50 million years [11].

As ice continues to melt, specialists envisage the substantial height of volcanic activity all around the world. Climatologists assert that in the near future our world will be only heated. Natural changes can be sharp and catastrophic. Only in 2016 natural anomalies costed to humanity over a \$650 milliard, and with every year this sum increases, in fact the mechanism of the global warming starts on our planet [28].

In 2017 the USA outlived 16 natural cataclysms, that costed the budget of country record \$306 milliards Country was attacked by droughts, ground frosts, forest fires and floods. Only for one year

America three times suffered from powerful hurricanes and 8 times – from reckless gales. Cataclysm took lives of 362 people. Three hurricanes, “Irma”, “Maria” and “Harvey”, inflicted a most damage [23].

Scientists forecast, that in future tropical thundershowers, floods and gales, will come on changing to the protracted droughts. So in June in 2017 Berlin grew to Venice, and a winter thundershower in January in 2018 resulted in a volume, that in Paris rivers Seine and Vain came over their banks [13].

In January 2018 on the south of the USA first for the last 30 years snow fell out. The thick layer of ice forged an ocean near-by Cape Cod peninsula in the Massachusetts state. Snow-falls and nipping frosts covered almost all territory of the USA. In Boston flood flooded streets that forged frosts almost at once. Through an inclement weather 19 persons perished in a country. However, in the north, in Arctic and on Alaska, anomalous warm period was fixed – a temperature grew on 30°C. Humanity entered the period of anomalous natural changes [27].

Winter in Sahara becomes a tradition. So in winter in 2018 snow covered the dunes of the desert several times. Before that such phenomenon was observed in 2017, and to that – in 1979. In Australia in January there is traditionally high summer. However, in 2018 Australian tested temperature shock: after the sultriest days, when the stem of thermometer rose to 47°C, a temperature suddenly fell down to the zero and snow fell out [28].

In other part of the world, in Arctic, lately there is an anomalous rise in temperature. In the north point of meteorological supervisions of the world, on the Kap Morris Jesup, Greenland, temperature record was fixed. In February in 2018 the temperature of air was warmed up to 6°C and during two days did not go down below zero even at night. It is at that usually in this time here is 30°C. Increase of temperature in arctic breadths results in violation of zonal transfer of the air masses on the whole. Circulation of air takes place in meridional direction. There are planetary water-waves of heat and cold, as a result of that the considerable masses of cold air can spread far to South, and warm – on a north, arriving at even an arctic circle and higher [28]. Such changes result in the increase of amount of the elemental phenomena of weather, instability of atmosphere grows on the whole. And all of that influences on an economy, society and environment in general.

Ecologists explain the anomalous climate changes by the extrass of greenhouse gases, that detain sunbeams and create the effect of hothouse on Earth. According to the data of the research conducted by the incorporated research Center of European Commission, if humanity will not shorten the extrass of greenhouse gases and will not decrease the influence on a climate, then already to the end of this century only weather cataclysms will kill approximately 200 thousands of Europeans annually [8].

A man since olden times tried in somewise to manage natural processes. It stimulates science. Such experiments are produced constantly and can have both positive and negative influence on humanity. In Middle ages it was possible to burn out on a hearth for the call of rain, and already today scientists translated this “miraculous action” in the plane of science. That “bore” a rain,

it is needed simply to “sow” clouds. Scientists enter in an atmosphere dry ice, iodide of silver, expect a necessary moment, when growing heavy clouds will accumulate force, and the megascopic get on 50% precipitations. During XXth century scientists try in any case to overmaster a weather. Quite a bit useful opening is done [28].

The layer of earth biosphere on height from 80 to 600 kilometre, that is named an ionosphere, contains plenty of lone electrons. Ionising takes place under act of ultraviolet rays of Sun. An ionosphere is an original “case” that protects Earth and all living organisms from an excessive solar radiation. However, scientists invented technology that gives an opportunity to influence remotely on the thickness of protective layer (ionosphere). The artificially created heterogeneities in an atmosphere result in a volume, that sunny energy warms up a planet unevenly. On Earth there are overfalls of temperatures, that create atmospheric fronts, cause local droughts, thundershowers, cyclones and hurricanes [28]. Such technologies became the threatening instrument of big politics.

