

Bulat Yessekin-Climate change and environmental disaster-video

20241019

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N.B. Some of the transcription was not accurate, other errors will be mine (mph). The content is clear and Bulat's observations and recommendations are solid. The interviewer's comments and questions are in ***bold italics***.

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Climate Change and Environmental Disaster. What's Next?

Point of No Return

Transcript 20241019

<https://www.youtube.com/watch?v=xH5tov4Cho0> Global Crisis (see Channel)

"Scientific data is not yet at the center of political decisions. Science is only funded and taken into account when it aligns with the interests of authorities and business. So the role of science today is quite disheartening. What we need are independent scientific centers with independent funding. As for the major scientific issue in global climate programs, which is being talked about louder and louder, it's the disproportionate focus on greenhouse gas emissions. Greenhouse gas emissions are far from the only factor driving climate change. The focus on emissions and energy is mainly due to the business interests of those who fund climate conventions," says Bulat Yessekin, a Kazakhstani ecologist and international expert in climate change, water resources, and environmental protection.

It is our great honor to present this interview where you will find out:

- ◆ What contributes to the strong heating of the ocean?
- ◆ What key climate changes have been observed in the past decades?
- ◆ Which regions of the planet are most vulnerable to climate change?
- ◆ What problems does science have, by eliminating which it would make a major leap forward?
- ◆ Why aren't governments taking the necessary measures to address climate issues?
- ◆ What can we do locally and globally to overcome the climate crisis?
- ◆ How can we establish a dialogue between science and society to ensure that people receive reliable information about climate change?
- ◆ If there was unlimited funding, what research would Bulat Yessekin prioritize?

As our guest said, "Consider any technology and imagine what would happen if you replaced the entire business, say, of bottled water. Can you imagine what kind of money is circulating there? Or with municipal water, industrial water, and so on. It's not that simple. We need to make sure that people actually want these changes, and they want the technology. People need to create mechanisms for financing such programs directly and protecting them from those who do not want these changes."

Climate is already turning our lives into a nightmare. It is time to look into the eyes of this new reality and strive to ensure that our common tomorrow is better than yesterday and that all unique effective inventions and technologies are at the service of society. Today, it's important to realize that the future depends on everyone's choice!

OR

<https://www.youtube.com/watch?v=0DVBZddm6MI>

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Hello dear viewers. Today we have Bulat Yessekin with us. Bulat Yessekin is a Kazakhstani ecologist and an international expert on climate change, water resources and Environmental Protection. In the early years of Kazakhstan's Independence, he was

actively involved in creating the national nature protection system developing the Environmental Protection Law the water code and laws for the protection of plant and animal life. for the past 20 years he has been deeply involved in addressing climate water resource and green energy issues at the international level he served as the national coordinator for the UN on sustainable development representing Kazakhstan. Hello Bul Kamal Beckovic.

Hello.

You have been studying ecology climate and Environmental Protection for over 30 years. What motivated you to dedicate your life to this field?

I transitioned to ecology from a graduate program in the department of theory of machines and mechanisms where I worked at modernizing ferroalloy production technologies when I saw the massive factories in Russia and Kazakhstan which had huge ladles the size of a two or three story building filled with molten metal. I realized this course of development was kind of unsustainable. I shifted to Environmental protection in Karaganda working as an engineer with environmental equipment. I later became an environmental expert and when Kazakhstan's first Ministry of Environmental Protection ([?g-pOrODawa](#)) was established I joined it and eventually became the head of the state control service for the protection and use of Natural Resources.

I also was the head of the capital's department when Almaty was the capital, I then moved to international programs on environment and sustainable development. It was at that time that I actively participated in climate, water, sustainable development and biodiversity negotiations, and not just participated but actively advanced my proposals. This is actually quite unique—my personal suggestions are now part of the documents and decisions from global leaders Summits around the world. These include a Johannesburg summit in 2002 and a Brazil Summit in 2012. Also, during the Kyoto Protocol negotiations, I persuaded the government and subsequently other countries that both Kazakhstan and other nations should undertake voluntary commitments to reduce emissions—not just the wealthy countries, but all countries should address these issues. So my international activities have been quite intensive—they've given me clear view of current developments as well as the opportunities and challenges we face today.

We are currently witnessing a situation where natural disasters are increasing new phenomena are occurring in some areas and existing ones are intensifying. How would you overall criticize this climate situation on the global scale?

I would recommend referring to reports from the leading international centers in various countries such as those in Germany, Sweden, and the UN. These reports are consistent in their conclusions that we have disrupted the balance of the global climate system which is highly inertial and complex including the oceans. In other words, we have disrupted the climate system and the reports indicate that this change in climate is now irreversible, meaning we have passed the point of no return; and yet we continue to damage and destroy nature despite all our grand

statements, funding, Investments, and so on. We're now seeing the early signs of climate change manifesting before us.

