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Enhancing Required Joint Efforts on Climate Action Project

iklimIN

CLIMATE CHANGE CONFERENCE

15-16 March 2019, Antalya

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Introduction

The opening speech of the high school students Çağla and Bartu, who work on Climate Change Adaptation for the Sea and Coasts of Antalya Project as a volunteer.

In recent years, we hear about climate change very frequently. This topic has introduced us to concepts such as super cell, extreme weather events, hurricanes, and drying lakes, which we were not really familiar with. The number of recorded meteorological disasters in 2000's has increased 3-fold compared to 1960's.

The main reasons behind this increase are global warming and climate change. There are significant threats and hazards not only for us, but also for all living creatures that we share this world with. According to the studies, an increase of 1.5 degrees in global temperature may lead to the extinction of about 70% of the plant species in the Amazon rainforest. According to the same studies, such an increase may lead to the extinction of more than 30% of animal species around the world. Unfortunately, the problems do not end there. One of the consequences of climate change is that invasive species threaten local species in

regions where temperature increases are experienced, especially in seas and oceans, which will negatively affect economies of such regions.

This planet that we consider our home that we breathe in, that we feed our body and soul with what it gives us, and that we find peace in is ours. And we don't have a minute to lose to start treating it better. What is the situation in our country in terms of global warming and climate change, which is called the bleeding wound of the world? If the scenarios mentioned by experts become a reality, the future holds drought for the Middle East, and in 2050, when Turkey might be water-poor country.

According to research, a large portion of Turkey is expected to experience a quite hot and arid climate by 2030. Additionally, the air that we breathe is getting more polluted and more of our forests are burning every day. According to the analysis and research, in the future, it is expected that rainfall will increase in the Black Sea Region only due to global warming and climate change, while significant decreases are expected in total annual precipitation in the Mediterranean and the Southeastern Anatolia Regions. In addition to this problem, our underground water resources, lakes and even salt lakes are facing several threats.

Well, our dear elders who can stop this rapid exhaustion… Will you take permanent measures? If not, our children will wake up to much more terrifying days than the current conditions fifty years from now. We, the young people, are living with this fear even today. Are we not the apple of your eyes? Are you not working for us and building everything for us? Don't you think, like us, there are more measures that can be taken? We want you to know that every effort in relation to climate change makes so happy and, despite everything, we have hope.

Let us not forget, we inherited this country from our forefathers, and we will leave it to our grandchildren.

Opening Speeches

Angel Gutierrez Hidalgo de Quintana
Head of Economic and Social Development Section within the European Union Delegation to Turkey

Mehmet Emin Birpınar, Honorable Deputy Minister for Environment and Urbanization

Ruhi Beşiktaş, Dear Deputy Mayor of Antalya

Dear Guests,

Esteemed Ladies and Gentlemen,

Very pleased to be here today on behalf of the European Union Delegation on this important event, which is going to tackle a very important aspect. How we act from the local perspective in the fight against climate change. And how we intervene in different areas. We also have this event in context of the İklimİN Project, funded by the EU.

I would like to start my speech by reflecting a bit of how we arrived this point and how humanity has gone through different periods of climate change and how this situation is evolving now.

I was in another event last week. I had the opportunity to be in Göbeklitepe, which is probably the oldest temple in the World; more than 12,000 years ago and 7000 years before the pyramids.

And then you can see how humanity at this time benefited from mildest climate, had the opportunity to gather in cities and established a new way of life. Started to cultivate and also benefited from better climate, coming from the coldest times of glacial period.

We saw how here around Turkey and fertile crescent human civilization bloomed. We also see that in Anatolia, the birth of modern human, cherish the milder climate Condition after the last ice age, people were happy for the World climate.

People were trying to survive in nature, they collected and harvested for the living; what nature was giving to them. They created more social structures and towns to protect themselves from natural hazards.

Now we are in a very different context. We have mega cities, industry spread over the countries, varieties of agricultural products which are more affordable for human beings. But also, we have to fight with a big challenge. We have to fear from natural phenomena rather than we dominate nature now, at least as we think we do.

Dear Guests,

Let me underline that we are now living in an era where human beings create their man-made risks through what we name as the modernization and development. We are now facing threats that are not anymore natural but are man-made risks; which are completely different from what our ancestors at Göbeklitepe and other places were exposed. Now we observe shifting seasons, more dry winters, and more heavy rains ending with flash floods. All this happens mainly due to one man-made risk that we can call climate change.

To fight against climate change, from one side we need to control the greenhouse gases, of course. But on the other side, we need to act both individually and globally to protect ourselves against the effects and impacts of it. EU is leading this battle at world level, and seriously dedicating to the fight against climate change. As EU, we are dealing with this problem with ambitious long-term goals and establishing strong domestic climate change legislations. This is why the European Commission presented some weeks ago our 2050 strategy for a climate neutral Europe.

Our strategy shows that every sector in the economy, every policy, every legislation can be important and part of this transition. Equally important is the contribution of cities, regions; but also, each and every one of our citizens. I can clearly state that the EU has now translated its commitment under Paris Agreement into a set of binding laws. We are now seeing, already, the impact and effects of this action taken by the EU; both in policies, legislation, incentives… Thanks to that, our greenhouse emissions have dropped already by 22% since 1990. This is already more than the target that was set for EU by 2020. But of course, the fight is global and also requires strong efforts from all parties.

There is also the question of how we can cut emissions while at the same time we strive to grow our economy.

Of course, when we talk of climate change, there is always the question about the cost of this fight. How we are going to reach additional growth and investment without creating more cost. Reaching our targets will of course require additional investments and we are calculating that about 0.8% of our GDP will be necessary to tackle this challenge. But also, we have to think that we have good opportunities in the fight against climate change. These objectives are achievable thanks to new technological solutions and more good news is that we can even increase our growth while we try to reach the targets.

The transition can offer more job opportunities in many sectors, this is what we call green economy or green jobs. And in the EU, we already created 4 million jobs in this area. We are still open to creating more jobs in more sectors

and the transition, although can be difficult, we want to invest massively into upscaling our jobs and our workers to this new revolution.

This is what we call a very important priority, which is the circular economy. About 62% of global greenhouse emissions, excluding those from land use and forestry, are released during the extraction, processing and manufacturing of goods to serve today's Society needs. And only 38% are emitted in the delivery and use of products and services. Circular economy represents an opportunity, and it's a regenerative system that we produce, we use, and we reuse. A system where resource input, waste emission and energy leakage are minimized by slowing, closing and narrowing energy and material loops.

People in this circular economy are the key factors. We are asking them also to act individually against climate change. Circular economic perspective indicates that we all have a role to play apart from the role of governments and private sector – either by reducing our waste or making consumption choices which are more sustainable.

I would like to underline again the importance of the Paris Agreement, which has to be seen not as a way to dictate to the countries a policy or certain emission reduction targets; but on the contrary we have the opportunity that each country sets its own goal, what we call Nationally Determined Contribûtîons.

Having said that, let me say loud and clear. The cumulative emission reduction targets of countries as defined by the NDCs are still not sufficient. It is essential though that we need to be more ambitious in our policies and the citizens have to make climate choices for below 1.5 degrees Celsius target.

Last December we had the new step in these international agreements, which is the Rulebook of Paris Agreement; also known as the Katowice Climate Change Package; which was adopted by the nations in Poland. This new rulebook creates a common ground for transparency and accountability. And all the countries need to fight and have a mutual trust in this fight. The EU and Turkey share the same challenges and also, we have similar geography and we are together in this fight. These mutual challenges, together with the dedication of the EU in combatting climate change leads to the growing cooperation on climate change between the EU and Turkey, as we can see today in this Project and this Conference.

At this point, I want to quote one of the most remarkable scientists in the world, Einstein. We can't solve problems by using the same kind of thinking we used when we created them.

Then let's talk of real solutions and I think in this respect this Conference will enable all of you to bring local actions and local solutions to these problems. We need governments, businesses and municipalities to take actions, but we also need all our citizens as well, to be in this fight.

I would like to thank again the Ministry of Environment and Urbanization, Antalya Municipality and the IklimIN Project for organizing this event and for the opportunity to bring us all here. I hope this Conference will enhance and trigger initiatives in our fight against climate change. Let us not miss this crucial opportunity.

Thank you for your attention,

Çok teşekkürler.

Ruhi Beşiktaş
Deputy Mayor of Antalya Metropolitan Municipality

I would like to start by sincerely thanking and applauding our young friends who expressed their feelings about and drew our attention to climate change.

Dear participants, esteemed representatives of various institutions;

First of all, I would like to greet you all with respect, love and in friendship on behalf of Mr. Menderes Türel, Mayor of Antalya Metropolitan Municipality. Welcome to International Conference on Local Climate Action. We are happy to host you in Antalya. Today, we have with us representatives from various institutions, civil society organizations, and local governments, scholars from various universities and disciplines, and experts from various sectors. Here, we will discuss the phenomenon of climate change in Turkey with your participation and contribution. The effects of climate change around the world are well-known and it is a global problem. This global problem may grow even bigger if local measures are not taken. Thus, we are carrying out an EU project that addresses this problem with a focus on the most fragile part of our city, Antalya: our sea and coast. We are revising our action plan related to climate change in light of new information. We are investing heavily in renewable energy resources, solar energy in particular. Climate change can have impacts on the economic, environment, society, and community health; therefore, it is very important to address issues related to climate change with a multidisciplinary approach. We believe that we will create an excellent synergy here with you today. I hope that the results of this conference will set an example for the entire Mediterranean. I would like to thank you, esteemed participants, for coming here today and for supporting us and showing interest in this important global problem. I hope that the outputs of this conference will contribute to our country, city, people, and children, to whom we will leave our natural and historical heritage, and I give you all my respect.

Prof. Dr. Mehmet Emin Birpınar
Deputy Minister of Environment and Urbanization, Chief Climate Change Envoy

Esteemed Mayor, representatives of international organizations, dear participants from all corners of Turkey, ladies and gentlemen, and our children, the assurance of our future. I would like to greet you all with respect, love and in friendship.

I would like to express my happiness to welcome you to Antalya, our city of history and tourism, for the International Conference on Local Climate Action, which we are organizing for the first time this year. We will discuss - a tornado hit Antalya recently- the issue of climate change, which is the main item of our agenda and the reason why we gathered here on this beautiful day of spring. As you know, there is an international conference called IPCC. In this conference, regional reports presented by scientists from around the world show that the climate is changing; they publish reports regarding the consequences of climate change almost every year. However, the latest report, the 1.5 degrees report, is very important in that it shows how grave the situation is and what kind of problems we might face.

> **While Some Are Debating Whether They Should Believe It or Not, We Are Experiencing The Climate Change!**

While people in some places are debating whether they should believe it or not, we are unfortunately experiencing the climate change here. We are experiencing the climate change severely, particularly around the Mediterranean Basin. It is manifested as increased temperature, sometimes as tornados, and sometimes as major disasters. Melting glaciers, the considerable increase in the sea level... Unless we take radical measures, we will all witness these negative consequences

continuing and becoming more severe. Therefore, I would like to thank our young friends here. They simply said to us, "Your fathers' or your grandfathers' or your actions have changed the climate, but we are the ones who have to face the consequences." They are actually trying to warn us. Today, there are demonstrations called 'Climate Strike' in many parts of the world. Young people are skipping school to say, "You are not taking the necessary precautions, you are fighting amongst yourselves, some of you do not even believe in climate change, but we and our children are the ones who will experience all the bad consequences of this, if you cannot do anything about it, and apologize to us." For this reason, I insistently say this: We need to do something. A lot of international laws and regulations related to this issue are being drawn up. Numerous agreements are being signed. The best negotiators of the world come together, the best legal experts of the world come together, and they prepare texts. But, what is much more important is, perhaps, to comply with these texts or take measures, find solutions. Hence, the local has very important duties.

In recent days, we experienced something that we never expected; a tornado hit Antalya, which is something we are not used to see in this region. And unfortunately, we lost a citizen. We also know that there are incredible economic losses. Thus, we believe that it is now necessary to take measures.

Dear participants, climate change is a topic that we can address from several different perspectives. How will climate change impact us locally? In this meeting, we want to draw attention to the importance and urgency of the local climate action in Turkey. How will this work at the local level? Because if you fail to do something at the local level, we clearly know that national or international decisions are meaningless. Because almost 70% of the world's population live in cities. And globally, cities are where greenhouse gas emissions occur, the gases that change the climate. Therefore, I would like to emphasize that we should take the necessary measures in cities and carry out the battle against climate change starting from cities.

> **Our Municipalities Have Raised Great Awareness**

Actually, the world is aware of climate change and Turkish municipalities have created great awareness as well. At this point, Istanbul Metropolitan Municipality recently prepared a "Climate Change Action Plan, and this city has a population about 20 million. We know that cities such as Gaziantep, Bursa, Antalya, İzmir, Kocaeli, Kahramanmaraş, Muğla, Sakarya, Mersin, and Denizli prepared climate change action plans, that these plans include efforts regarding how to adapt to the changing climate, and that they must be implemented. Actually, they need to guide the central government in Ankara, saying, "We prepared these action plans, we need funding or technical support or capacity building to implement them." Additionally, Metropolitan Municipalities and other municipalities need to follow international meetings together with the Union of Municipalities of Turkey. They need to learn what kind of measures other cities around the world are taking, what kind of efforts they have. Therefore, I strongly advise all metropolitan municipalities to establish a department on climate change. I would like to stress that it is not possible to solve these issues with environmental protection departments alone. The fight against climate change, which has emerged as a very serious problem, should not be considered under environmental protection. In UN, environmental issues are addressed in Nairobi within the framework of United Nations Environment Programme, known as UNEA or UNEP. However, there is a separate secretariat for climate change, which is located in Bonn. And every year, the issue of climate change is being discussed in various parts of the world. Conferences of the Parties are organized. These conferences take 15 days. Of course, negotiations continue as well. Thus, Turkish municipalities must increase their capacity within their own organization by establishing climate change directorates or departments in order to enhance the local climate action. As the Ministry, we used to have a climate change department and now we

have established another department called the department for adaptation to climate change. This meeting was organized by them as well. I would like to take this opportunity to thank them, too. However, municipalities must certainly address this issue and rather than making statements such as "The climate is changing, that is why these disasters are happening", they must focus on what kind of measures to take and how to adapt to climate change.

Our cities must take migration measures as well. We know that greenhouse gas emissions are very high in transportation, housing, energy, and waste management industries. We need to research what kind of measures to take how to make our buildings more energy-efficient. We need to implement these measures starting from public buildings and then expand to private buildings and schools. We need to think about how to ensure carbon neutrality in our cities, especially in terms of transportation. Numerous countries around the world began to build carbon neutral cities. The new buildings must be energy efficient, carbon-free, there should be less vehicles and more bicycles. We collaborate closely with Antalya Metropolitan Municipality. We build bicycle roads. This is a city of history and tourism. We want people to visit Antalya for its environmental consciousness, its clean sea, air, water, and soil. Tourism around the world began to move in this direction as well. When people are planning a visit to a city, they are now considering its cleanliness, its adaptation to climate change or energy efficiency, and whether it has bicycle roads. I believe that tourism routes will be important in that they will guide people to climate-friendly cities. I would like to emphasize that as a tourism destination, Antalya must be ready for this.