The USA already a few decades use the climatic setting of HAARP (High Frequency Active Auroral Research Program). On an official version it is intended for the study of dynamic processes in the ionosphere of Earth [25]. However, scientists assert that HAARP is applied for realization of experiments on the climate change [3]. However, in opinion of researchers of the USA, there is no convincing scientific proofs of efficiency of efforts in relation to the change of weather.

In United Arabian Emirates for a year 75 millimetres of precipitations fall out in all, that in 10 times less than in Ukraine. Country contests with a droughty climate by means of chemistry and aviation. In clouds they start salt rockets with the elements of potassium and sulphur. Thus the amount of precipitations increases on 5-70% depending on quality of clouds. So in April in 2017 strong precipitations in Abu Dhabi were caused exactly by sowing of clouds. Three days prior to a thundershower an aviation “sowed” clouds for 10 times [28].

Scientists from the USA investigated influence of climatic changes on society. On results of researches, climatic changes, cataclysms and anomalous natural phenomena, will destroy industry and agriculture in many countries of the world. And it will result in the increase of fight for resources. Rebelling, collective violence, fascination of fertile earth, war is all already began and will only become sharp. Only from 1981 to 2002 the climate changes costed to the world economy of \$5 milliard annually. Through the global warming already to 2100 humanity will lose fourth part of world GDP. Scientists notarize, that exactly through climatic changes already to 2030 the amount of the armed collisions will be doubled [28].

According to the data of researches, conducted by UNO experts in 2017, from the lack of water already today close one milliard of people suffer in Africa, Middle Asia, China, India and on Middle East. In a next decade this number will exceed three milliards. Almost a half of population of Earth will be waterless. Scientists forecast, that through the global warming water will not remain even in Antarctic Continent. People will kill each other,

to get drunk, and conflicts between the states for water resources will provoke the third world war. According to this statistical UNO data, during the last 50 years about 500 international conflicts took place for water, 20 from that were full-scale wars. Principal reason of all conflicts on Middle East is spores for water and vegetation [24].

A man can live waterless not more than six days, but in the extreme terms of 30-degree heat, caused by the global warming, this period diminishes to a few hours. Sharp heart failure can kill a man on the draught of a few minutes. Fight for water, essentially, is a fight for life. In animal kingdom during the protracted droughts, when on ten of kilometres around there is an only source of water, a “water truce” comes. All animals gather together near watering, and dangerous predators do not even gather to attack defenceless. For people all vice versa. The lack of water wakes up in them animal cruelty and provokes on aggression. People kill each other for possessing water resources [28].

One of such resources is the Jordan river. This little reservoir is a nourishing source at once for three countries of Middle East – Israel, Livan and Jordan. Already many decades (from 1960) these states live in sanguinary war. All these years people perish for access to the river. Arabian-israel conflict is the most prime example of that, as far as water resources are reason of conflicts. Since 1947 Israel, tiny country, on 60% covered by the desert, almost continuously wages war with the whole Arabic world [7].

According to the last researches of scientists, the largest in modern history terrorist organization that propagandizes radical Islam and aims to clean the world from so-called “incorrect”, in actual fact also militates for access to the water resources. Today under terrorists control there are territories, where 12 million people live. The center of management of ISIL is located in Syria. In obedience to the sensational conclusions of scientists from the Colombian university in the USA, hundreds of thousands of Syrians perished, millions had become refugees, thousands grew into terrorists as a result of the global warming. In fact, before the beginning wars Syria during five years suffered from extraordinary earlier drought in 2006-2011 [5].

On the prognoses of the UNO, soon the whole world will be pulled in full-scale war for water resources. In the lecture specialists even published the list of countries that will begin the first to attack one on other: Egypt, Angola, Namibia, Ethiopia, India, China, Turkey. After them the habitants of Middle Asia will begin to kill each other, and then habitants of Europe. To 2030 40% American Indians and one third of all Chinese can remain waterless. Today India occupies the first place in rating of countries with the most deficit of water resources [24].