You mentioned the oceans. What specifically have we disrupted in the ocean system?

According to the latest data the oceans are warming rapidly can you imagine the immense power of the oceans to raise the ocean temperature by 1° what kind of global changes are needed for this to happen, including melting glaciers, forest fires, droughts, floods, and so on—all of this is a manifestation of the disruption of the global climate system which are the first signs of disturbances; and as scientists and research centers say, this is just the beginning.

So the forest fires, for example, are not caused by human hands—I mean no one is running around setting fires as it was reported in some news—there is a human factor, but the thing is that the statistics showing global fires all over the planet indicate that fires are starting to burn where they didn't burn before; that is, a climate has become drier and where the forests were humid, even humid tropical forests are burning today.

Could you please name the reason why there is such a strong heating of the ocean and what contributes to this the rising temperature of the entire planet?

I mean the rising the temperature of the planet is like the rise in the body temperature of a person which indicates that a person is sick. In other words, it is one of the criteria indicators of a violation of health—that is, the temperature is rising but our planet has had the same temperature for tens of thousands of years—somewhere around an average of 15°. It's the average temperature on the planet which was maintained by nature, of course, not us, not people, maintain this temperature. This is a complex natural process that we cannot repeat, we cannot even understand. I mean these are all processes associated with global water exchange—global water cycles with a transfer of substances: energy and the use of solar energy; that is, this whole balance of solar energy and biomass, soil, forests, together they, all of nature maintain the condition suitable for human life. That is, a person lives in a very narrow range a range of temperatures, pressures, humidity, air quality, and other parameters and these conditions were maintained by Nature. Someone at some point created a mechanism—launched it, which maintain life on Earth, suitable first of all for a human, and we have violated these conditions. This is a complex mechanism. Just as a child who does not understand a complex computer can easily break it.

What does human activity contribute to the heating of the oceans?

There is a balance and there is a well-known theoretical work on biotic regulation that shows how all natural ecosystems, including glaciers, mountains, rivers, steppes, soil, forests, and oceans work together to maintain conditions necessary for human life. Everything is interconnected, much like how all your organs—heart, lungs, liver, blood vessels, are

interconnected and support human health. When any of these processes are disrupted (and we're disrupting many of them).

Today the latest report which received a Nobel Prize this year on planetary boundary violation, show that we have already disrupted six out of nine planetary processes that support life on Earth, including climate, humidity, biodiversity, nitrogen cycles, and others; that is, disruption in any organ of a living organism leads to disease and eventually death if not addressed.

Therefore, all these processes are interlinked; and just as a rising human body temperature indicates the case of progressing illness, our planet today serves as a most obvious and noticeable indicator of these natural disruptions related to rising temperatures, ocean heating, glacier melting, increasing wildfires, flooding, and so on.

Could you please specify the key climate changes you have observed over the past few decades?

The key changes include unprecedented increases in global temperatures and disruption to all major natural processes that sustain human life. This includes land use practices such as deforestation, emissions, pollution, and water extraction for irrigation. Nowadays it is obvious we've clearly exceeded the limits set by the natural laws that are necessary to preserve biological life on Earth. In all respects we've gone beyond the boundaries of our ecological niche which allows us to maintain ecological and climatic stability on the Planet.

In your opinion which regions of the planet are currently most vulnerable to climate change?

First and foremost, the regions that are most at risk are those currently dependent on or vulnerable to ocean flooding, rising sea levels, droughts and wildfires. These are, of course, the hottest regions and Island Nations. However, this is just a first wave of impact, as global climate change affects the entire planet and will eventually harm all countries and populations worldwide.

How has the climate situation changed in Kazakhstan and Central Asia over the past few decades?

According to scientific data from meteorological sources that monitor the climate we are experiencing a rising temperature and is happening faster than global average. Because Central Asia including Kazakhstan is classified as arid and lacks direct access to the ocean which acts as a global climate regulator, this makes our region particularly vulnerable especially in terms of ecological sensitivity leading to rapid changes. These changes will primarily impact water resources, since water is the most vulnerable factor affected by temperature changes, specifically all changes in soil moisture and thus land fertility, human health and extreme events like droughts and wildfires are transmitted through water, leading to the drying of forests. Therefore, for years, official reports have indicated that we have not resolved a single

environmental issue since gaining independence. Emissions, waste, land degradation and pollution have only increased.