Emission mitigation is not enough by itself; we must protect what we have as well. We must protect our seas, which are carbon sinks, protect our lakes, protect our rivers and water resources. We must take significant steps to protect our forests and green spaces as well.

It may not be easy for local municipalities to reduce emissions. However, we must remember that it is municipalities' job to make efforts towards adaptation to the changing climate. Finding nature-based solutions is more effective and practical when done by those who know the specifics of a locality. I would like to underline the importance of taking specific local measures and working with our ministry and international organizations. Resilient infrastructure practices, one of the most important agenda items of both the OECD and the G20 right now, are important for adaptation to climate change as well.

Even major cities with very good infrastructure in Europe, in Germany, France, Spain, or Italy, experience terrible disasters due to climate change, which indicates that there is a problem here. Our media sometimes says, "The infrastructure of the city is very bad, this party has been in power for years, mayor for years, then why do these

disasters keep happening?" Well, the same disasters can happen in Paris, Madrid, or Berlin as well. Why? Because climate change is a new parameter. We must remember this. We need to include this new parameter in all engineering calculations. We need to add this as a design criterion. If we fail to do so, sewer pipes or drinking water lines may not have sufficient capacity. Because the rain that is supposed to fall in an hour is falling in ten minutes, no infrastructure system can handle that, and we can see that incredible floods are occurring. Therefore, climate change must be included as a parameter in all new engineering calculations, it must be re-considered in cities all over the world, and maybe pipe diameters should be increased by 20-30% so that we will not experience these events. This is very common particularly in Asia, there are squares resembling an amphitheater in various parts of the city for climate change adaptation. Children sit on the stairs and read books or rest; but in case of a flood, these squares are used as damping pools. These squares are filled with water, turn into a lake, and prevent the rest of the city from flooding. Because if the money that you need to spend on measures against climate change is 1 Lira, the money that you need to spend after a disaster due to climate change will be 10 Liras. For this reason, municipalities must be more focused on this issue. If you remember, Istanbul experienced a hail one cm in diameter two years ago in August. The report provided by insurance companies indicated damage up to TRY 2 or 3 billion, which corresponds to about USD 300-400 million. Such numbers are expected to increase even further.

To prevent this, we need to take many adaptation measures that can be adapted to local conditions such as green roofs, coastal levees, efficient irrigation systems, or early warning systems.

Of course, major investments are necessary to battle climate change. Both national and international resources as well as public and private sector resources need to be directed to the local.

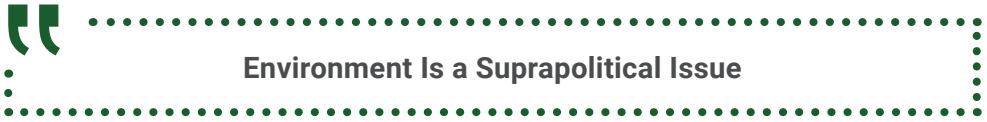
In fact, the trend is in this direction all over the world. In other words, the battle will be fought at a local level. Resources must be transferred to municipalities so that they can take measures. But municipalities must produce a roadmap.

> **We Are Launching the Local Struggle with the 1st International Conference on Local Climate Action**

As the Ministry of Environment and Urbanization, we want to maximize our efforts related to local climate action under the leadership of our Minister Murat Kurum. Mr. Minister has practical experience and constantly urges us to work with local actors. We are actually initiating the fight against climate change here today together with metropolitan municipalities and local governments, particularly provincial municipalities. Together with metropolitan municipalities and other municipalities, we are initiating the local struggle today with the 1st International Conference on Local Climate Action. And the first thing that we do will be sending a declaration to all municipalities, a common declaration, and figure out what we can do together. I would like to take this opportunity to express that, with this declaration; we expect local governments to contribute to reduction of greenhouse gas emissions and climate change adaptation activities on a voluntary basis.

Actually, good things are happening, too. For five years, and I know this from my term as the Chief Climate Change Envoy, we have been fighting against climate change as a nation and have great visibility. Of course, we are not exactly where we want to be, we are not a party to the Paris Agreement. We want to be a party to the agreement, but the struggle there is the struggle of international legal experts and good diplomats. And every country looks out for its own interest. Since they categorized us as a developed country in the past, they want us to reduce emissions

in particular. And Turkey needs international financing for both emission mitigation and adaptation. They urge us to give up on coal, give up on fossil fuels, and instead focus on renewable energy, solar power, wind power, geothermal power, or hydropower. However, there are certain costs associated with focusing on renewable energy, Turkey needs USD 10 billion to meet its energy requirements. But it is very difficult for Turkey to come up with such financial resources unless international funds, international banks, international financing institutions, or funds such as the Green Climate Fund help us. We need to find USD 10 billion annually in order to meet our energy requirements. In other words, we need to allocate this amount every year to keep our factories operating and prevent power outages in households. We need low-interest loans from international resources for this. We repeat this in every international climate negotiations: open these doors for us so that we can battle climate change much more efficiently. Help us; do not approach us any differently than India, China, South Korea, Brazil, Argentina, or Chile. If you consider us in the same category as USA, EU, or Australia and Japan, and if you do not open the doors of financing for us, we can only battle climate change with our own means and capabilities by taking adaptation measures. This would not contribute to the common struggle of the world against climate change. We are a country with rapidly increasing emissions. I am talking about a country with approximately 400 million tones of emission, which is estimated to reach 1.2 billion tones by 2030. Because this is a rapidly developing, emerging economy, which is alarming. It is growing rapidly with increased emission. At this point, international resources must support us. While EU is supposed to help Turkey in terms of environmental measures, we are witnessing that there are reductions in IPA funds. We cannot make sense of this. I always say this. If you cut environmental funds while Turkey, or any country, is fighting against climate change, we can only interpret this as a political punishment, which is unacceptable. I want to say this. Environment is a suprapolitical issue. Environment is about our children's future. And it is an issue that knows no boundaries. You may require a visa from Turkish citizens. However, you cannot avoid the pollution caused by Turkey. If we pollute the water, this will impact European waters. If we pollute the air, this will impact European air. Therefore, I would like the esteemed representative of EU to convey this message to Europe: it is not sensible to punish us or cut environmental funds. I would like to express that getting upset with us due to other issues and cutting or reducing environmental funds is no different than shooting yourself in the foot.



Something good happened as a result of Turkey's efforts, which have been going on for years: A Climate Action Summit will be held in New York in September. The preparations have started. This is a project carried out under the aegis of UN Secretary General and includes 9 themes. One of these themes concerns us; infrastructure, cities, and local government. Turkey has been assigned as the co-leading country probably due to high number of infrastructure investments made over the years. There are a total of 6 co-leading countries. Together with Kenya, we have been assigned to co-lead the infrastructure, cities, and local government track and we have started preparations. We will collaborate with Kenya and UN-Habitat. After the summit, our President Mr. Erdoğan, President of Kenya, and Mr. Guterres will make a joint statement in September. Only 6 leaders will speak in New York and our President Mr. Erdoğan is one of them. On behalf of our ministry and country, I would like to express that we are honored to have been given such a duty. I would like to take this opportunity to thank Mr. Guterres for this reason. Together with Mr. President, I would like to state that we will lead the track to the best of our capabilities as the Ministry of Environment and Urban Planning, and we will set a great example for the entire world with comprehensive campaigns, awareness activities, and pilot applications within the country.

> **The action that we have initiated here will be disseminated in a way that it will include all local stakeholders. On the road to the UN Summit, we believe that this action will contribute to the local climate action in our country, both quantitatively and qualitatively.**

Of course, in addition to local efforts, Turkey has been carrying out considerable nation-wide efforts. First of all, we know that Turkey is a rapidly developing country and greenhouse gas emissions are increasing below the GNP. Today, the installed capacity of Turkey in terms of renewable energy has exceeded 45% of the total installed capacity, which actually makes Turkey a leading country in the region. The share of renewable energy within the primary energy supply is above the OECD average. We began to implement the Energy Efficient Action Plan last year. We intend to increase the share of renewable energy by 14% by 2023. Our forest areas will be increased by up to 30% by 2023, and we have initiated a zero waste project under the aegis of Emine Erdoğan, the esteemed spouse of Mr. President. As of today, more than 13 thousand institutions in our country have started to implement the zero waste system. We have prevented 500 million kg of greenhouse gas emission and saved 42 million trees over a period of twenty months. As of this year, we have changed the environmental law. Stores are now required to charge for disposable plastic bags. According to last year's figures, which we received from large chain stores, 139 million disposable bags were consumed in January last year. In January this year, on the other hand, this figure dropped to 39 million. I would like to express that there is a reduction of 70-75%. To follow this up, as you know, we will require a deposit for all plastic and beverage packaging by 2021. In fact, we now apply a tax to everything that turns into waste and pollutes the environment. If you are polluting, you are going to pay for it. People put such products on the market with the principle of "polluter pays". Now they are required to pay. When you sell PET bottles, make money out of it, and when people consume the product and throw these bottles away, municipalities have to deal with it. They have to collect, transport, and store these bottles. These are all costs. The amount of garbage then increases and methane occurs. It accumulates in the atmosphere and changes the climate. Therefore, we need to reduce the amount of garbage. Istanbul's figures are terrible. Istanbul produces 22 thousand tons of garbage per day. We clearly see that we are producing 1 kg of garbage per capita. We have to manage 22 thousand tons of garbage each and every day. Regular storage is not a viable solution, because gases from this waste cause climate change after a certain period. And this waste hits the city back by causing floods, extreme precipitation or drought, storms, tornados. At the local level, we must explain everyone, but especially children and young people, that each piece of garbage or packaging that we throw away hits us back as climatic disaster.

At this point, not only us, but also municipalities need to make applications for financial assistance and aids provided to developing countries with regard to climate change for the period after 2020 and to increase their chances to adaptation to climate change.

Esteemed participants, there is a lot to talk about when it comes to climate. But first of all, I would like to thank the city of Antalya and Mayor Mr. Türel for hosting us. I would like to thank the EU delegation and all the local and international guests, the esteemed participants who are with us here today. I would like to urge all local governments to participate and volunteer in this climate action. As the ministry, we are always ready to help them. I would also like to state that we will help all municipalities, local actors, and universities in terms of technical support, capacity building, and financing. I would like to thank all my colleagues who have been working so hard for this conference and to the EU and to all the participants of this conference. May the God be with you.

Panel on Climate Action from Global to Local

Moderator:
Prof. Dr. Mehmet Emin Birpınar
Deputy Minister of Environment and Urbanization, Chief Climate Change Envoy

Participants:
Ovais Sarmad
Deputy Executive Secretary of the United Nations Framework Convention on Climate Change

Dr. Shipra Narang Suri
Coordinator of Urban Planning and Design Branch at UN-Habitat

Birpınar:

Thank you and welcome once again. I am delighted to host the leading figures of the field in this panel on Climate Action from Global to Local. Firstly, I would like to thank Mr. Ovais Sarmad, Deputy Executive Secretary of UN Climate Change, and Mrs. Suri from UN-Habitat for their participation. Both of our esteemed participants are originally from India. We were talking a minute ago, I said, "Let's do the meeting in Urdu then." Urdu actually comes from "ordu", which means army in Turkish. Urdu means "the language of the army". The Urdu language is spoken in both India and Pakistan. I learned that from my Indian friends while I was studying in the Netherlands.

Ovais is a friend of ours; we worked with him in various meetings on climate change. Most recently, we were together in Katowice. He came from the Climate Change Secretariat in Bonn. Suri, on the other hand, works at the Habitat in Nairobi. She was in Russia and attended this meeting on her way back to Nairobi. The Habitat is important for us and our President Mr. Erdoğan. It was held in Istanbul during his term as the mayor back in 95 or 96, if I remember correctly. 20 years later, this meeting was held in Ecuador. The Habitat holds a Conference of the Parties every 20 years. The conference of climate is held annually. It is very difficult to organize a conference every year and to deal with numerous problem-makers, but the Habitat is lucky in this sense.

The Habitat is bringing something new this year. It is organizing an

assembly, which will start in May. Also, the Habitat left a beautiful mark in Istanbul. The place where the Habitat was held in Istanbul is still called the Habitat Valley. We still remember the place where the conferences were held as the Habitat Valley. Regarding the climate change issue and under the leadership of our President, we will collaborate with Kenya and the Habitat in this climate action. We were in Nairobi two days ago. We discussed these issues with the Deputy President of Habitat, and we will continue these discussions. We also believe that there is a great local action on these issues in Turkey.

Before proceeding with my questions, I would like to give some information. There are 1400 municipalities in our country. 30 of them are metropolitan municipalities, 51 are provincial municipalities. The remaining are district and town municipalities. Approximately 350 out of about 900 district municipalities have a population over 50 thousand. As of now, only about 15 metropolitan, provincial, and district municipalities have an action plan for fighting against climate change. Do not underestimate this number, 15, because Istanbul is one of them. Istanbul hosts approximately 1/5 of Turkey's population. It is a very large, gigantic city. Hence, it is really important that Istanbul has an action plan regarding climate change. We believe that it will set an example for others as well. When we consider the municipalities with a climate change action plan in place, it corresponds to 35%. This is an important figure. I would like to state that this figure should reach 100% in the coming years and that our ministry is ready to provide all kinds support related to infrastructure, financing, and capacity building. In fact, we support local actors with 37 projects as well as grants.

In fact, it is not only about cities and local governments. We need to think of local as a space. It is essential to spread the local action to space. With this perspective, we gave start to preparations for action plans on climate change adaptation strategies in Turkey's seven geographical regions. We started with the Black Sea Region. When a flood destroyed a newly built bridge, we started to discuss what we could do about it. Climate change is actually a matter of development. It does not concern our ministry alone, it concerns all ministries.

Something interesting happened in the Black Sea Region recently. Turkey's favorite fish is anchovy. We have witnessed that the price of this fish, which is a part of the culture of our citizens living in the Black Sea Region, has increased up to 6 dollars per kg this year. Normally its price tag is in cents, it used to be possible to find it everywhere. But as the water temperature in the Black Sea did not cool down sufficiently, the fish moved towards the shores of Ukraine and Russia and began to get caught there. Since our fishermen could not catch the fish, the prices began to rise. Similarly, the flood that hit Antalya disrupted the supply chain. Antalya is a place where both summer and winter food stocks Turkey and Northern countries occur. Normally, 2 thousand trucks are supposed to arrive here; however, only 100 trucks arrived on the day of the disaster, which disrupted the supply chain. We know that food prices have been rising due to climate change. With regard to local climate action, Turkey has to take certain measures. If we are going to build greenhouses, we have to build very robust greenhouses. We need to regulate this. Not everyone should be able to build a greenhouse as they wish, because this is part of our national treasure. Thus, municipalities and local actors must play an active role when building greenhouses. Maybe they need to require a permit for such enterprises or present a roadmap on how to build them. Because a problem that occurs in a greenhouse affects other places as well. Or hazelnuts is dried using very old methods in the Black Sea Region and when a flood hits, 750 tones of hazelnut are dumped into the sea. The manufacturer sustains the losses. The state may help the manufacturer with losses, but after all, the reduction in hazelnut stocks leads to an increase in prices, in inflation rates, in many other domains. Maybe climate change will be one of the reasons behind the increased inflation rate. This is the case in numerous countries, therefore, we are trying to emphasize that everyone has a duty at this point; this is not an issue that concerns the Ministry of Environment and Urbanization only, but all other ministries as well.