A lack of water in India is the consequence of building of the Chinese dikes on the general river Brahmaputra. By such method the Chinese try to irrigate the droughty central and east areas, where over six thousand lakes dried up already. According to official Chinese statistics, the over 300 million Chinese have problems with a water-supply. It is 400 metropolises. Ten Chinese weirs work already, 18 are on the stage of building. There is all less of

water for countries, that is subjacent down-current, India and Bangladesh. The population of India presents more than 1,3 milliards of people. Technologies and innovations do not have time after the increase of population. Therefore the threat of war is high enough [28].

Scientists forecast, that through the global warming for 10 years almost half of tellurians will remain waterless. Already now there are countries, where water costs more than oil. For example, richest country of the world Qatar is fully confined from access to the water resources. The little vial of drinking-water in 300 ml here costs almost \$1. Its habitants force to use water repeatedly. In Israel there is the government program from the repeated use of effluents. Water from the sewage system is used for irrigation of the fields, washing of roads and machines, in the different types of production [1].

Water, as well as supplies of oil and gas, is very unevenly up-diffused among the countries of the world. For example, American can allow to the soba to use 700l of water on twenty-four hours, Chinese – 100l, African – only 3l. Water is the most valuable resource on Earth, without that a man can not live. The rich countries of Middle East found an unexpected method to pull through from thirst. Group of scientists worked out technology of transporting of arctic icebergs to the droughty regions of planet. Tugs must pull icy mountains to the banks of United Arabian Emirates. The cost of water, taking into account transporting, will grow to the cost of flight on other planet. An ambitious project provides, that one iceberg weighing 1t is enough to satisfy annual requirements in water of 30 thousand of citizens [28]. However, sceptics forecast, that transporting of glacier will occupy plenty of time, that will result in its melting. Far not all countries can pay for water by oil.

Today the poles of Earth, covered by glaciers, concentrate 90% of fresh water of our planet. Its prudent use would save all humanity from thirst. However, the conclusions of climatologists testify that through the global warming the area of ice in Arctic already grew short on 20%. For a few decades the ice caps of Earth will thaw fully [28].

The American scientists investigated, that through the global warming and deglaciation in 30 years the level of world ocean will rise almost on 65m. The richest cities of the world will appear under water. As early as 2013 the geographical national society of the USA created the map of territories that will appear under water. It is the state Florida of the USA and coasts of China, where 600 million people live. The capital of Great Britain London, Italian city Venice and whole country Netherlands will disappear under the layer of water. A half of its territory already today is below sea level and rescued from a flood only by bulk dikes. Only Africa, in obedience to the map of the future, does not almost test an underflooding. Opposite, as a result of rise in temperature, all continent will grow into the enormous water-free Sahara desert. Reduction of the amount of drinking-water will result in a volume, that people will not be able to live on these territories and will force to search more favourable places for a residence [11].

Already today through the global warming 13 million Africans suffer from the lack of water. To pull through, about 1 million refugees annual-

ly arrive by a sea to the countries of Eurozone. So much are reached by land, without regard to dangerous trips. So in Sahara over 500 African ineligible foreigners perished only during 2016, It is only beginning. In future hundred millions of refugees will move from south countries on a north. In African Sahara water already manages large politics. The loss of access to water means the loss of power. Therefore wars for water became the inalienable element of politics here. Africans are ready to die even for dirty water. In South Sudan in 2013 fight of tribes for access to the reservoir took lives of 52 peaceful people. Here it is workaday deal [28].

The climate changes, lack of food products and conflicts between the different armed forming and terrorists for power compelled more than 4 million of people to abandon the houses even in African Sahel. It is a poor region in Africa, that is an original transition between Sahara and south, fertile earth. It is an ecoregion of the half-hearted fields and savanna. Today such states as Senegal, Mauritania, Mali, Burkina Faso, Niger, Nigeria, Chad, Sudan and Eritrea are included in it. The borders of Sahel are not almost guarded, and power of countries of region is weak enough. Today thousands of civilians from Burkina Faso, Fumes, Mali, Mauritania, Niger and Nigeria annually perish as a result of bloody conflicts between communities [22].