So the economic interests of countries and businesses continue to destroy nature which is critical for Central Asia and Kazakhstan countries, especially as we rely heavily on transboundary rivers from China, Russia, and other Central Asian countries. That's why there haven't been any favorable opinions and progress is moving in the wrong direction.

So the main problem is the increasing scarcity of drinking water which is worsening over time?

It's not just drinking water—it's also irrigation water. Climate change will impact countries and soil fertility, soil desiccation, and increasing droughts will become more frequent and intense primarily affecting food supply and drinking water. Predictions indicate that if climate change accelerates, we will likely face global hunger related to conflicts and migrations. The primary foods are grown in open fields and depend on weather conditions, so climate will primarily impact food through water scarcity, droughts, fires and floods--affecting both food security and human health including the spread of viruses.

Based on your forecast for the near future when is Humanity at risk of facing a food crisis and how much time do we have?

I believe the crisis will intensify in the coming years because the soil is yielding less and less; natural zones are shifting; areas that once produce wheat may turn into semi-deserts or deserts making wheat cultivation impossible in irrigated areas. Water availability would decrease due to glacier melting and water extraction in other countries. Thus, ***we will see a sharp decline in soil fertility and food production*** from both the South and North.

So we're talking about a timeline of just a few years not decades?

Yes, we're talking about years not decades.

We also know that you participated on behalf of Kazakhstan and the signing of the Kyoto Protocol. Tell us about your role in this process?

This was my first experience participating in international climate change processes specifically in the international negotiation process under the framework convention on climate change. I saw even when the Kyoto Protocol was still in his preparation stages that it was an opportunity to help Kazakhstan improve its Environmental Policy. As I mentioned having worked at a national, local and regional levels, I saw that we have very weak laws, weak environmental requirements. I hope that the international commitments of the Kyoto Protocol would push countries to seek more effective solutions and adopt stricter laws. Consequently, I actively supported the signing of the Kyoto Protocol, and at the same time I convinced the Ministry of Ecology, the government, and even the corresponding presidential decree was issued not only

in the ratification of the Kyoto Protocol on a session but also for Kazakhstan to take in voluntary commitments to reduce emissions even though we weren't obligated to do so under the Convention. We officially stated this position, signed it, but there was significant opposition because many countries believe we were disrupting the established system where only wealthy nations were expected to reduce emissions, while poor countries, traditionally poor countries, which also significantly impacted climate like China, India, Arab countries and oil countries were not held accountable. This was a position before the Kyoto Protocol but the Kyoto Protocol was signed by many countries. But as experience has shown it did not have any impact on the situation and turned out to be just a green business under environmental cover. That's why Japan, the host of the Protocol was one of the first to withdraw from it. It turned out to be a deception.

So it wasn't implemented--because?

No, it was implemented according to his timelines but it did not yield results; but everything turned into speculation and trade as they say, "in hot air" that is, there was no actual reduction in emissions—the **countries were merely transferring their obligations to reduce their greenhouse gases without any real action**, making the whole process ineffective despite extensive discussions about the protocols articles and rules. That is, it has now been replaced by the Paris agreement.

What challenges does the scientific community in Kazakhstan face in addressing environmental and climate issues?

The challenges are not just for the scientific community, but for society as a whole. Last year we issued several statements on behalf of public organizations in Kazakhstan and Central Asia highlighting that despite countries' commitments, laws, agreements, and increased funding, emissions continue to rise and environmental degradation persists. There was even a presidential address stating that the government is merely imitating Environmental Policy, deceiving both the presidents the public and the world community. That is, on one hand we make a statement at the global level and on the other hand we do nothing to reduce these emissions. Using the example of large enterprises we have shown that the government issues a permit—even more the prescription of the Paris agreement and the commitment to reduce emissions. In other words, **despite the goal of achieving carbon neutrality, we continue to grant companies limits that allow for increased emissions.**

So essentially everything the global government is discussing is just on paper and not being implemented, and there is no support from the government itself?

No, it appears that these are not just loose statements—imagine 50,000 to 60,000 ministers, heads of state, and scientific experts attending these conferences to discuss and adopt amendments, laws, write texts, coordinate, sit for 10 to 15 days, work twice a year, and the end they return to their places. It turns out they're only thinking about money, about who should give money, and who should receive money; and billion dollar funds have already been created, but

in fact when governments return home they do not change their policies—they continue with the same policies that existed before these commitments and statements—that is, they continue to increase the pressure on Nature.

Apart from the issue you just told me, what other problems exist in today's climate and Earth Sciences? Addressing these issues could lead to a major Leap Forward in science and more importantly help preserve human life and the planet as a Whole?