QUESTIONS& ANSWERS SESSION

My first question is to Mr. Ovais Sarmad. We all know that the UN Climate Change Secretariat is actually a major propeller in terms of strengthening climate action at the local level. In fact, the Secretariat has been leading or supporting initiatives that focus on the local for a long time. In this sense, could you summarize the Secretariat's work from past to present and the achievements of COP24? The COP24 Katowice report was published as recently as yesterday, I would like to express our pleasure regarding that issue as well. The stage is yours.

Sarmad:

Thank you very much, Deputy Minister, it is a great pleasure, great honor for me to be here in Turkey. As you mentioned, I'm a great friend of yourself, the Government of Turkey and people of Turkey. And from UN Climate Change, greetings to all of you and thank you very much for your engagement. It means a lot, it is very important. Because we are dealing with an issue, climate change, which has become an existential threat to the world, the societies, to the countries and regions, to every one of us in different ways. Addressing that is extremely important. In Climate Change Secretariat, as Deputy Minister mentioned, our responsibility is to bring the world, the governments and societies together to highlight the importance of the issue and to find solutions through negotiations. Negotiations not just at the government level, which is what the parties do when they come to UN Climate Change conferences; but more and more we are engaging non-party stakeholders. Private sector, civil society, cities… the fact that I am here today is a good example for that. Each one of us has to take collective action, individual and collective action. I very much liked what Mr. Deputy Minister said, every ministry has to take action. Maybe every ministry should set up a unit or department within the ministries to deal with various aspects of cross-cutting issues of climate change. Interestingly, in the UN also in the international fora, when something becomes very complex and cuts across many other aspects of human development, or social, economic or security issues; we call it cross-cutting issues. Similar to gender or health or development, security… Climate change has become that now. Or even greater than that. Because every other cross-cutting issue, you take whatever it is. If you look at climate change and impacts of it, it just multiplies it. It makes it even worse. There are many examples, several were mentioned today. So, in a nutshell, what we do in the 25 years that we have existed, you all must have seen there is the Paris Agreement that was agreed in 2015 and last year in December, with also very active participation of Turkish Government, we also finalized the Paris Agreement Rulebook, or the Paris Agreement Work Program. So, in the international scenario we have all the tools, all the procedures in place. Now the question is to start implementing it at every level. Thank you.

Birpınar:

Thank you. As you mentioned, the world is in fact coming together on the issue of climate change, taking consensual decisions at the Conference of the Parties which is held annually. The world fails to do so in almost all other domains. The decisions made at the annual Conference of the Parties related to climate change are actually among the most significant achievements of the UN. I believe that it is one of the most important achievements of the Secretariat that all decisions are made unanimously, even if they have difficulties from time to time. It shows that the Secretariat works very well with all states. I would like to take this opportunity to thank them. I would also like to express my gratitude to them for coming here and contributing to this important event.

Mrs. Suri, the UN Habitat assumes several pioneering roles in relation to the urban. We, as a country, are proud to host relevant events. Important studies are being carried out in many areas such as urban planning, urban infrastructure, urban mobility, urban economy, and climate change. But climate change is an issue that is closely related to all of these. How do you manage to integrate climate change into these other issues such as urban planning, urban infrastructure, urban mobility, and urban economy? In this respect, which problems and difficulties do you encounter the most in practice?

Suri:

Thank you very much Deputy Minister, it is really a pleasure to be here for me as well. For two UN agencies to be here talking about From Global to Local, it is a fantastic opportunity.

UN Habitat has been active in the field of climate change in different levels for the past decade. For us climate change is both an area of focus, which is we do targeted interventions related to both mitigation and adaptation. But it is also as you said, a cross-cutting issue within the organization. And by that, I mean that every Project, every program that we initiate must describe right at the beginning, how it addresses the issues of climate. So that is one thing that we try and do in everything. We have integrated climate-related dimensions and issues into our policy work, into our mobility and planning and design work.

In addition, we take on targeted work both on adaptation, so we work in informal settlements, we work in small cities, large cities; and also, on mitigation where we work in the area of mobility, cutting emissions. We have an urban low-emission development strategies program in 8 countries, 16 cities funded by the EU. There is a lot that we do both in terms of focus and in terms of mainstreaming of the climate agenda. I must mention that we have a new strategic plan starting from 2020, where strengthened climate action is one of our four objectives. It is really becoming extremely important – one-fourth of our portfolio will basically have a strong focus on climate. As with other UN agencies, this is becoming an extremely important area, and we are deeply

committed to it.

In terms of the challenges... it is interesting, I had to think about all the different examples we have in the field, and there are some common threats that come out. One is both horizontal and vertical coordination. You mentioned the Fisheries ministry is affected, the agricultural ministry is affected, forestry is affected… how do you integrate and coordinate climate-related interventions across sectors? So, the horizontal coordination for me is one of the big challenges. And so is the vertical coordination. Your speech in the morning was very illustrative of that. The coordination and coherence between national policy, sub-national strategies and then local action. That integration, we often find, is not there.

The second thing, again you mentioned in the morning and we face all the time, is local government capacities. We want them, we want implementing entities to be from the government, and we want local governments to take action. But the capacities of local governments are very limited. Both in terms of human resource, skill set, awareness, the indicators they can use; and money.

A third challenge I have is how to bring the most vulnerable communities to the table. Very often when you talk about big issues like climate, you forget that there are people who are living in informal settlements, who are highly vulnerable. How do you bring their concerns to the table?

And finally, when we talk about planning and design, I was talking about human resource, how do you upgrade the skill set? The technical knowledge and the skills of people working at the local level, to actually understand the implications of their actions in terms of climate change. That is something that we face all the time. We try and address it in our work; but we face that a lot.

Thank you.

Birpınar:

Thank you, Mrs. Suri. Today, climate change is on the agenda every year thanks to the Conference of the Parties. It used to be organized every 20 years. Thus, climate change was not on the agenda very often. However, the fact that this conference is going to be held every two years from now on will keep climate change on the agenda. I would like to express that we, as Turkey, are expecting a strong declaration on the issue of adaptation to climate change. We actually need to explain something very well to decision-makers in Turkey and around the world and even to our citizens. We held the 24th Conference of the Parties. For 24 years, those who believe in climate change, scientists, politicians, competent lawyers come together and make tough negotiations. However, I do not believe that we are able to explain to our citizens what the increased amount of garbage produced by households has to do with climate change. We still have a lot of shortcomings in this field. We must emphasize this. We must ensure that citizens understand that the excessive use of electricity in their homes means that more power is needed from thermal power plants and more fossil fuel is burned, which contributes to climate change. Many issues need to be explained in the context of climate change, from energy efficiency to use of plastic bags. I was just speaking on a TV show a minute age and this question is always asked: What should citizens do? Citizens do not understand the relevance between climate change and garbage produced, waste produced, electricity used by them. For example, we are having a meeting here and everyone is wearing a tie. Air conditioning is on, too. This is a meeting on climate. This should not be like this. Maybe we should take off our ties and then turn off the air conditioning. We should be able to do such things. The Habitat is like the world's household. The Habitat should help us with this topic. I would like to express that we want to work with them.

Mr. Sarmad, everything is essentially going through the tough negotiations of the Parties under the UN Framework Convention on Climate Change and the Secretariat. Countries send their good lawyers and good diplomats and everyone negotiates with the aim of protecting the interests of their own country and region or group. In this context, how do you see the future of local actors in terms of influencing and directing the process? Do you think it is possible for them to play a more active role in the future? What do you think about the active participation of local governments in these negotiations?

Sarmad:

Thank you very much, all of what you said is very relevant and important. Let me start with referring to the Paris Agreement and I would encourage all of you to take a look at that, if you have not. There is one particular article of the Paris Agreement, which is the simplest and conveys a very powerful message. "Parties, shall cooperate in taking measures, as appropriate, to enhance climate action, education, training, public awareness, public participation, public access to information." It is very simple and straightforward. This agreement was agreed by all governments. 184/197 of governments have actually ratified it as well. So, there is already a very strong commitment. Now, how to make it happen, how to implement it; you asked those questions. There are many and very good examples of it. In fact, as we speak today, in many parts of the world – and this young girl from Sweden, Greta, who has started these strikes on Fridays in schools to take action. To inform the governments, inform the public, bring the awareness, to take greater climate action at every level. So, one thing is the declarations and agreements and big conferences we agree upon and sign pieces of paper; but what is more important is to turn that into local and practical climate action. Another example in the UN, what we have tried to do now in today's environment… every one of us have smartphones... Use of social media to allow people to be aware of it, to take part in and act on it. Last year in the climate change Conference, for the first time we opened up the Conference to general public. Through social media. We installed something referred to as "people's seat" in the UN Conference – it was an empty seat. And that was communicated through social media to general public. It was amazing, it reached 1.3 billion people in the world. That is very important. The question was asked; "if you were in that room, what would you tell the leaders to do?" Majority asked the leaders in the UN Climate Change to enhance the ambition to take action. Unfortunately, in the news and media, we are bombarded often with a lot of negative news. But also, there are many positive things happening. We need to work on those. Greater awareness, and ambition to take greater action. That in turn, hopefully will encourage the governments, force the governments to build better structures, processes, policies… to take action.

My final point is, what time do we have to take that action? Science is very clear. Time is very short. To take action, to limit global warming below 1,5 degrees. We have approximately eleven years. And the science is very exact. The amount of carbon emissions that are being emitted in the atmosphere, if we continue at this rate; by eleven years we'll reach the target and the consequences will be very severe. So, action needs to happen now. Or even yesterday.

Birpınar:

Thank you, Mr. Sarmad. The entire world is actually following the process started by that Swedish student. Let us take our ties together. Let the entire hall take off their ties so that we will need less air conditioning. Let us send a message to the world here. Because when people wear ties, more air conditioning is needed. When the air conditioner works, we consume more energy, which I see as an important factor for climate change.

Mrs. Suri, as you know, the local conditions are so unique that sometimes even when we move from one

neighborhood to another, it is possible to see these differences. On the other hand, local differences have actually become a standard due to the socioeconomic and cultural dynamics of today. There is a dedifferentiation, which is very bad. Because according to the latest reports, the sea level is estimated to rise 1 to 4 meters by 2100 due to climate change. It is speculated that a lot of island countries will disappear if this happens. If an island country disappears, the culture there will also disappear. Therefore, it is not a problem to have McDonald's and Starbucks everywhere, but unique local features are very important. I heard some news from Italy recently, which made me sad. Italy is the center of coffee, and they did not let this American brand in the country. It was non-existent. However, they now opened a different concept-store in Milan for the first time. And the public protested this. We do not actually need dedifferentiation there, we need specificity. We need to get rid of this dedifferentiation pressure. How do you establish the balance between the global, the national and the local, especially in your efforts related to adaptation to climate change? In other words, do you think that efforts carried out at the top of the scale suppresses the unique features of the local?

Suri:

I see that you've saved the more difficult questions for me. But I think you are absolutely right. I think we are faced with this onslaught of the negative dimensions of globalization, the loss of diversity and specificity, challenges of trying to preserve local culture and context. For us, every Project and every program that we undertake is tailored to the local context. But we also have certain guiding principles that can help local governments and local communities start to think about what they need to do. I would not say standardization doesn't mean one-size-fits-all, it should not mean that. But certainly, there are some global guiding principles. And I have a copy of our guiding principles on city climate action planning, which I'd be happy to share with you; which identifies some 12-15 common principles that are relevant to all parts of the world. When you start to do city climate action plans, what should you think about? So, we are not telling Antalya or İstanbul or Delhi or Portland "this is your problem". We are saying "what should you start thinking about? You should start thinking about mobility, housing, local engagement, education, awareness…" "Who are the stakeholders you should have around the table?". These are important questions that can have universal guidance. I think that is a good place to start. We also balance our local level action with a lot of advocacy and support to policymakers at the national level. For example, around the NDCs. Now the NDC review process is coming up. Our governments have been asked to raise the ambition around the NDCs. And we are saying, "OK, if you want to look at the urban content and how urbanization can contribute, we are committed to support the governments that want to review their NDCs." The same for national adaptation plans. We're happy to strengthen urban content in national adaptation plans.

Mr. Sarmad mentioned the 1.5 C report. We've just launched at COP, in Katowice, a summary for urban policy makers of the 1.5 C report, which says basically "what can an urban policymaker do to turn this trend around". It lays out scenarios and courses of action, we can share some copies. I think on the global scale, there's huge value in global advocacy and learning from one another and building up the pressure to scale up ambition. I think that's extremely important. Solutions that have been developed in one place, can perhaps trigger solutions in other places. I'm not saying they can be copied, or they need to be imported; but they can certainly trigger thinking around other solutions in other contexts. And sharing experience and expertise is extremely important for action. Local action must be specific to that context but must learn from what is going on elsewhere in the world. We don't have to reinvent the wheel every time. That I think is the balance that has to be struck.

Birpınar:

Thank you, Mrs. Suri. You mentioned INDCs, and as you know, there was a serious failure at the Conference of the Parties in Denmark. Prior to that, the failure of the Kyoto Protocol was caused by a top-down approach. It was left to the responsibility of certain countries. But in this new Paris Agreement, the approach is bottom-up, it goes from local to global. The logic behind INDCs. Countries did not have enough time to prepare their INDCs. Thus, I believe that these must be revised. It should be top-down or bottom-up depending on the unique case of the country. I think the INDCs may become better for the world after we determine what local actors and municipalities should do. But this must be without coercion; the local should be able to implement its own values as much as possible. Everyone must contribute to the best of their abilities. There is an issue, there is a serious problem and it threatens future generations. When we ask ourselves how we can solve this problem together, the opportunities provided by the local should not be overlooked. One of the opportunities created by climate change is the fact that the unique local features are back on our agenda. In the past, the local was ignored, but now, even the culture is taken into account, and an effort is made to prevent it from disappearing. Finally, I would like to ask a common question. You may answer first Mr. Sarmad, and we can go on with Mrs. Suri. As you know, the theme of this year's UN Summit is climate change. The theme suggested by the Secretary General for this year's summit in September is climate change. Prior to the summit, what is your message to the international public via this conference? What is your goal with this conference? What is Mr. Guterres' goal? Why did he prefer to pick this topic? Is the problem very serious? Is there something that we do not know? Because the UN Secretary General's annual September sessions always have a specific topic, but this year's summit is seriously focused on climate. I would like to hear the opinions of both the UN Climate Change Secretariat and the Habitat Secretariat. I would like to give the floor to Mrs. Suri first.