According the estimations of United Nations, close 80% earth of Sahel degraded. A temperature there grows in 1,5 times quicker than in middle on the world. As a result, the amount of droughts and floods grows, that complicates the production of foodstuffs. About 50 millions of people in Sahel depend on growing of cattle for a survival [20], but earth accessible for the cattle breeding grow short. It causes migration of population on a north. Unfavorable climatic terms provoke conflicts for possessing resources, violence, distribution of jihad insurgent motions [21].

Experts from a climate forecast a food danger for 33 millions of people in Sahel in the nearest time. A loss of facilities for existence and absence of social defence are reason of that pastoralists provoke soldiery conflicts, manipulating a government and business-elite. There are strong reasons to consider that climatic shocks and organized violence will be intent in 2019. It was assisted by the protracted drought that resulted in a substantial food danger. Except of that, the countries of Sahel region tested the unprecedented level of the organized violence in 2018. At least 5 million people were moved through borders or inwardly transferred in 2018. Yet 24 million people in this region need prompt food assistance [22].

The Permanent Interstate Committee for Drought Control in the Sahel) estimates a situation as “persistent food insecurity” in the nearest future. Reasons are adopt combination of unsuccessful government, uneffective economies, depreciation of domestic currencies, inflation, height of migration, migration of animals and high level of violence [21].

During previous 4,5 milliards of years climate on Earth could be changed only by global changes – influence of space, changes of tectonic flags and eruptions of supervolcanos. But last hundred of years exactly activity of people begins to change

a climate all quicker and quicker. Influence of man on nature is already compared not to the fades, but with falling of the meteorite.

Earlier the White house named the conclusions of scale researches of climate changes, that was conducted by 13 federal services, exaggerated. Attitude toward the global warming of the American president is rather ironical. During a performance in South Dakota he named the global warming the invented problem and promised to burn yet more “nice oil”. Though Trump is businessman, but he counted up badly. Research of experts of the World bank strikes: the tricks of nature cost to humanity, on the average, \$520 milliard on a year [12]. The USA is not one large country that does not want to renounce earnings on oil and eider. In Russia there is just a joke, that the global warming will go to them only on a benefit – a climate will become more suitable for life in their Siberian circumstances.

However, the world majority behave to the climatic changes in earnest. So EU in the nearest decade to fully pass to proceeding energy source. How to stimulate the process of the global warming the best scientists of the whole world work above. Mainly today events examine only on reduction of extrass of greenhouse gases in an atmosphere. However, there are revolutionary decisions. In particular, Edinburgh scientists suggested to build an enormous pipe that will arrive at a stratosphere. Through it it would be possible to produce dioxide of sulphur. Sulphuric clouds up-diffused by wind in an atmosphere, on set time will wrap a planet and will protect from overburning. Cost of project is \$250 million [6].

Already today there is perceptible considerable influence of climatic changes on an economy, politics and society. Geopolitical and climatic changes in the near time will cardinaly change our planet. Without regard to the apocalyptic prognoses of climatologists the scientists of leading countries insistingly search technologies of rescue of humanity from thirst and extinction. It is technologies of desalination of salt or ocean water. However, it is needed for providing of ecological sustainable development, that priorities of ecological politician of all states of the world beome reduction of consumption of resources and passing to environmentally clean materials and technologies, processing energy sources, such as sunny energy and wind power, processing and repeated utilization of wastes.

**Conclusions.** In the world of changeable power and excellent values, probably, it will be difficult to attain progress solution of general global issues. Such progress needs the concordance of priorities of actions, proof co-ordination and collaboration of governments of all states of the world. However, even implementation of all international agreements already will not help to unscrew the destructive levels of the global warming. Common understanding and cardinal effective decisions are necessary.

Global climate changes in a great deal are the result of long-term thoughtless, consumer menage on a change that the newest nanotechnologies and technologies of complete control of climate must come. Exactly this direction, in opinion of authors, is perspective for further researches.

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