Speaking of science, I spent some time working in the field and conducting research and I can say that one of the key problems is that **science still has very little influence in policy**. The UN has even issued several statements about how scientific data is not yet at the center of political decisions. Science is only funded and taken into account when it aligns with the interests of the authorities and business. So the role of science today is quite disheartening. What we need are independent scientific centers with independent funding—it's for a major scientific issue in global climate programs which is being talked about louder and louder. It's that disproportionate focus on greenhouse gas emissions greenhouse. **Gas emissions are far from the only factor driving climate change**. The focus in emissions and energy is mainly due to the business interests of those who fund climate conventions.

So essentially if a project is profitable for the government they'll invest in it—meaning it'll generate a return; but if it's not profitable no one will spend the time or money on it, even if it could yield results and help solve the problem?

That's really the reality across the world in all countries, but it's not just about what's profitable for the government it's about what's profitable for business. Today, governments as such have transformed: they're no longer the regulators between business interest, the people and the environment in countries—they're now entirely under the control of business and what we have is a new formation of business and government. If this business-government system doesn't see a profit they won't fund or support certain projects as for what truly needs to be done to improve the environmental situation—like simply stopping the burning of dirty coal—such measures are delayed under various excuses—they'll say we need more studies, feasibility assessments, or that is technologically impossible—but behind all of this is basic business interest. In many countries, including Kazakhstan, corporations are the ones shaping government structures defining the powers of Ministries, appointing ministers and deciding what they should focus on, and generally these programs serve corporate interest not environmental ones.

What do scientists predict about climate change in the next 10 to 20 years? Which forecast do you find most realistic based on current scientific discussions?

According to projections from the climate convention and its intergovernmental expert groups, several scenarios are typically outlined: pessimistic, optimistic, and business as usual. However, life shows that the worst case scenario tends to materialize. The most notable forecast was a limit growth report by the Club of Rome in 1972, which indicated that by the early 2020's

Humanity would face collapse in food security, health crises due to viruses, increased environmental pollution, and climate breakdown, including disruptions to water cycles. It was all modeled as one of the scenarios and it is playing out exactly as the worst case scenario. Last year, major international consulting firms confirmed that the scenario is fully justified. If earlier our scenarios and forecast suggested that by the 50th year there will be a great warming of the planet, or by the 100th year the melting of glaciers would begin. Now we already see that all this has accelerated many times over. We're no longer talking about the 2050's. I believe the critical point to consider now is 2030 when we should expect all rapid and negative changes. Many prominent scientists like Dennis Meadows and James Lovelock have warned that climate change doesn't progress linearly, but rather exponentially and explosively. There will be a rapid collapse—we are already facing these problems, and the solutions are in our hands right now. We can't afford to wait until the 2050's or 2100's, as many people hope, thinking that they will be spared, or that we will still have time; but the truth is we have run out of time and we should have addressed the climate situation yesterday.

We have passed a point of no return according to all independent estimates. Already at the end of the last century we still had the opportunity to keep the temperature and preserve key natural systems, but that window has closed. It's like when you benefit from a fruit tree used, for example, as fruit, its wood for heating, for healing for oxygen; and at the same time you cut down the tree and destroy its roots—then this tree dies even if you still have a few roots left, say five out of 10, or three out of 10—it seems we're now cutting the last remaining roots. This is why we say that we have crossed a point of no return. The climate is a complex global inertial system that has shifted, and like a snowball rolling down a hill, these changes will only accelerate.

But do we still have any chances left ?

The fact is: climate change has begun and will keep speeding up and it can't be stopped by agreements like the Paris agreement which are more focused on business and money anyway. We have no chances left—the only thing we can predict is new conditions that Humanity will face on this planet and how we can survive in these more challenging and unfavorable circumstances compared to what we have experienced for centuries. In Millennia we have lived in very comfortable conditions—but tougher times await us and we must come together now. What you mentioned about having scientific center is not about stopping meteors from hitting the planet, it's about discussing how we need to change our ways of life today to survive in more complex and uncertain conditions where heat waves, wildfires and floods will alternate. There will be failures of weather: it means crop failures because for harvests we need a stable vegetative period, irrigation, climate, rains and so on. Disruptions in weather will impact these factors, so we need to think about how to survive by securing sources of food, energy, water, shelter and safety. The chaos resulting from the collapse of our organized systems, our familiar life support systems, will inevitably lead to disorder, migration and looting.

Why do you think we don't see the obvious, and why aren't governments taking the necessary measures the scenario you just described, which is quite grim and frightening?