Suri:

Thank you very much. First of all, we are very pleased to be facilitating the track with Turkey and Kenya, on infrastructures, cities and local action. The Boss' message is very clear for us. We have to ramp up climate ambition; and he is lending his full political heft and he is putting his all his political capital behind the issue of climate change. Because urgency and the importance of climate action cannot be underemphasized. I think that's really where this is coming from. For me, three short key messages in advance of the Climate Summit, where UN Habitat is putting its energy. One; mitigation and adaptation have to go hand in hand. One must reinforce the other. I think it's very important. Mitigation actions must not aggravate poverty, vulnerability, hunger. New climate resilience and infrastructure often put in place, is not affordable for the poor. It needs money. And sometimes when there is no additional money, as you were saying Deputy Minister in the morning, then governments have to steal from Peter to pay Paul. Basically, take out from other priorities to invest in climate. How can all of this go together? Mitigation, adaptation must reinforce each other.

The second message is start with cities. The battle for climate will be won or lost in cities. Cities are where all the new infrastructure is being built, 60%of the world population lives. Coastal cities are most at risk. There are 1 billion people living in informal settlements in cities. Start with cities. And you will make a dent in climate action. Linked to that, my last message is, no one is to be left behind. That should be the driving message in all our actions. No one left behind, then adaptation is extremely important. Focus on building climate resilience of the most vulnerable communities. The urban poor, the rural poor but the 1 billion people living in informal settlements, they are the ones who are getting left out of this discussion. They are the ones who are most vulnerable. And if you are to ramp up climate ambition, it must be with those people in mind.

Birpınar:

Thank you, Mrs. Suri. Mr. Sarmad?

Sarmad:

Thank you very much Deputy Minister. This year is going to be very important in the UN as you mentioned. Our Secretary General is hosting a summit in September. If all of you were to be in that summit and the message to convey collectively on your behalf, this is what I would say. First is that we need to take urgent action. Collectively, individually, by all ministries, all stakeholders. Private sector, civil society and individuals. We need to really step up that ambition to take that action very quickly. So that's first. Second, at the level of governments, internationally. Finance and technology are extremely important that need to be shared, to be provided to those countries, to those regions and vulnerable populations who are at the forefront of climate change impacts. These promises have been made in the global agreements; that a hundred million dollars will be made available annually from 2020 onwards. That's still a small amount but there is much more that needs to be done. That is another thing that the international community, through our message to the world leaders, needs to come forward very powerfully, to say: that has to happen. Because we are in it together, as the Deputy Minister said. Climate does not have any boundaries, nationalities. It does not stop at the border of one country and the other country is safe or more secure. No. Those promises, those changes have to be made. My final, point, the third point is perhaps the most important one. If we want to bring about the change in the societies, in our lives and hand over to the next generation; that can only happen through education and public awareness. So, whatever we are talking about has to be brought back to the curricula, to the young kids. So, when they grow up, this becomes the new

normal. You don't have to think about it. Maybe if we were here 20 years ago, some of us would be smoking. That has changed. That now has become a new normal. So, the same thing has to happen with climate change. So, education. That would be my third point.

Birpınar:

Thank you, Mr. Sarmad. As Mrs. Suri mentioned, we must remember that if we do not take measures related to climate change, which has been continuing since the Industrial Revolution, if we do not seek a remedy in the coming period, we will face very serious problems. Hunger, famine is coming. The world's population is growing rapidly. And we also expect that there will be climate migration. Currently, our country is hosting 4.5 million Syrian refugees. These people came to our country after a civil war and we spent 30 billion dollars for them. The amount that is expected to come from the EU for this endeavor is 3 billion dollars; we spent most of it from our own budget. These climate migrations will cause problems for wealthy countries. For this reason, we must to ask, "What is the crime of the countries that have never contributed to climate change, yet are going to get hit by it the most such as tourism countries and small island countries?" If those people are to be displaced, then their culture will be displaced as well, and those people will move to wealthy countries. The money that these countries will have to spend due to these climate migrations will be 100 times, maybe 1000 times of the money they need to spend right now. Most of these countries became wealthy by exploiting poor countries and African countries and taking their resources. These are countries which became wealthy by exploiting Asian and African countries, completed their heavy industrial revolution or IT revolution. If the world is going to be in trouble due to climate change, this problem will surely affect the future generations of wealthy countries, who think that they can sit home peacefully. Do not forget this. Before the French Revolution in 1789, the queen is told that her subjects had no bread to eat and her response is "If they have no bread, then let them eat cake." It shows her obliviousness to the conditions. But days later, when the revolution takes place, we see that those people disappear. Therefore, wealthy countries also need to take action and make an effort now. Because the reports indicate that education is very important. But the youth are more environmentally conscious than us. Something is wrong with our generation and the generation before us. We actually polluted the nature and the environment, but our children are much more environmentally conscious. Education is very important. This goes to show that they have good teachers. Our Head of Education Branch Office is also here today. We will provide education on this topic in universities as well as primary and secondary schools, we allocated a budget for this as well. We also need to remember that women, the elderly, children, individuals with disabilities, immigrants, and the urban poor are part of the local and these vulnerable communities are also the most affected. Therefore, I want to underline that an effective fight against climate change requires total cooperation and participation. It is also essential to spread the struggle from the sector to the space, to produce and implement policies on the basis of region or basin. Before we end the panel, I would like to thank Mr. Sarmad and Mrs. Suri for their participation, for their contributions, and for visiting us in one of the most beautiful cities of the world, Antalya, On this occasion, I hope that we will accelerate the local climate action and spread this action to whole Turkey and to the whole world. Thank you all.

Local Climate Action Policies and Practices in the European Union

Jose Ramon Picatoste Ruggeroni
Adaptation Unit of the European Environment Agency

Ruggeroni:

Good afternoon everybody. First of all, thank you very much, to organizers for this kind invitation to be here and the opportunity to present our recent activities in the field of climate change adaptation. Thank you very much to the Ministry of Environment and to Antalya Metropolitan Municipality.

This image, this figure comes from European Environment Agency report in 2017. It's just to show you one of the recurrent issues we have discussed during this Conference today. That is the global climate change, is a global phenomenon but impacts are specific for every region and every location. Here we see Europe, divided into biogeographical regions. And each biogeographical region has their own specific impact. Mediterranean region, as already mentioned, is one of the hot spots regarding climate change impact. And if we

downscale even more at regional level, we find even more specific impacts. So, the local level is so important to respond to this impact.

In my presentation I'll try to be brief. We'll focus on who the EEA is, what we do. Then I'll describe very briefly the adaptation strategy at the European level, what kinds of products and services the agency develops in order to support climate adaptation actions; then I'll review briefly the European Platform, Climate Adapt.

First of all, the Agency is an independent body of the EU. It has the aim to support sustainable development and help achieve a significant and measurable improvement in Europe environment and climate, through the provision of timely, targeted, relevant and reliable information to policymakers and public. Mainly the Agency analyses, assesses and produces data and information and is an interface between science and policy.

What the Agency is not. The Agency is not an implementation agency of policies. It is not a funding body. The Agency does not formulate new legislation. It is just a body to provide information for decision-makers. In this sense types of information and products the Agency develops are assessment, indicators, integrated environmental assessment and thematic environmental assessment. This is an overall view of EEA member countries. There are 32 member countries and there are also 6 cooperating countries. Altogether they form the EEA.

The Agency has a strong network activity by means of a network called EIONET, the European Environment Information and Observation Network, that brings together more than 300 national institutions from all the member countries. And here we can see that every country has a national focal point, several national reference centers for each of the topics. There are European topical centers that provide support to the Agency and other institutions.

This is the context of the adaptation field in Europe. There is an adaptation strategy adopted in 2013. We've 3 priorities, 8 actions. In all of these priorities and actions there are activities and policies ongoing. Just to mention some of them, first block of actions focus on member states and the strategy promotes the member states to develop their own national adaptation strategy. Also provides funds by means of the LIFE instrument to support these activities and also points to the local points by means of Covenant of Mayors initiative. There are many other actions focusing on knowledge generation and dissemination of this knowledge. And the last block focuses on mainstreaming adaptation into European policies. The strategy was adopted in 2013, as I mentioned. Last year, the Commission did an evaluation of the strategy in order to assess the effectivity. Also, the efficiency, the relevance, the coherence and EU added-value. So, in general, the evaluation found that the strategy has delivered its objectives and there is recorded progress in all of the 8 actions of the strategy. Of course, there are areas to improve but the Commission waits for a revision to the strategy until 2020 when several outcomes will be produced from different events and fora such as the IPCC with all their reports and progress, UNFCCC negotiations, the EU long-term strategy and so on.

Just to show you some global overview at EU level and European level, this is a picture of how the 33 members of the agency are progressing regarding their national adaptation strategies and as you see, up to 28 member countries from the Agency have already developed their own adaptation strategy at national level.

This is also some information regarding the local level. Around 40% of the cities with more than 150 thousand inhabitants have adopted local adaptation strategies. And there are a lot of cities that have signed the Covenant of Mayors and have committed to develop adaptation actions at local level. Here there are some of the Turkish cities that have signed this Covenant of Mayors.

Moving to the activity of the agency and more concretely the products and services that my group in the agency develops in the field of climate change impact vulnerability and adaptation; these are some of the recent products that have been delivered. There are reports regarding indicators of the impacts and vulnerability; also, regarding adaptation and disaster risk management. There are several reports that address national adaptation activities at country levels. There are several reports that focus on the urban and local level. There are also sectoral reports, such as the transportation. This year we will develop reports on agriculture and energy. There is also the Climate Adapt platform, that is a knowledge system. I will provide some more information to you later on.

The Climate Adapt platform, is one of the 8 actions included in the European adaptation strategy. It is identified as the vehicle to disseminate informational tools for adaptation to climate change. The platform has signed a strategy, just recently adopted last January, which brings together the objectives of the platform, the mission and vision, the governance of the platform… the priority lines of activities. And this is our planning instrument that provide guidance for the development of the platform.

The platform can be considered an information system that brings together information and knowledge regarding adaptation to climate change. Useful for the Europeans at all levels. It has two main components, first is the work contents, the structure of the portal brings together topics on adaptation to climate change. There is also the database associated with the platform with more than 2000 items and both elements are connected.

This is the main structure of the platform. We have sections for the EU policy, there we have information at sectoral level. So, we have identified the most sensitive sectors in Europe to climate change and there is information about all these sectors, regarding the knowledge base, the policy framework, funding opportunities. There are also sections of the adaptation policy itself and the regional policy.

Then we have information from a geographical dimension and countries. All EEA countries have their own country page. We have information on cities and transnational regions. Just to show you one of the country pages. This is the Turkish country page. The information contained in Climate Adapt is coming from the countries themselves, according to guidelines to provide information. So, all information, to some extent, is homogenous from country to country. We have information on the policy and legal framework, sectoral actions priorities for each country, the assessment, how the countries engage stakeholders and contact.

Another big element in the platform… we name it Knowledge Package. Different sections in the platform regarding key topics for adaptation to climate change, data and indicators, research, projects, tools and practice. I will mention, later on, a bit more on case studies and adaptation options in the platform.

The database I mentioned before with more than 2000 items, is a structure as reflected in the slide. We consider different typologies of data. Different impacts of climate change, different elements, regions and countries. All these categories are filtered that allow the user to search for their specific interests.

This is just to mention the governance scheme for the platform, I'm not going through all the details. The main message is that, we have an advisory group for the platform that brings together relevant actors, users and providers of information. In this advisory group they provide strategic guidance for the platform and it has been involved in the development of the strategy I mentioned before.

Who provides information to the platform? A lot of different types of providers starting with countries as I mentioned, but also transnational organizations, conventions, networks of cities, Covenant of Mayors, the research community, different general directorates from the European Commission, the Joint Research Center and other stakeholders.

Now I'm going to provide some details on who is using the platform. According to the results we got from the Climate Adapt evaluation we made during the last two years, with different approaches including the analysis of the work content, the functionalities, web statistics and user and provider survey and the so-called Climate Adapt use cases.

All the information is freely available… information from this evaluation of the platform. It provides useful information to other adaptation platform managers, not only for European but also for national and sectoral managers of platforms.

This is some numbers, in the period of evaluations we had more than 400,000 visitors from all over Europe but also outside Europe. There are users from other continents such as America, Asia… We also have a large amount of returning visitors. We have some kind of fidelity.

As I mentioned, we consider it a success to involve different types of providers. But we are looking for more additional providers in order to enrich the content of the platform. Specifically, according to our evaluation, there is room to improve information regarding climate services and research projects. But in the evaluation, we found that the most visited page is, or the most demanded information from users is the information on EU policy, the country and national pages. They are some of the most visited sections. The adaptation support and case studies. Also, users value the specific tools for local level in Climate Adapt.

Just to illustrate how Climate Adapt is being used to support policy adaptation initiatives. The evaluation collected up to 17 use cases of Climate Adapt that are examples of how the platform is used in adaptation policy process. One of the use cases is from Turkey.

In the evaluation we found that there is still need in Europe for this Climate Adapt evaluation to continue to provide knowledge and information. And the growth of knowledge in Europe has been captured. The platform is well updated with the most recent knowledge.

Regarding resources, they are always limited, but in terms of cost-effectiveness, the results are satisfactory.

Coherence… Climate Adapt is well connected with other EU platforms. In terms of complementarity we are working to improve complementarity between the platforms at EU level and national level.

With these findings, last year we developed a new IT development, in order to improve the structural coherence of the platform, to improve the layout, to improve the usability and also the provided interface.

The renewed platform was launched last January, I invite all of you to visit it and to provide us all kinds of feedback in order to continuously improve the platform.

I want to mention a couple of elements in the platform that I feel are relevant for this Conference. Focusing on the local level, there is an urban webpage that contains information on the policy framework, the knowledge base, information on funding. And it highlights the main elements in the database that are relevant for urban sectors.

Besides this general information there are specific tools for urban level, such as the urban adaptation support tool. This is a tool that provides guidance for all the steps in the adaptation policy cycles, from identifying vulnerabilities, adaptation options, assessing these options, implementing of the actions, monitoring, reporting and evaluation. For all these steps in the cycle there are relevant information useful for the local level.

Also, we have a component in Climate Adapt called "urban adaptation map viewer" that brings together a lot of information on urban social and economic characteristics, vulnerabilities, together with physical vulnerabilities

associated with climate change. This allows users to combine all this information and to produce specific results, taking into account these parameters.

Finally, I would like to highlight the case study elements. It is one of our flagships, meaning that they are specific implementation actions at local level. More levels but using the search tool and selecting the urban case study filters. We have 45 case studies highlighting relevant examples of how cities and local administrations are implementing adaptation options on the ground. This is one example in Spain, "Barcelona trees tempering the Mediterranean City Climate". Together with case studies, we have adaptation options. They are closely related, because case studies are applying implementation options. Here is a generic adaptation option, "Green spaces and corridors in urban areas".

Just to finalize with some reflections and food for thought… Europe is still vulnerable to climate change and as we have discussed in the morning, adaptation is a need. There are some suggested areas where more work needs to be done. I would highlight the links with mitigation policies because it is a must to have a win-win approach to these streams of policies. But also, there are solutions in the ecosystem-based approach field. Disaster risk management, disaster risk reduction has to be integrated in climate change adaptation policies and a whole battery of future areas where more work has to be done.

Regarding the adaptation platforms, we have some challenge in front of us. Because there is increased action at all government levels that are producing results, findings, products, and information. The challenge is how to organize this huge amount of information in order to offer users information for their needs.

Another challenge we face is the connection among platforms. As I mentioned before, there is a growing landscape of adaptation platforms in Europe at all levels, such as this one, Climate Adapt focusing on climate adaptation, but there are a lot of platforms on disaster risk reduction, sectoral platforms… the national level is also increasing the number of adaptation platforms. I know Turkey is in the process of developing their own national adaptation platform. It is a big challenge to try to connect at all these levels between platforms.

Thank you very much.

Local Governments and Climate Action Policies and Practices in Turkey

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Deputy Secreteary General of the Union of Municipalities of Turkey

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Ali Değirmenci
Deputy Mayor of Denizli Metropolitan Municipality

Rıfat Ünal Sayman :

Distinguished participants, I would like to express my appreciation to the Ministry of Environment and Urbanization for this important organization. This is a really successful event. I would like to thank the project team of İklimİN who organized this event. The morning session was full of information. It was a quite productive panel under the moderation of Mr. Deputy Minister. We found the opportunity to follow and learn about global developments. In this session, we will find the opportunity to examine and evaluate efforts in our country at the local level. First of all, we will ask our panelists to share what they have done in their own municipalities regarding the environment, but especially regarding climate change. We have three important municipalities here. Istanbul Metropolitan Municipality, Turkey's metropolis is a very important city in the world. The fact that IMM have prepared both the climate change reduction plan and the adaptation action plan caused a great impact and paved the way for other municipalities. Denizli Municipality is the third municipality in Turkey which has both a reduction action plan and an adaptation action plan. In this sense, they also have a leadership role. I know that Gaziantep Metropolitan Municipality

has prepared 3 inventories and action plans since 2011. So, it will be very useful to learn about their experiences. But before moving on to the experiences of our municipalities, we will first listen to a speech by UMT and learn about the general picture. I want to leave the floor to them without further ado.

Ötegen:

We are here for a very unique and quality meeting. I hope that both Antalya and our country will benefit from this International Conference on Local Climate Action. The Union of Municipalities of Turkey is the only organization ensuring coordination between all municipalities in Turkey. It brings 1398 municipalities, sometimes mayors, sometimes council members, together so that they can exchange their experiences and evaluate the developments and innovations around the world. Additionally, our municipalities have a considerable number of employees. As we discussed today, there are two primary topics on the agenda: the issue of personnel qualifications and how these projects will be implemented, in other words, the financing problem. Of course, in order to implement the innovations and meet the needs of our age, we must identify how to support all municipal employees in terms of personal development, how to provide training and how to find financial resources. Today, we, the Union, are striving to provide guidance for all municipalities. While municipalities exchange their experiences on this topic, we provide support to the best of our capabilities. This support can be in the form of improving and intensifying such works or in the form of on-site training or distance learning. In addition, if there are changes that can be made in terms of legislation, we look for ways to discuss these changes based on suggestions from both our ministries and municipalities and to evaluate and conclude such changes with the help of our legal services department.

> **Our Municipalities Can Now Compete with World-renowned Cities**

Although the Union was founded in 1945, it became the representative of all municipalities with an important change in 2005. With amendments to both the law no. 6360 and the law no. 5216 on local governments, municipalities faced an increased number of duties. This increase allowed our municipalities to compete with world-renowned cities. Municipalities are now central bodies in local government with the elimination of village or township governments.

In this context, metropolitan municipalities must now prepare their projects and plans accordingly. Today, every municipality needs to address issues related to environment and climate, issues related solid and liquid waste, issues related to energy and transportation. Renewing public transport vehicle is a very significant problem with regard to climate change. I am sure municipalities will explain their action plans today, but they need to keep this in mind when creating a perspective. They must consider this in all of their activities such as water delivery

even to the smallest settlement, disposal or treatment of waste water, or protection of nature. We bring together mayors, council members, officials, and heads of departments, and managers, share insights with them and help them review their local policies. We also established a new department: The department of project and financing. We share all support opportunities from international bodies or the EU with our municipalities and provide them with guidance. We also strive to ensure financing. We also established a platform where projects can be shared. Especially our municipalities carry out physical, social, and cultural activities; they submit their ecological and environmental studies to the Union's website, we share them, and we evaluate the case studies in this way.

Especially in recent years, municipalities have taken significant steps in relation to green spaces as well as vehicle renewal-transformation efforts which prevent air pollution, air quality control, and water management. We observe that both candidates and current mayors in office allocate a significant place to projects related to climate change in their programs, which is visible in the media as well. This is very promising for the future.

In addition, we have a project which involves establishing an educational institution, building a campus, which will provide a more fundamental structure. It is currently at the tender stage. It will be the training campus of the Union. This is planned as a green building. According to this plan, we will benefit from solar energy as much as possible, we are already implementing the zero waste project, and it will be an exemplary work. We also encourage the coordination of these among our municipalities. Zero food waste project is also an important project based on the demand of the President's Office, and we continue our support and efforts in this regard. That is all I can say on this topic for now, but we will continue as necessary.

Sayman:

Thank you very much for drawing a general outlook. As I mentioned earlier, we will ask our municipalities to share their experiences regarding their action plan in the first part. Then we will continue with questions. Finally, we will receive questions from the audience. I would like to continue with Istanbul, the apple of our eyes.

Erol:

Hello everyone. We have completed our action plan regarding climate change. You can see it in full including the final report on https://www.iklim.istanbul However, the starting point of this is 2015, Paris. Professor Mehmet Emin said, "IMM will come to Paris." So we went there. Everybody's looking at each other, ministers and our President are talking. We questioned where we were. We said, "We must go back to Istanbul and do this as well." Some cities only have an airport and industry. And that's it. Istanbul has agricultural activities, airports, industry... Those around us started to tell us to finish it already. Because there was this perception that if Istanbul sets an example, the rest will come easily. We think we have a good action plan, but the reduction targets are ultimately decided by the central government.

Carpets Are Now Seen As a Climate Adaptation Project

We are more service-oriented. We tried to do something with regard to adaptation. We started in 2015, but citizens took notice of carpets in 2017. When it started to hail, carpets turned into objects of adaptation to prevent cars from damage. Citizens used carpets. We said to ourselves, "Citizens started to adapt." But it all started with carpets. Istanbul is growing and developing. The 3rd Airport is here, the 3rd Highway is here, and our President is investing in us as much as he can, saying Istanbul is the apple of our eyes. With every service that we provide, we actually focus on a goal in our climate action plan. We decided to extend the rail system to 1000 km, we are focusing on public transportation, our greenhouse gas inventory started to decrease. We introduced the metrobus system, which eliminated 3000-4000 cars from traffic. Yes, the traffic is still crowded, but people are using public transportation more and more. We have huge landfills, waste storage areas. You all are aware of these more or less. We convert the methane output into electricity, which would otherwise be carbon emission. We are building an incineration plant with a capacity of 3000 tones/day. There is Izaydaş in Kocaeli, Turkey; but a household waste treatment plant is really something else. Whenever we achieved something, we said, "We can do even better". We make declarations about reduction, those who read our action plan will know, Istanbul is a city with immense growth potential in 2030 and 2050. Our President is talking about the Channel Istanbul project, this will be built, and that will be built. We had to make a move in parallel with our ministry's target of 21% reduction from the BAU level. We said 33% by 2030. We have included this in the report. Then we started to compare ourselves with other cities such as Lisbon, Athens, New York. There are actually 15 metropolitan municipalities other than Istanbul and 8 of them have an active action plan. Metropolitan municipalities can in fact set a reduction target based on Turkey's INDC. But we certainly need adaptation at a local level. We are in the service industry. We need to support and improve the infrastructure. We need to encourage greywater use. We need to prevent water losses.

The ratio of those who answer when asked if they are aware of climate change is 85%. But when asked what to do about climate change, everyone says they would use a carpet. We say "Let us build a parking garage", they say "Carpet is more important." Very interesting. People started to become aware after a while. We organized a summit on environment in December, and then we had an EU project on climate, we held a climate symposium. We emphasized that we would discuss climate in Istanbul and then the media came. I said, "There won't be snow in 2030". Newspapers ran the story for 3 days, saying it is not going to snow in Istanbul. "The Head of Environmental Protection Department said that it is not going to snow, he stopped the snow, is he interfering with God's work?" Then they started to say, "We know, it is because of the climate." Even a small amount of awareness can make a great deal of difference.

Istanbul's Climate Is Evolving into Mediterranean Climate

We created an action plan consisting of 7 packages. We calculated our greenhouse gas inventory and we are updating it. We did not only calculate this and came up with 47 million tones, we also had it validated. Certainly use international platforms like we did. Our network with C40 and USLG is very good. C40 provided us with educational

support as well. We enter data to CDPSCCR. We started after signing the Compact of Mayors before the COP21. Everything triggers something else. Istanbul is now beginning to experience the Mediterranean climate. From now on, you will refer to the city as Antalya instead of Istanbul. I said that it was not going to snow anymore and it turned into such a huge deal, our climate scenarios and vulnerabilities are related to the infrastructure and the Mediterranean climate; the temperature will rise, there will be more days when the temperature is not under 0 degrees.

> **Our Slogan Is "We Should Change, Not the Climate"**

We did not do all this on our own. We invited NGOs, university professors, directorate of highways, state water works. In short, we invited all stakeholders, identified our vulnerabilities and prepared an action plan. Here you see the cities. It was a nice comparison report. We had to opportunity to see our shortcomings as well as our achievements. We did it all by connecting them to both national and international frameworks. We used all the data that the Ministry provided about the climate. We incorporated them into our strategic plans. As a result, we have 70 actions and 208 activities. For example, what I believe is the most important thing to do is to encourage renewable energy in buildings. At least 10-15% of electricity must come from renewable resources. We included the infrastructure, we included the greywater, and we included the transportation. We included bike roads and the subway. We are now trying to adapt to our strategic plans. These are what we are going to do. We will revise it after 4 years, and we plan to report on it every 2 years. We are trying to raise awareness especially for citizens. We always use Modyo in the subway system. When you ask someone about climate change in Istanbul, no one says I am not aware of it. It is very rare. So, this is the summary of our efforts. Our slogan is, "We should change, not the climate".

Sayman:

You summarized it really well the total global emissions were 7 billion tons in 1900. In 2017, the total emission reached 53 billion tons. Turkey's share is 1% with 500 million tons. In this case, Istanbul is responsible for one thousandth of the total global emission. However, as Mr. Fatih stressed, in addition to the reduction plan, what is absolutely more important is the adaptation action plan. In this respect, we congratulate Istanbul again.

Erol:

They are always complaining about our building an airport or highways. These are our large projects, there will be such large projects in your cities as well. Hence, the concept of adaptation was developed. There will be large project and the outputs of these projects will be input data for becoming more resilient. This will certainly happen. We need to prepare an action plan by learning how to live with it, adapt to it, act together, and show resilience.

Sayman:

You mentioned the population growth. According to the TurkStat data, Turkey's population will grow by 8 million by 2025, which is about 10%. But in the southeastern part of the country, in Antep, we witness that immigration was added on top of this and that we had guests from Syria. Hence, good planning is becoming more and more important for municipalities like Antep and climate change planning is also important here. Antep has prepared

3 action plans so far. It is important to learn from Antep's experience. And why did Antep prepare 3 action plans? Maybe you can explain it.

Yılmaz:

Thank you very much. I would like to welcome everyone. First of all, I would like to convey the greetings of our Mayor, Mrs. Fatma Şahin. Our President will be in Gaziantep around this time. That is why she assigned me today.

When we say local, the first thing that comes to mind is municipalities. I believe that provincial organizations of all ministries should be considered local. I have worked for the Ministry of Agriculture for years as technical staff, branch manager, deputy manager, and provincial manager. I am a person who has experienced the climate change in the worst way possible. I have worked in the department of agriculture for years. Agriculture is the most vulnerable type of production when it comes to climate conditions. A hail, a flood, a fire, an unexpected disaster destroys all hopes for farmers. You go to a village, you see a man, his head between his hands, thinking how he will pay his loan back, thinking how he will afford his daughter's wedding, how he will pay the money he borrowed for his tractor. The Euphrates River flows right next to us and we are conducting drought analysis within a 5 km area. I see it like this: We all see hospitals; we pass them by all the time. We know there are people in there, but we do not feel that pain in our hearts. However, when someone close to us is hospitalized, then we feel the pain. Climate is just like that. Yes, we must do something.

> **The Euphrates River Flows Right Next to Us and We Are Conducting Drought Analysis**

When I was a student in the faculty of agriculture, we had a course called agricultural extension. Our professor used to say, "First, you need to inform a single person, you need to arouse interest, you need to ensure the person understands the necessity of it, then you can produce something". Admittedly, there are plausible efforts related to climate change. However, I feel that we need greater efforts to inform people, arouse interest, and ensure they feel the necessity. For this reason, I greatly value such activities. I would like to thank everyone involved in this project, particularly the Ministry of Environment and Urban Planning, Antalya Metropolitan Municipality, and the coordinators of the project.

> **The First Climate Action Plan in Turkey Was Prepared by Gaziantep Metropolitan Municipality**

I have worked for the Ministry of Agriculture for years, and later I have become a municipal employee. I have been working at Gaziantep Metropolitan Municipality for the last 5 years. I work as the head of the agricultural services department. The first climate action plan in Turkey was prepared by Gaziantep Metropolitan Municipality in 2011, which I found out here. I was happy to learn that. Actually, I had thought about what I could do when I witnessed the drought back in 2003-2004. I started serious forestation efforts using the resources of the Special Provincial Administration. In 10 years, I managed to forest an area of 100 thousand decares with olive trees. I was very happy to see this climate action plan. Of course, not only municipalities, provincial organizations of all public institutions must be involved in this task. There is a saying about municipalities, "Cannot hang a man, cannot print money." They say that municipalities can do everything other than those two. Thus, it is safe to say that they can do something about the climate.

As we all know and witness, the world's climate is changing. The world is struggling. This has become a more serious issue since the 2005 Kyoto Protocol. We are also making an effort; 4 departments within our Metropolitan Municipality are working on this issue.