There has been a lot of discussion on this topic at a global level. I remember Dennis Meadows' lecture in Johannesburg in 2002 at the world Summit on Sustainable Development, where he stated that this issue stems from a biological inability of humans to grasp the scale of the problem biologically. We cannot comprehend issues that exceed our understanding. There are well-known laws of (Barry) Commoner that illustrate this a part can never fully understand what the whole knows. We fail to recognize the magnitude of the threat and continue to live as if by chance, hoping that authorities or scientists will change things for us. Meanwhile, we do not reduce our consumption—whether it's energy, goods or material possessions—and believe that someone else should take action. All of this suggests that there is no hope from either the government or business. Business doesn't operate solely for itself: its end consumers are people—people want to have more and more. I mean, we do not view the problem of global climate change as a threat to humanity or to our current generation, let alone future generations. We don't see it as our personal problem.

So the problem lies in our tendency to shift responsibility onto politicians and businesses, expecting them to improve our lives while we remain passive? We ourselves are the source and driving force behind all these actions of businesses and governments, yet we are unwilling to change our behavior. At the same time we contribute to the worsening of the problem?

Yes, we can only complain and criticize. Recently there were large protests in London regarding the government's lack of serious action on environmental preservation, but all those young people who protested will go to pubs afterwards and continue their lives. Everyone assumes that someone else should handle this issue. In this regard we are quite irrational. The term Homo sapiens, which means 'wise men' is completely unfounded. We're more like consuming beings who do not want to change our consumption habits; humans who devour.

Thank you for your answer. And how do you assess the public efforts to combat climate change? Is it possible for us as Humanity to unite and stop being consumers and shifting responsibility to the government to business and so on and yet solve this problem?

It is possible, because if you stop buying, for example, gasoline, then the activities of gas stations and oil wells changes. So, we have an impact. Consumers impact production: demand creates supply. It would be good if all people realize their role, their responsibility, for what the government and business are doing and changed their behavior; after all, we created an economy of disposable things. I mean, we have long forgotten that things can serve for a long time—like Soviet washing machines or TV sets and so on—they actually serve for decades, refrigerators serve for decades. Now everything is disposable. After a single part breaks, it all is thrown away. This results in more and more pressure on wildfire, deforestation, reduction of

biodiversity, changes in all biological conditions, sustainability. This is a reason why today we have diseases, viruses weakening of immunity, and so on. I mean, behind all this this stains a human himself with his unreasonable behavior, his desire to have more tomorrow than today. So when we scold the Paris Agreement or the Sustainable Development Goals, and we call Green Economy greenwashing, that is just a deception under a green label. It's not just some monster governments or businesses that eat buckets of black caviar, it's the people who are behind it.

So the first request should come from people to change our format of consumer Society?

Mahatma Gandhi said, if you want to see change in the world, start with yourself. It's difficult—people don't want to change, and believe that someone else has to change. They're hoping that crisis will stop. Well, it's just an obvious factor here—there's no need for some complicated models and forecasts. I mean, if you chop down the last root, the tree will inevitably die. If you take out all the fish, the fish stock will not be able to recover the next year; so you have to leave and take the minimum to maintain reproduction at the level that corresponds to the biological laws; and these biological laws do not depend on humans. You cannot order a sturgeon to reappear if it all was simply caught by poachers, or if you have disturbed spawning grounds with numerous dams dikes and so on, block the movement of fish to spawning grounds. So there are no complexities here—there's no scientific trickery—these are all very simple laws for people government and business to understand. But if business wants to put a large hydropower plant in order to have energy as it is today, our government decides to build dozens of new reservoirs and dams, that is, if there are clear interests of business, there are no interests of nature, no interest of people: business just seeks the opportunity of getting billion dollar profits.

And what do you think we can do locally and globally to overcome this climate crisis for nature, and it does not matter?

What color the skin of a person who pollutes or takes water or builds a dam and so on--what is important for nature is to reduce the overload which helps to maintain natural processes and restore them now—programs on water sector, development on energy and so on, on building new dams in Central Asia—they are being discussed here; and look who is commenting on them, only a few scientists are commenting. People don't care at all; they don't think it's their program or that they can influence, and so on, so we're kind of detached, uninvolved, and just passive; we don't understand the danger of these rising problems, we don't understand their scale, we do not realize that we're simply depriving our children and grandchildren of the opportunity to simply live as we have lived.

In your opinion, what measures can governments take to adapt particularly to climate change?

The government must of course make these positions to promote and support water conservation. Our standards and norms for planning new productions and for water extractions

are completely outdated. All these issues are part of the government's tasks related to forest restoration, fire prevention, fire monitoring, soil restoration, halting land cultivation, and restoring rivers and lakes which are not even included in our programs. Our programs only focus on water protection and extraction, and we lack initiatives for more efficient water use. There is also no initiative for restoring rivers and lakes. It's surprising, especially when we know that we have almost no clean rivers or lakes left in Kazakhstan and Central Asia. There is not a single river in the world that is not obstructed by dams; that is, there are very few of them left, so we aren't restoring natural ecosystems. We need to change the entire structure that currently contributes to all these destructive processes. Therefore it is evidently the task of the government and local communities to influence the government, as well as to take measures regarding their own behavior, and create communities to act together. The establishment of communities in the form of Ecovillages and cooperatives is a very important direction.

Considering that we have just talked, let's say, about the lack of involvement of society in this whole process and of each person individually, now I'd like to focus on the interaction and dialogue between science and society today. Science, as we've mentioned, is quite detached from the public. We see very little coverage in the media about the scientific work being done in our country and all around the world about achievements, discoveries, and the true heroes of science. So to speak ultimately the goal of science is to serve Society through continuous knowledge acquisition, to improve people's lives; and to constantly develop and advance humanity. How can we establish an open a dialogue between science and Society to ensure that people receive reliable firsthand information about the climate today? Society is increasingly concerned about the rising number of natural disasters, and let's say they don't find the answers to these questions—how can we synchronize this process so that people are better informed about what is happening, and can also participate directly and interact in this? In other words, how can we prevent them from being distant and indifferent to these issues?

I think that people are indeed confused, because amidst the abundance of information today, numerous surveys conducted in various countries neighboring Kazakhstan show that people prioritize such issues as housing prices and rising fuel costs over ecological concerns in life itself. They're willing to live in pollution, breathe dirty air, and drink unsafe water—but if you try to raise fuel prices they are ready to protest in the streets. This indicates that people's priorities are completely distorted. It shows that we do not understand what is more important for a human for health and for our lives.

The science is also to blame here, because scientific research is numerous, fragmented, chaotic, and not systemized. It is essential to have not just a large center as a super brain as you propose, but we need a mechanism for an independent system that selects the most important scientific works, discoveries, proposals, and advancements. I've been in this field for 40 years as a professional; and from the vast amount of research, I've identified and will continue to support and promote a technology that Slovakia has called "The New Water Paradigm." Ethiopia refers to it as a Great Water Revolution, while in Russia, a scientific community recognizes it as the (*?put the Panka looking method*) for soil restoration and river rehabilitation. This technology allows us to stop extracting water from rivers for irrigation and

achieve yields many times greater than what we have today. Instead of restoring soil properties and preventing floods, we fail to allow soil to regain its natural abilities. The soil has sponge-like properties: it can accumulate moisture not just from the rain but also from the air. When we talk about water from the air, there are not only technologies, technical solutions, but natural solutions. They're much more powerful: this technology is tens, hundreds, and even thousands of times cheaper than the methods we currently know and are trying to implement for water conservation, such as sprinkler systems, drip irrigation, water tariffs and so on. This technology addresses not only water issues but also climate challenges. Restoring the soil and Earth's surface, including rivers, lakes and forests is a key factor in maintaining climate stability today. This technology allows us to do this at a cost that is tens, hundreds, or thousands times cheaper. People can use this technology on their own plots, local communities and farms. We need to promote it perhaps with your help—we can tell more about it in detail, show practical examples where water bodies appeared in completely barren areas. Greenery emerged, biodiversity increased, and the land began to yield good harvests without extracting water from rivers and lakes.

Before we move on to the technologies, I have two more questions based on what you said: the first question you mentioned that people live in poor conditions and are focused on survival, so the question arises: Would improving living conditions encourage people to pay attention to climate issues and take a more active role in addressing them?

And the second question concerns the fragmentation of the scientific Community: Would the creation of a unified scientific center help in solving climate issues, restoring Earth's ecological immunity and preserving life on the planet?

That is why we need scientific centers at the regional, local, and National levels—but they must work together. These centers are necessary and now the internet allows all this to be done without competition, without pomp or confrontation—enabling coordinated work. In other words, it is achievable. I believe the scientific Community is more inclined towards such collaborative efforts than, for example, competing businesses; although we see that businesses unite faster, better and more effectively. Therefore the role of knowledge is very important. We make many mistakes because we lack information; but ignorance does not excuse us. For instance, people may not know about radiation, but it still affects them; so one does not need to be a physicist. We need to trust scientists, as I've said many times before. In other words, we should trust experts who have knowledge. When you deal with a problem--whether it's plumbing or electrical work, you don't try to argue or prove them wrong—you trust a specialist. That's why it's important to bring scientists together: create the center and coordinate efforts so it's clear which developments are truly beneficial and which are unnecessary or less effective. There should be some sort of filtering process. I once suggested a program called Green Brain which involves creating a panel of independent groups of expert scientists recognized for their authority and track record. These scientists would evaluate technologies, and say, for example, that a certain irrigation or water saving technology is genuinely useful; and this technology is just business interests pushed by certain groups through local governments and Ministries, they had a large budget of funds. That's why the role of science is crucial. Yes, uniting scientific community is