We prepared the climate action plan in 2011 and updated it in 2015 and 2018. Initially, we carried out projects in transportation, water, waste water, service, housing, and energy sectors. Then we carried out projects related to soil as well. Emissions were measured at 41 different locations. Our goal for 2023 is to reduce carbon emissions by 20% and to reduce energy consumption by 20%.

So, what did we do? First of all, we established a light rail system; this system is 15 km long for now. We transport 100 thousand passengers per day. This is the equivalent of 200 buses, which reduces carbon emissions. We are building a 26 km long tram line. We will have completed the tram line around the end of 2019. A significant portion of our buses now use natural gas. Of course, we are not at the same level with Istanbul, it is not possible. However, it was mentioned earlier that a 25% population increase is expected. Our population has already grown by 25%. We have become a city of 2.5 million. We are planning to build a 25 km long subway line, the project preparation phase has been completed and the tender process will begin after the election. We have solid waste landfill sites; we are very good at this. We have 2 solid waste landfill sites and 2 transfer stations. We collect solid wastes from all neighborhoods of Gaziantep. We produce energy from methane; a Korean firm carries out this activity. Similarly, we treat the leachate from landfills as well. As you all know, zero waste management relies on the collection and classification of wastes.

> **We Understand the Importance of Water Since We Have First-hand Experience on The Effects of Drought**

In terms of water management, we have a project called Düzbağ Dam. It is the largest water project in Turkey following Istanbul's water project. We deliver water from 103 km away. You may say, "What does it have to do with climate change?" Water is life; if we do not have water, we will be hungry tomorrow. We are located in the Southeastern Anatolia Region, right next to Syria. We have first-hand experience on the impact of drought; therefore, we know the value of water very well. Our water comes from the Kartalkaya Dam, located 56 km away. We pump a significant amount of water. Annually, we spend 100 million Liras on electricity. Most of this electricity is produced using fossil fuels. The Düzbağ Dam will be attractive in this sense. The water in the dam which we take water from will be used for crop production. This means more production, more photosynthesis, and more carbon dioxide absorption.

Water treated in our facilities is sent to dams and to irrigation from there. We produce energy from the sludge. You may say, “What is the relevance of housing?” We are building a city named Kuzeyşehir. It will be the biggest mass housing project in Turkey. For whatever reason, Gaziantep is fond of such superlatives. 50 thousand apartments.

The largest organized industrial zone of Turkey is in Gaziantep as well. There are 5 organized industrial zones, with a total surface of 50 million m^2. They host thousands of factories. About 100-150 thousand people working here commute from the city to the industrial zone and from the industrial zone to the city using shuttle buses. At least 3 thousand shuttle buses carry 100-150 thousand people every day. The number increases even further when there are 2 shifts. Consider the emission caused by these 3 thousand buses and other vehicles that have spend more time in traffic because of these buses. It gets to an incredible point. Now we have a mass housing project of 50 thousand for those who work in the industrial zone, only 3-5 km from the zone. The owners of the first phase are being determined right now with a lottery.

Earlier, I mentioned “informing people”. We provided training for 190 thousand students. We organized drama trainings. A play which tells the journey of soil and water. It was even published on Apple Store.

> **We Prevent 40 Thousand Tones of Carbon Dioxide Annually**

There is a lot to tell. There are quality works; Gaziantep Metropolitan Municipality requires any who applies for an occupancy permit to plant 10 trees. We prevent 40 thousand tones of carbon dioxide annually thanks to our activities. We also focus on renewable energy projects. We have a biogas power plant. This power plant has a specific function. Again, one of the largest organized feedlots of Turkey is in Gaziantep. It is built on an area of 5000 decares, I believe there are about 470 barns. 400 barns are active as of now. When Turkey experienced a livestock problem in 2008, GAP Regional Development Administration provided support for stockbreeders. Very large livestock enterprises were established in other places, too. I was personally involved as well. Livestock

enterprises with capacities of thousands were established. The most significant problem of livestock enterprises is waste disposal. This biogas power plant is the largest facility established by a public agency in Turkey. This facility will utilize the waste from all livestock enterprises within 30 km and produce biogas. We have various awards. We have efforts related to solar energy. We have solar parks. We have an SPP project as well as a wind plant project with a capacity of 30 MW. We have renewable energy resources. We have an action plan related to these projects. Our building has been awarded a green building certificate as well as an ISO5001 certificate.

I would like inform the participants with a few sentences about the project in which we are a beneficiary. The province of Gaziantep is the beneficiary of a project on reduction of carbon emissions through forestation. The duration of the project will be 24 months. The general purpose of the project is to reduce greenhouse gas emissions in Gaziantep. The specific purpose is to reduce emissions by planting olive trees and to use solar power in irrigation. We have carried out promotional activities and executed agreements with farmers. 169 farmers are involved in the project. Field surveys have been completed. We have visited the land of each farmer individually. We have collected soil samples and these samples have been analyzed free of charge by Gübretaş, which is owned by our Agricultural Credit Cooperative. Saplings have been distributed to our farmers; plantings have been checked in the field. We are currently collaborating with Yusuf Serengil from Istanbul to measure the contribution of our efforts to carbon emissions. Of course, we have chosen an orchard from 9 districts. We have picked 25 trees from each orchard. We are conducting measurements with these trees. We have given them numbers. We are performing root, trunk, and branch measurements. We will use these measurements in calculations in the coming period. I should also mentions solar powered irrigation systems. I initially set up this irrigation system in the garden of the Provincial Directorate of Agriculture back in 2004 or 2005. I set up the system on rooftops of workshops since there was no place else to use. This has now become more wide-spread. We will install an irrigation system for 1 farmer from each of the 9 districts. Drill works have been completed. We will proceed with irrigation immediately after rainfall ends. We have another initiative as well. Pastures are very important today. If we do not preserve our pastures, if they lose their quality, we will face erosion. It is not limited to erosion; climate change affects pastures the most. Because pastures are areas that everybody benefits, yet nobody takes care of. If we lose pastures, we might lose all of our livestock activities. We are extracting water by drilling in pastures. Since there is no electricity in pastures, we are producing electricity using solar panels to provide water for livestock.

We had started this project with a friend of ours, but we lost him. May he rest in peace. Thank you.

Sayman:

Thank you. With the support of the EU, the İklimİN project provided a significant opportunity for local governments in Turkey. This allowed some cities to prepare their action plans on climate change. One of them is Denizli Metropolitan Municipality. We were involved in that project as well. We worked closely with Mr. Değirmenci. He knew about all processes. Could you please evaluate the action plan?

Değirmenci:

Mr. Minister, esteemed ladies and gentlemen. I greet you all with respect at this later hour of the day. Many things have been said regarding the climate action plan since the morning. But probably the most important factor is to raise awareness. There were 16 metropolitan municipalities in Turkey until 2014. With the law passed in 2014, 14 cities with a population over 750,000 gained metropolitan status. Denizli is one of these cities. I am talking about a 5-year-old metropolitan municipality. Let me introduce Denizli in a few sentences. Denizli has a population of 1 million 30 thousand, a surface area of 12 thousand km2, and 49% of Denizli is covered with forests. I would like to give two striking examples regarding the climate. We have two white spaces in Denizli. The first one is a ski resort with an altitude of about 2600 m. It is snowing there right now. On the other hand, the region where our geothermal resources are located has an altitude of 200 m. We are actually one of those rare places that experience two types of climate change at the same time.

We started in 2017. We experienced an action plan process that we initiated with Mr. Sayman, the Director of REC Turkey. We are now completing the project as of 2019. I would like to invite all participants of this conference, especially Mr. Minister, to the climate action plan event of Denizli Metropolitan Municipality on 13 June 2019.

Denizli is a growing city. It has the 8th highest export figure of the country with its organized industrial zones and an annual export of approximately 4 billion dollars. It also has one of the highest rates of number of vehicles per person with a population of 1 million 30 thousand and 430 thousand vehicles.

When we started with the climate action plan, we targeted both reduction and adaptation as it was a city that was growing together with our country. We will achieve both reduction and adaptation as of June 13, on the day of our event.

> **Empower Change for Climate Movement**

We picked a slogan when we were first starting. “Empower Change for Climate Movement” is the name of our project. I repeat this at every event relentlessly. I would like to congratulate all participants of today’s conference for empowering change for climate movement. For mobilizing for climate. I would like to congratulate all participants in this regard.

The climate changes in our country like the rest of the world. Today, the number of events that we are not accustomed to is increasing. Mr. Sayman may share these with you in statistical terms. I believe that we must ask ourselves what we can do to prevent it. Of course, our ministry, local administrations, non-governmental organizations, public institutions must ask this question. However, what I care about more is that we ask ourselves

what we can do at an individual level and come up with an answer. This would be the best thing to do.

We introduced a carbon footprint calculation module on the official website of our Metropolitan Municipality within the scope of this project. And we shared it with the people of Denizli using billboards, social media, and print and visual media. We have received very good feedback. We have created awareness regarding what carbon footprint is and how much greenhouse gas we add to the city with carbon footprint as an individual with our electricity consumption and water consumption. I would like to share some examples from these awareness activities.

I explained the general purpose of the project, to ensure reduction as well as adaptation and ultimately to raise awareness among 1 million 30 thousand citizens living in Denizli. Our specific objectives, on the other hand, include incorporating this into our strategic plans especially in the field of climate change and ensuring that measures that every institution can take in the future are included in these strategic plans.

When we first set out, we actually set up a steering committee. Of course, the locomotive here is Denizli Metropolitan Municipality, but the Provincial Directorate of Environment and Urbanization, Provincial Directorate of Agriculture and Forestry, Pamukkale University, Denizli Chamber of Industry, Directorate of National Education, non-governmental organizations, TurkStat, who provided the most accurate data, and State Water Works were also members of this steering committee. We also attended these steering committee meetings very often. Mr. Sayman participated in all of our meetings.

We organized 5 workshops in our city. We determined different segments such as primary school, middle school, high school, university students, and beneficiaries of non-governmental organizations as our target groups. We conducted awareness surveys. We initially carried out studies to inform these groups about the climate action plan, and then we made efforts to raise awareness about individual measures that they can take.

> **We Set Tangible Goals Until 2030**

Denizli is a growing, developing city. Of course, our carbon emission will not disappear. But our goal is to achieve a 21% reduction. In this way, we set a tangible goal.

We did not want the climate action plan, along with the carbon footprint calculation, adaptation, and reduction, to remain on paper; we thought that we had to implement these as the Metropolitan Municipality. What did we do to this end?

We prioritized climate analysis in all architectural works of the metropolitan municipality. We provided our engineers with a road map related to design and construct buildings according to temperature, humidity, wind, and sun. Once again, Denizli is a new metropolitan municipality. And in this period, we prepared a 1/25,000 plan for the entire city, which took approximately 4 years. We really care about this plan. It took us about 4 years. It was very good involving NGOs, public institutions and organizations, and the city council. Our aim here is to guide the development of the city with agricultural fields, water resources, and stream beds in the coming period.

Another important project is a management system where we implement domestic and national software called the traffic management system. We manage approximately 100 intersections in the city center with smart computers which we call the traffic management system. Our computers manage traffic lights differently during peak hours

in the morning and evening and differently during the remaining hours. No human element is involved. And I would like to say gladly that we developed the software together with the technocity in our university. It is not a project we purchased from abroad.

We have a pilot project that I would like to share it with you. In order to encourage public transportation, we removed the red light from the line of our buses with the longest route in the city. When the bus approaches the red light, the light turns green within 5 seconds. We aimed to encourage people to public transportation, make public transportation attractive. Additionally, we installed a mobile phone and smart computer access system. You can see where the bus is instantaneously. This prevents waste of time and reduces the time spent in traffic.

We planted 830 thousand trees as of 2018. 49% of the city consists of green spaces. Active green space per person is 14 m2 in Denizli. We have almost twice the green space of the EU and the world.

We established the Branch of Energy Production within the Department of Technical Works. Our aim here is to conduct feasibility studies in existing lighting and to manage the system from a single source.

Denizli is also an agricultural city. 70% of the thyme consumed in the world is produced in Denizli. I can give many examples related to this, but since it is getting late, I believe this striking example should be sufficient. We provided our farmers with tools to produce apple cider vinegar or other necessary equipment to encourage organic farming.

We did our best to support our units in order to establish closed system irrigation.

We used to have a single solid waste disposal facility only in the center of the city, but we planned the whole city together with our Department of Environmental Protection and Control. We increased the number of our facilities and built transfer stations in some regions as well. We are now able to transport solid wastes to our disposal facilities.

Also, we are now able to produce electricity in these solid waste disposal facilities. We produce enough electricity to meet the needs of our facility and provide electricity to the grid.

Prior to this climate action plan, we had prepared a clean air action plan for 2015-19. Solid waste storage and

disposal facilities and transfer stations were actually part of this plan.

As in all metropolitan cities, we have an organization called DESKİ, which organizes infrastructure works. We initiated an infrastructure mobilization together with the Water and Sewerage Administration in Denizli in 2008. We trust ourselves in this field; Denizli has the most modern infrastructure in Turkey. We carry out projects related to fresh water, sewerage, and rain water with DESKİ. The population of Denizli is 1 million 30 thousand and 650 thousand of this population live in the center. Within about 10 years, we renewed over 90% of the infrastructure in the center. We attached great importance to this. There was about 60% loss-leakage in our drinking water. The infrastructure was very old; we even demonstrated the old pipes in front of the municipal building for about a year so that citizens could see how old they were. Because infrastructure is hard work. When you initiate works, you have to deal with dust during the summer dust and mud during the winter for about a year. A year of infrastructure plus a year superstructure, that region has to suffer for two years.

What we achieved in terms of infrastructure is that we separated the rainwater from the sewer line. We had two goals here; first of all, to ensure rainwater goes back to nature, and perhaps more importantly, to minimize the energy used by preventing it from going into the wastewater treatment plant via the sewage line.

We established 5 separate solar systems after becoming a metropolitan municipality and contributed to sustainable energy production.

> **We Sort Wastes by Black - Blue Bag Application**

I would like to talk the education aspect for a little bit. We have an application called blue-black bag in Denizli. Citizens put household waste in the black bag and recyclable waste in the blue bag, and they know which day of the week the blue bags will be collected and on which day the black bags will be collected. Here we have identified primary school students as our target group. And we created this awareness among the elementary school students throughout the city. Even if the parents do not sort their waste, the children encourage the parents to use that blue bag. Additionally, our projects such as waste battery collection and waste oil collection continue as well.

We have a traffic education park project again with 4th grade students, which started before Denizli became a metropolitan municipality. All 4th grade students in Denizli come to the traffic education park, where we teach how to conduct appropriately in traffic, how to use the public transport, about traffic lights, how to drive, how to use pedestrian crossings and overpasses.

Within DESKI, we have a theater show that teaches middle school students how to use save water. It is a mobile theater. We teach all our students in the city how to save water.

I am also the Chairman of the City Council in Denizli. We carried out a project with the women's assembly of the city council. The project was aimed at encouraging citizens to wipe balconies instead of washing them. The goal was to reduce water use and become a greener city. Metropolitan Municipality has social activity centers. We informed approximately 2000 students about this project within a year.