important, and as far as I know, the only global organization that somewhat fulfills this role is UNESCO, which is considered to be a UN body uniting scientists. However, it's weak, almost invisible, and is unclear what this organization has been doing all these years. Much like many other such structures, therefore, we need to establish independent foundations. If there were an independent financial base, I assure you many scientists would receive support. Sometimes only a small amount of funding is needed for them to complete, showcase, discuss, or implement their work. People armed with expert knowledge should not allow governments and businesses to act in ways that continue to destroy the future of the planet and Humanity. At the same time, people themselves should apply methods that are feasible at the local level.

What do you think about the technology of atmospheric water generation from air?

See the Embedded video: From popular science film, "Water from Air: the path to saving humanity." I have not edited this section (mph).

how does atmospheric water generation technology work and water evaporates every day from all our ocean seas and lakes when it goes to a certain height above a certain point it goes below dew point and becomes a cloud and then of course the wind blows that cloud when it comes below the dew point. It becomes rain and changes state again we're not only inventing the wheel all right uh at the moment uh there are there's two you consider the mix two two methods really of obtaining water from the air one is through the use of uh medium so like a mesh or a (*?disant*) that you put through uh the air and it basically either absorbs it or forces the condensation through that and the other one is uh basically lowering the temperature of the air to the Vie point so that the water naturally condenses the technology there can create water

anywhere um because the technology is is used in such a way it create heat creates heating Heating and Cooling creates condensation so whether it's in um Devil's Valley in Nevada or in the Sahara Desert we can still make water there so we can make water anywhere on the planet the way the machine is designed the air that comes into the machine it's filtered to start with then the moisture is condensed out of the moisture that's in the air so the only thing that the machine is seeking is the H₂O molecule which is smaller than the a piece of microplastic the filtration strips everything off then yet again it when it goes into the tank before it comes out to the consumer or the people who use the water it goes through another large section of carbon filtration laced with silver so that that it not only doesn't impede the growth of bacteria but it strips off anything else that's in the water it's an it's an incredible process

We need to provide people with solutions, and one of the solutions currently being proposed is the widespread implementation of technologies related to atmospheric water generation (AWG) and fuel-free generators. There are already several companies offering these technologies which can provide us with clean energy and environmentally friendly water sources. This could significantly improve our environmental situation and contribute to the cleaning of the oceans?

I've mentioned before that there are technologies that can extract water directly from the atmosphere, for instance, in Uzbekistan there are even special regulations for Mass purchasing such technologies. The idea is to place a small container in a yard serving several households: you set up a solar panel that generates clean water daily and the required quantities of hundreds of liters of clean water. I proposed this idea at a Sustainable Development Summit during a meeting in Rio de Janeiro back in 2012, but unfortunately, my suggestion wasn't taken up. I recommended selecting five key technologies in each area, whether as energy supply, water supply, food, housing, or others that will provide these essentials in the most affordable

and accessible way. These will be reliable proven technologies that are the most cost effective. I also suggested giving these technologies the green light by exempting them from all taxes and customs duties, establishing training centers, distribution hubs, grant programs, and so on. In other words, we could have solved many problems. However, these ideas seem utopian because people are driven to buy more expensive disposable items and to keep relying on them. This creates dependence—that's why social community's role is crucial in creating an alternative movement that promotes practical solutions that people understand and find meaningful. There are many such technologies. As I've mentioned before when we worked on the regional center project with the World Bank, we identified over 100 technologies across various fields that provide access to clean water and affordable energy. For example, you take an old parabolic TV antenna, cover it with aluminum foil, and a concentration of solar rays will allow you to generate energy without burning wood or coal. This is particularly useful in southern countries like Pakistan, Kazakhstan, Tajikistan, Turkmenistan, and so on, where you can have almost free energy—in just 10 to 15 minutes you can bring a kettle or pot to boil. There are many such technologies--they offer perpetual, cost-free, very cheap energy. For example, using discarded TV antennas and aluminum foil—what are the costs? Just \$20.

In one of your recent interviews you said, and I quote, “People should start learning how to survive, not just adapt to climate change.” To that end you initiated a collection of the world’s simplest technologies for the survival of humankind in conditions where there is no water, heat, electricity, food, and so on. You’ve already touched on this partially just now. Could you tell us about this initiative and how many working technologies have been found and collected in general?

It was my initiative to gather like-minded people in different countries, especially, first of all, in the countries of Central Asia, such as Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, and Kazakhstan, in order to analyze the use of such affordable and effective technologies together; I mean affordable in terms of money and complexity—to collect information from them to create reference books in five languages of all Central Asian countries, conduct massive trainings at the level of local communities—that is, not in cities, but in villages, farms and so on; and then place a database so that there are links to sources on the internet, on YouTube, which show step by step how you can create build, manufacture, and work with this technology. That is, we have collected over 100 inexpensive technologies related to water, food, energy, housing, and others. We have a database with links; perhaps some links are outdated, but the direction is clear and obvious. Of course, we need to provide people with these technologies because disasters occur; when there's a collapse, especially when dependent on centralized systems for energy and basic needs, for example, in the context of climate change these systems are becoming increasingly vulnerable. Centralized systems for providing energy, food, and water will likely collapse under the pressure of adverse natural processes—they won't stand it. That's why starting today, all countries, especially Kazakhstan, need to strategically switch to the decentralization of life support systems—local systems, local water sources, local energy, and local food. Local system is a threat and end to corruption because at the heart of corruption is the management of centralized flow of money and decisions. That's why we need to provide people with these technologies and explain them. When there was an energy collapse in (?eus)

people didn't know how to keep warm—they just wrapped their children in blankets; but they should have been aware of such technologies: today, they're crucial, given their rapid climate changes that will first and foremost impact water, energy, food and housing.

Could you tell us if there are any other modern innovative technologies that could help Humanity in the face of global climate change?

There are many of them, I'm sure. I know one inventor personally who is a hereditary physicist inventor; even his ancestors were associates of Nicola Tesla. He's just a genius like Tesla: he seized this technology in his thoughts, and in his head he created a technology for purifying water from any pollution that is much more effective than those that are now used in industrial enterprises or in public utilities—that is, in the technologies of water poisoning with chlorine which are lobbied today in all cities of Kazakhstan, supported by those who supply chlorine chemicals and so on. Such technologies exist: they're unique, cheap, strong, and effective. Why is such technology good? It's good because it restores the natural property of water; the water doesn't just get purified by passing through chemical and other filters, it actually regains its natural qualities, and this technology is very affordable. But there's no support for such a technology yet: just consider any technology and imagine what would happen if you replace the entire business, say, of bottled water—can you imagine what kind of money is circulating there? Or would municipal water, industrial water, and so on. It's not that simple: we need to make sure that people actually want these changes and they want the technology. People need to create mechanisms for financing directly such programs of protection from those who did not want these changes.

If you had unlimited funding, what research would you prioritize?

First of all, I know this well at the global level—the main work that has not been done so far must be carried out, it's the assessment of the most important natural ecosystems that are vital for maintaining the climate. We need to identify and evaluate them. There was a previous assessment I participated in, the Millennium Ecosystem Assessment conducted by the UN. However, it was weak and didn't have this specific focus—it just looked at which ecosystem functions were declining. They measured things like how many berries, mushrooms people gather, tourism and so on, that is absolutely third rate factors. The assessment should be determined by the main criterion their importance is a preservation of the climate water cycles and generally, the preservation of living conditions. Such an assessment should be carried out urgently after such an assessment, regardless of where these natural ecosystems are located—whether in Asia, Africa, Europe, America, or anywhere else.

There are *three key directions* to focus on: **the first** is the global direction of ecosystem assessment and legal, financial, institutional protection; **the second direction** is the injection of technology, not just training, and a transfer of technology and installations to China—in order to solve small problem, you simply begin to replace state-owned stoves in private homes for your money, replacing them with more energy efficient ones that allow two or three times less coal to be burned—a simple solution—there is no

need to prove, justify, impose taxes—introduce trade mechanisms like the Kyoto Protocol be taken into account—so there are many such solutions here; technology is a second focus; and **the third solution** is a unification according to eight principles: I call them Social Basic Corporation Management—fragmented (decentralized) management into separate territorial Administration and departments and States. It should also be carried out through the creation of such an integrated base management through a joint stock company where people not only actively decide but people become shareholders, and they see what they're investing money in, what government programs they're ready to finance, and what products and services they're ready to entrust to business—what's going to change that is a joint stock company based on ecosystem approach based on basic principles.

Thank you Bul Kamal Beckovic for such a detailed interview. I think this would be a fairly good step in informing people about modern climate problems and solutions. I hope this isn't the last time we meet and our work will still be productive.

Thank you and best of luck.