As I mentioned earlier, when we say climate action plan in Denizli, everyone looks at us in a strange way, asking what we are talking about, even many of our colleagues who jokingly said, "You prepared a climate action plan and the number of natural events began to increase", but we believe that we are on the right path. As an institution, we will

continue to follow this up in the coming period. Hopefully, climate action plans will be made in our city, in our country, and all over the world in this period. Mr. Minister expressed this as well in the morning session. Efforts of a single city or a single country are not enough; climate action plans must be prepared for all 81 cities of our country. Our ultimate wish is that such plans are prepared all over the world. I would like to thank Mr. Minister who who contributed to the preparation of this event, the Metropolitan Municipality of Antalya who hosted us, and you esteemed participants.

Sayman:

Mr. Değirmenci, I would like to continue with you. Actually, Mr. Minister made a very important call for action this morning. We must establish a department of climate change or at least a branch of climate change within municipalities. We have been talking about this for a long time. The number of climate change action plans in Turkey has been increasing gradually. In this sense, you have prepared both mitigation and adaptation action plans. By combining these two issues, what kind of plans do you have for the realization of this action plan and do you consider an institutional structure for this?

Değirmenci:

Thank you.

We do not intend to announce our climate action plan on June 13th and file and store in the most beautiful part of our cabinet on the 14th. We are determined to implement this action plan. We created a road map to this end. As I mentioned earlier, we have had a steering committee for the last 2 years or so. After June 14th 2019, we would like to establish a supervisory mechanism to work with our steering committee to ensure that the plan is monitored and sustained.

Of course, once this project is completed - we also instructed the quality management department in this regard - hopefully we will have a department, a unit which monitors and supervises the climate action plan in the coming period. .

Sayman:

Congratulations once again. From here, I would like to continue with Gaziantep Metropolitan Municipality. You stated that you have very serious efforts related to both the climate change action plan and agriculture thanks to your past experiences. In this sense, what kind of impacts has climate change had on agriculture until now and what kind of measures should Antep take?

I know about Gaziantep's agricultural activities for the last 25 years or so. First of all, when we look at rainfall averages of the last 50 years, we see that it has shown significant ups and downs in the last 15 years. We all know the figures, 0-300 kg rainfall is considered an arid region, 300-600 kg is considered semi-arid and over 600 kg is considered a moist and rainy region. Gaziantep's average had been 550 kg for a long time. But when we look at the last 15-20 years, it dropped below 300 kg on three occasions, it dropped below 400 kg on three occasions, and it dropped below 500 kg on four occasions. In other words, we are drying ourselves. What happens as a result? Both FAO reports and many other scientific reports indicate that the south of our country will be a deserted area within 30 to 50 years, unless appropriate measures are taken. Now, what we have witnessed related to this drought over the past 15-20 years is that farmers cannot harvest their barley, wheat, or lentil. Certified seed production in Turkey is not sufficient to meet Turkey's needs. So farmers sieve some of the crops they sow, clean it, and put it aside to use as seed the following year. When there is a drought or hail storm or frost, that year's crop is destroyed completely.

Then there is no seed left for farmers.

> **We Had to Import Legumes from Mexico and India**

We experienced this very painfully. We used to grow red lentils in the region from Gaziantep to Diyarbakır and export them to the whole world, whereas our farmers could not harvest barley, wheat, or lentils as a result of the drought experienced in the past years - a result of the climate change. They could not extract seeds and we could not plant lentils. Whether we wanted it or not, we had to import lentils from Canada, Mexico, and India.

The same applies to another legume; chickpea. Once again, we had to import chickpeas from Mexico, Russia, and India. Currently, Turkey imports close to 4 million tones of wheat. Even though some part of it is imported within the scope of inward processing regime and then exported, if we can produce high-quality wheat here, we will not have to import it. The point I am trying to make is this. It is possible to see the next 15 years by looking at the last 15 years. If we do not take appropriate measures, if we do not attach enough importance to these efforts beginning today, we are going to face much more severe consequences.

The Department of Agricultural Services established by Gaziantep Metropolitan Municipality, which is a very new apartment, has been active for the last 5 years. We are trying to revive agriculture in this region by providing our farmers with seeds which we either sow or obtain from other places. But, of course, a single municipality cannot do this for the entire country.

> **We Must Produce Enough Food to Feed the Population in Turkey**

We must take measures against drought. First of all, we have to implement irrigation projects. What will happen if we do not take precautions? I would like to say this as a resident of Gaziantep; Gaziantep lost the battle against the French in the First World War. Why? Not by guns. Gaziantep surrendered to hunger. When I was a kid, one day I went to a park with my mother. There was an old woman sitting there. I guess it has been 40 years or so. “Aunt”, I said, “Did you see the war in Antep?”. “I did, son”, she said. I asked her to tell me about it a little bit. Stroking my hair, “My son”, she said, “We were hungry. The French came and brought us wheat, we went to get bowls of wheat and then we fed ourselves.”

Esteemed participants, if we fail to take measures, no one will feed us and we will starve. For this reason, we must take the necessary measures and produce enough food to feed the population in Turkey.

Sayman:

Mr. Yılmaz actually stressed the importance of cooperation between stakeholders. If we go back to Istanbul, it is the largest city of its region and also Turkey. It is also one of the largest global attraction centers in the world. In this sense, all municipalities in the region as well as Turkey are curious about what Istanbul is doing. What do you think about Istanbul’s place in global climate change policies? You are a member of the C40, there are a total of 90 municipalities in the world, if I am not mistaken; one of them is you. You are a member of the Covenant of

Mayors, what do you think about the cooperation in these bodies; what benefits do you see? And what do you think about Istanbul's place in global climate policies?

Yılmaz:

Thank you. As we were initiating the first action plan in 2015, we signed the Compact of Mayors. The Compact of Mayors gives you a list and say, "You must prepare your greenhouse gas inventory within a year". If you fail to prepare it, you are classified as passive. There is nothing worse for a city that competes at an international level than being classified as passive among rival cities. They then say, "Prepare an action plan within two years." If you do not, you are passive again.

The reputation of the city is damaged on the international platform in this case. When you look at it like this, your contribution to international networks drives you. Not only that, but you also get very good support from these networks. You receive training support, for example. Everyone calculates their greenhouse gas inventory. But what is important is to validate it. No one can tell you where you got this figure, 47 million tones. You can use it in academic publications; you can use it in all kinds of things.

We have been in a race for the last 3-4 years. There are aspects of this race that you may fall short. You get support from the Ministry, you are trying to get support from everywhere. The best among them are institutions that went through international phases. This is why the C40 is very important to us. The C40 has a lot of knowledge, you can get feedback, and you can get training. Then they start to mention Istanbul. There was an event in Barcelona, they announced in that event that Istanbul had completed its action plan. After mentioning that, everyone asked for the English version of our report. The first thing that they say is, "Send a summary report as soon as possible. We need to see it." Everyone wants to see what Istanbul accomplished. That is why international platforms both guide you and help you avoid falling behind. I think it is important.

Sayman:

Finally, Mr. Ötegen, we talked about the importance of international platforms. And we see that it has very important benefits. You mentioned that the Union of Municipalities will build a center of education. However, even if it cannot replace these international networks, do you think that the Union can assume a leadership role as a local organization by supporting municipalities in Turkey and guiding them with regard to climate change?

We saw the work of the EEA in the morning sessions. They had prepared a map showing which municipalities performed what kind of activities, which municipalities have a climate change action plan. Is it possible to create a platform that will do these things?

Ötegen:

Thank you.

Mr. Yılmaz could actually go into details as well. As you know, the president of the Union, Mrs. Fatma Şahin, is the Mayor of Gaziantep. She is also the Chairperson of the United Nations Task Force on Climate Change. Her perspective and efforts are in this direction. Her efforts are really great. The trend shows this - the new governance is heading towards smart cities. And we have to everything with this perspective. In this context, the monitoring of local climate actions is, of course, directly proportional to the capability of the Union. Actions must be discussed, recorded, and shared on the platform and in certain networks, which is one of our main objectives. We have started to work on this. The information provided today actually widens our horizon.

It is clear that our cities that have not prepared a climate change action plan yet are continuing their efforts to this end. Not only metropolitan cities, but also our provinces and districts are really sharing this spirit. Of course, we have duties against humanity, to eliminate or mitigate damages to ensure a better future. We need investments and projects to achieve reduction or adaptation. Although we cannot implement all of these, our municipalities are striving to the best of their capabilities. As the Union, we will do our part in terms of sharing knowledge, providing guidance and getting good results. But as we saw in today's session, the effort that we observe at the international level needs to be ensured in Turkey as well. We will try to do our best. It is also clear that municipalities are the most capable institutions in terms of reaching students and the general public. Therefore, the dialog or cooperation that our municipalities will establish with the central government or with international institutions and organizations is actually a process of reaching the public and getting results. Because all of our municipalities carry out very important projects aimed at students from primary school to high school. These efforts have tremendous impact. In a sense, the public trusts the information provided by the municipality. We hope that this information sharing process will pave the way for further betterment of our future. Efforts related to this issue are not in vain. We are ready to coordinate these activities with our municipalities and our ministry.

Sayman:

Therefore, I believe that we have your word regarding this. Thank you. I would like to turn to the audience at this point. Mrs. Talu will make a presentation on climate change, gender, and women. I personally expect the first few questions from our female participants, because we are five men here.

Question:

Thanks, I am Nuran Talu. There is something that I am very curious about, and we are working on it as well. The number of action plans is increasing, particularly in major cities of Turkey. The issue of adaptation is controversial. But what we are most curious about, to be more precise, is the budgeting for actions and the potential of financial resources against that budgeting. Because climate change is such an issue that, especially in metropolitan areas, you need to conduct a scientific study and you need resources for that. It is sometimes a very big investment. You need international funding or a significant contribution from the central government for disaster prevention. You must determine the terms of your actions, which is very important in the fight against climate change, and

the budget is also very important for implementation. There seems to be a shortcoming here. Studies need to be conducted; financing models need to be prepared. Some climate change models are carried out at the local level without a budget and then there are those carried out with a budget. But to be realistic, we need to talk about financing. I think that it is important for the management of metropolitan cities. Do you have a budgeting model for these actions?

Erol:

We are trying to integrate climate action plans into strategic plans. This is the most important element. The moment you integrate it into strategic plans, you begin to get a share of the budget. We currently have a list of actions for each department. The latest action of the Department of Environmental Protection Control in that list is to integrate the climate action plan into the strategic plan in the new period. This allows for balancing the budget. In other words, a budget of 18 billion will actually be allocated to climate action.

Yılmaz:

Actually, I was going to say something similar. When added to strategic plans, some amount from municipality's budget needs to be allocated. But let me say this as a general principle of the municipal work. It is a secondary consideration to do a job with the money allocated from municipality's budget. In fact, no public institution has as much money as you would expect. You have to look for it and find it. This is the case in Gaziantep. We benefit from projects of development agencies. We benefit from projects of GAP Administration. In our solid waste facility, for example, we found a Korean company producing energy from methane. We outsourced this activity to the company. The first thing is to put it in strategic plans and then to look for funding relentlessly. You will find funding eventually.

Question:

Hello, my name is Özge Akyürek, I work at the Ministry of Environment and Urbanization, the Department of Climate Adaptation. Each and every step taken for adaptation to climate change is invaluable. For this reason, all efforts of municipalities are admirable. My first question is to Mr. Erol. One of the most important criteria in adaptation action plans is to perform the impact analysis accurately, and step before that is to perform the prioritization, namely the risk analysis, accurately. Istanbul is a huge metropolis with a very complex structure. How did you perform the prioritization for a city with so many parameters? What was the route you followed in the vulnerability analysis and with whom did you work? Because I had the opportunity to take a look at your action plan and it is a really good start. It is an action plan with a good understanding of this complex structure and executed accordingly. The approaches, tools, models, and methods used in the plan are actually very good. I would like to know how you selected them and how you monitored them. Also, my last question is, how did you perform the multi-sector analyses? Because sector analysis is not enough on its own. Both climatic and socioeconomic factors have great impact. They have great effects on each other as well. How did you perform these?

Erol:

Thank you. As I mentioned, we divided the action plan into 7 packages. We calculated the greenhouse gas inventory, and after the calculation, our first job was modeling. Once we started this, we assigned a scholar to each package. We worked with Ömer Lütfü in modeling. With Eurasia Earth Sciences. We tried to predict where

we are headed. After this, vulnerability analysis is very easy to perform. We have very serious problems related to infrastructure. Because Istanbul, the projected 10 million population, was supposed to receive 10 kg of rainfall, but it is now beginning to receive peak rainfall. The first vulnerability appeared in relation to the infrastructure. Population is growing exponentially. According to TurkStat data, the population might reach 21.5 million by 2030. The system is changing on its own. We always continued with scholars. Then we brought the stakeholders together. We always worked like this. The provincial organization of the Ministry of Agriculture and Forestry was also involved. Forestation and land use efforts of the Forestry and Water Affairs were also included. All these efforts began to support each other. After that, we did not that we were done, we asked all stakeholders for feedback. If you say we are done, it will not work. For this reason, we worked with the academy as well as NGOs. We worked with public institutions. We used the analysis results. In the end, we created a list of vulnerabilities, I am sure you have seen it on the website; it is available in the form of a book. It explains the method in the initial sections. Istanbul appeals to every sector. We have industry. We have farming in Şile and Silivri, we have tanneries in Tuzla, on the other side of the city. Sabiha Gökçen Airport is located a little further back. In fact, we are able to cater to every industry on a city-wide scale. We always said the same thing when consulting with the ministry. Any city can easily create its own action plan using the foundation that we provide. Because the adaptation aspect is different. You need a different logic. These efforts provide very important data, which must be validated somehow. That is where the academy comes into play. We created an action plan by combining these together.

Sayman:

This was, in fact, a very good question and I would like to contribute as well. It may not be possible for each of our small municipalities to calculate climate scenarios in particular. After all, vulnerability and risk analyses need to be performed locally. But national models can also be used in climate scenarios to a certain degree. If there are municipalities interested in this topic, there are basin-based climate scenarios prepared by the Ministry of Forestry and Water Affairs for entire Turkey until 2100. You can see the climate projection of your own province, your own basin. I believe Mrs. Semra has a question.

Question:

Thank you very much. These discussions have been very beneficial. For me, learning about the efforts of municipalities is very exciting. To elaborate on Mrs. Talu's question and make a small contribution on climate action financing: It is about resources that municipalities can mobilize, not external resources. Istanbul's action plan is very important; we have been looking forward to it for years. You mentioned that you will have mobilized the entire budget in the strategic plan. You can mobilize the economy. You mentioned the C40. One of the important action pillars of that network is the green tender. Municipalities do not have to look for climate financing, they can also create climate financing themselves. Or they can make their economic activities climate-friendly. Istanbul's tender budget is probably of a significant size. Have you included this in your plans? Do you have such an assessment process in your respective municipalities? The Ministry of Environment and Urbanization may need to carry out such a study with both the General Directorate of Environmental Management and the General Directorate of Local Governments. How can municipalities be guided in this regard?

I have another question related to this. Climate action is being localized all over the world, but on the other hand, local governments are trying to collaborate with the central government. In particular, they request related to support, authorization, and resources from the central government. Do you have such a request? Have you made such a request to the Ministry? I participated in your municipality's training this summer. When we talked

with people from district municipalities, there were striking opinions. There were participants who said "Climate change does not need to be on the agenda of local governments unless the central government wants us to take action on climate change." Here we see good examples. There is mobility. I believe the ministry and the central government should cooperate in order to break this perception. Do you have such an effort to institutionalize this?

My question for the Union is as follows: You provide significant support for municipalities, most of which are related to the vehicle park. You provide waste collection vehicles and other vehicles. As I remember from my graduate and doctoral studies, the Union distributes very important publications. It was not limited to providing financial support, vehicle support, but also information support. Very valuable publications of the Union are still in my library. If you do this in the field of climate and environment as well, it would make a significant contribution in terms of sparking interest at the local level. There is a need for not only awareness, but also practical information. I guess this is up to you as well. It is an important function that we expect from the Union, to hold meetings to this end and bring together all local governments working in the field of climate and create a platform for experience exhange.

Ötegen:

Thank you very much. Of course, we cannot share all of our works here due to time restraints. We support both university and high school students with publications, organize both domestic and international trips, and share our experiences with students. But we are keen on organize meetings similar to today's conference in our city, our region, or across Turkey with the participation of our ministry. We can say this with determination. From now on, we will focus on this even more. There is no other way to do this.

Erol:

Mrs. Semra, you already answered the second question. We were trying to raise awareness in 39 district municipalities using a grant provided by the ministry. Why? Maybe you encountered this at the first meeting. I do not mean to disdain the municipal police, but the district municipality said, "There is a meeting, I guess it is about climate, let us send a municipal police officer to attend." We were organizing this with a grant from the EU and our ministry. Then heads of departments began to attend the second and third meetings. Here is the critical point: the Secretary General helped us tremendously. Then yesterday, Mr. Yıldırım signed a commitment called

the nature-friendly mayor. The first two items are about climate. The more the top directors care, the more the lower-level officers care. This has been our experience. The general secretary pioneered this initiative and then we took over. Initially, district municipalities sent municipal police officers. Then heads of departments began to attend these meetings and said, "It really seems to be an important issue, because everyone in Turkey started to talk about it. Even the President came and gave a speech about it." The same thing happened regarding zero waste. The First Lady talked about it and now everyone supports zero waste. The more the top level cares about it, the more important it becomes for people. A similar thing happened in our case as well.

A simple example related to your first question. We are awarding fuel tenders. This is about the the importance of biodiesel, renewable energy resources, electric vehicles, and so on. For example, in the car rental business, we are encouraging electric vehicles. We now have electric vehicles used for support services. When we include ourselves in our strategic plans, this provides encouragement. We used to not tender electric vehicles. Now, at least 10% of vehicles will be electrical. As I said, our actions guided themselves on their own.

Birpınar:

Thank you. Turkey has actually been assigned as a co-leader in terms of infrastructure, buildings, cities in particular. Along with Kenya, Turkey will be the co-leading country. After this meeting, we will talk with Mrs. Suri about the Habitat's function here. The Germans want to work with us, we will have a meeting with a team from Germany. But with this meeting here, you have shown how this thing can be done. We are advocating that when you mobilize the local, there are a lot of things that you can achieve at the national level. We have heard very good things here today. Spreading this to all municipalities will be one of our goals. Because we can see that local targets are more valuable than our national targets. Because, as explained, the construction of energy-efficient buildings and studies on energy efficiency will actually make the job much easier. There are also two important things that we did about the ministry building. One of these is about zero waste. There is no trash can in any room in our building. This includes my desk as well. No garbage truck comes to the building. We utilize all waste - glass, plastic, paper and metal wastes are collected in separate containers in corridors. These wastes are taken to temporary storage in the evening. After a while, they are collected and taken to recycling. We sort wastes in our cafeteria as well. Untouched food goes to animal shelters. The remaining goes to the composting plant that we built and used to produce fertilizer. And we use these fertilizers in our garden. Our wastes are cleanly collected and make a significant contribution to the economy.

Secondly, 3500 people work in our building and our monthly electricity bill used to be around TRY 300 thousand. TRY 100 thousand for lighting, TRY 100 thousand for computers due to servers... We have replaced all light bulbs with LEDs to reduce lighting expenses. But replacing all light bulbs with LEDs was very expensive. We set up a workshop. We said to our electronics engineers, "Can you dismantle these apparatuses and replace the bulbs with LEDs?" "Sure", they said, "But we will need some time." We replaced all light bulbs in the whole building within a year without disturbing anyone. We just had to buy those LEDs, which Turkey cannot produce unfortunately. We bought them from China for a very good price. At the end of the year, all light bulbs were replaced with LEDs. Our lighting expense of TRY 100 thousand dropped to TRY 20 thousand. Then we are installing a 1.5 MW solar panel system above our car park. It is almost done. The entire day time power consumption will come from solar power. Power required for night time will be supplied by this solar system. But since there is no one working on Saturday and Sunday, we store the energy generated during the day hours on Saturday to Sunday. In this way, we will be saving TRY 280,000. The total bill will drop to TRY 20,000. Because the power that we produce during the weekend will be equal to the power that we consume during night time. This will allow for considerable energy

saving.

We need to initiate this in all schools, universities, and government buildings in order to improve energy efficiency. If our municipalities succeed in doing this, I think we should pioneer in these issues. I believe this could be one of the good examples that Turkey can present as a co-leading country.

Sayman:

While our Ministry is supposed to be a pioneer in the field of policy development, we observe that it is setting an example for the private sector in terms of the practical aspect as well. We have exceeded the time allocated for us but let us go on for another 20 minutes. So I want to take the last three questions.

Question:

My name is Gökmen Ergun, I am responsible for the UN GF Small Grants Programme. I would like to underline something about the actors. We have been working on climate change for a long time. And states are actually considered as the biggest actors. The UN is an interstate organization. That is why we always position actors as states. This maybe right. But in order to achieve global goals, new actors must be added to these actors. The real civilian actors must be added. We always say that the solutions must come from the bottom, it is not possible to achieve anything with a top-down approach. People must come up with solutions on their own. I believe that civilian actors have great potential and I do not mean NGOs, cooperatives, and unions only, I mean volunteer citizens. I would like to ask this question considering that municipalities are closer to civilian actors in this sense. Do you think municipalities can act as strategic playmakers with regard to these climate-related steps? In other words, you can make a number of strategic plans, but this will remain partial from time to time. What I mean is, in order to mobilize people, citizens or civilians - also referring to civilians active in the private sector - to take action, do you consider yourself as a playmaker who encourages them, warns them, encourage them to take a new step, guide them to have a different outlook to the world? Do you have any efforts to this end in your strategic plans?

Soru:

My name is Ali Ümran Gümüşçü, I am the Head of the Climate Branch of the General Directorate of Meteorology. Dear speakers briefly talked about climate action plans for their respective cities. It is especially about risk perception and vulnerability in cities. I do not know if other municipalities have done this kind of analysis. Mr. Erol mentioned that they worked with a scholar on this subject. Performing such analysis comes with a certain cost. As GDM, we already prepared these scenarios based on the climate scenarios published by IPCC in 2014 and using three different global data sets appropriate for Turkey and a regional climate model. Currently, we already have temperature and precipitation projections for any x, y point in Turkey until the end of 2100. We would like to share them with the public, municipalities and universities. But there is not much in us us from municipalities in particular. Municipalities do not have to take on this work and incur additional expenditures. We already have this available. Additionally, as you know, the latest climate scenarios are based on the RCPs published by IPCC in 2014. There are different scenarios such as 2,5-4,5, and 8,5. These will be renewed in 2019. New scenarios that we call SSPS are coming. In addition to emissions, these scenarios will also include socioeconomic factors to a greater extent. These models probably need to be rerun, which we will do as GDM. It is likely that municipalities will need to update their existing risk and vulnerability reports according to these new scenarios. My personal opinion is that there will be changes in temperature and precipitation projections for Turkey. As GDM, we are currently carrying our studies and we would like to share them with municipalities. In this way, they also will be

able to reduce the cost of climate action plans, albeit slightly. I have a brief question for Gaziantep Municipality. You mentioned 50 thousand apartments. As a general rule, I believe that, when proposing an action plan, a cost-benefit analysis should be performed as well. Because the project that you plan to implement which involves 50,000 apartments will probably contribute to to climate change in that region, perhaps about 0.1 to 0.2 degrees to the heat island. Because you are building 50,000 apartments there, you maybe inadvertently contributing to climate change. Therefore, I think that the cost-benefit analysis should be performed in such projects.

Beşiktaş:

After the elections, I hope that we will be able to hold a coordination meeting in Antalya with representatives from relevant institutions, representatives from environmental protection departments in particular, under the umbrella of our Ministry and the Union, in order to prepare a joint action plan with representatives of relevant institutions and organizations as well as sharing information and experiences.

Yılmaz:

Of course, this is a factor as well. After all, whatever you do, you are disturbing the natural state of environment. However, I explained this in the presentation. We transport 100,000 people every day. I suppose there are at least 25-30 provinces in Turkey with a population less than 100,000. When the economy is good, these factories work in 3 shifts. In such cases, think about how many shuttle buses are in the city, in the traffic. Think of the red lights. Other vehicles are also affected to a great degree. There is also this. Our country has suffered from terrorism in the past, we all know this. During this process, many of our citizens from Eastern and Southeastern Anatolia migrated to Gaziantep, where they felt safer. Inevitably, these people settled close to their relatives. Gaziantep's population grew well above the projections and there are certain needs. It is imperative to meet these needs. It may cause a very small disadvantage, but as far as cost-benefit goes, when you eliminate off 3,000 shuttle buses from traffic, there will be a tremendous emission reduction. These people already live in the other side of the city and use coal for heating. Particularly people from the East and Southeast live in more difficult conditions, such as slums. This project will involve 4 or 5-storey buildings, all horizontal. All of the apartments will use natural gas. It will be closer to the industrial zone. In that respect, I believe that it will be a very important project for Turkey.

Erol:

We used the IPCC models. But the IPCC models are on a very large scale. We are almost a dot compared to those. So we thought that we should get support. The idea behind reporting every two years and updating every 4 years

is that some things will inevitably change. Because our status is constantly updated. Of course, we would like to benefit from them. We used other models to avoid being a dot. Since the IPCC models are global, Istanbul is indeed just a dot.

I am going to give a very simple example regarding the madam's question. Who is Ahmet Mete Işıkara? He is known as 'Grandpa Earthquake'. We talked about this as well. Why do we not have a Sister/Aunt Climate? We actually do, but not like Ahmet Mete Işıkara. Maybe our ministry, maybe dear Mehmet Emin will touch upon this.

….

Maybe we need an Aunt Climate. Maybe.

Değirmenci:

Thank you. As the metropolitan municipality, we have activities in every domain of life from birth to death and even after death. Hence, the Metropolitan Municipality has to be an actor in every field. Indeed, climate concerns everyone living in that city. I think that the public institutions, organized industrial zones, non-governmental organizations, and metropolitan municipalities have to be the locomotives of this endeavor. We see ourselves that way. On the other hand, municipalities are the most easily accessible public institutions at the local level. Let me tell you about a pilot application. We established neighborhood councils under the name of "My Neighborhood". We can reach everyone thanks to neighborhood councils including children, women, people with disabilities, elderly people, and young people, everyone in that neighborhood. You can get in touch with everyone in that neighborhood. In fact, what we are trying to achieve with the climate action plan is to create awareness. I believe that the best way to do this is through local governments. But, of course, if we can get support from the central government, the EU, and the UN in terms of budget, financing, and capacity building, we will feel stronger.

Sayman:

We are in the last two minutes, so I will not take any questions. First of all, I would like to thank Mr. Minister, the Ministry of Environment and Urbanization, Antalya Metropolitan Municipality, the İklimİN Project, and the EU who funded the project, all the panelists, and all the participants.

Combating Climate Change at Local Level

Disaster Management, Best Practices and Measures

Prof. Dr. Mikdat Kadıoğlu
İstanbul Technical University, Center of Excellence for Disaster Management Department of Meteorological Engineering, Faculty Member

Kadıoğlu:

Good morning, friends. I hope you are all alive and fresh. Indoor environments can be exhausting. I am from Maçka, Trabzon. A 90-year old woman goes to buy fish in Maçka. The fish are swimming in a bucket. She asks anyways, "My son, are these fish fresh?" The fisherman gets upset, "Don't you see, they're all still alive." he says. The woman says, "My son, I'm alive, too, but I'm not fresh."

There is a topic called climate change, you all know it by heart by now. There are two ideas that I want to sell here; one is climate risk management. The government, municipalities, various institutions, and organizations are working on the causes of climate change. Some are dealing with floods caused by climate change; others are dealing with the causes of climate change. Some of them are trying to combat disasters. They have now combined these two studies, and they have

been calling it climate risk management since 2012. The point is to do both together. In other words, institutions are looking at the same issue from different angles, gathering different efforts of different units regarding the same job under the same umbrella. This is what the world wants to do. Some are working on adaptation, some are working on risk mitigation, and so on, and they need to work together. This is an important issue for us as well. Because this is an approach that prevents waste of time and resources. I would love to introduce this approach once again.

I would like to focus on two types of disasters, both concern water. One is the excess of water and one is the scarcity of water... As you know, there are 31 types of nature-induced disasters. We do not call it a natural disaster anymore. If you look at the dictionary of AFAD, we have removed the word 'natural'. Nature-induced disaster, human-induced disaster, technology-induced disaster. When you say natural, people think that it is normal. There have been some changes in terminology.

The number of these nature-induced disasters is 31. 28 of them are related to weather. Climate change is increasing the number, severity, and duration of hydrometeorological disasters. In other words, climate change and meteorological disasters are very closely related. I picked two of the most important of these.

> **Ecological System Cannot Keep Up with Sudden Climate Change**

The climate is changing; the world has a fever now. What did the world get? The world got people. The most dangerous of creatures. What comes to mind when we think of climate change? Search climate change on Google, what is the first image that you see? A polar bear. Climate change is perceived more as a polar bear problem.

Know this, the world used to get 1 degree warmer or 1 degree cooler every 150 years. The warming process is 1000 times faster now, which means that there is a sudden climate change. Technically, we call it 'sudden climate change'. The ecological system cannot keep up with this.

It is important to make the connection between this smoke, these greenhouse gas emissions and the flood you see in this neighborhood. There is a perception problem here. We call it awareness, but our trainings are usually didactic. We need to take this a little bit further and establish a causality relationship. If we can explain this relationship to citizens, it will be very useful in terms of understanding the consequences of their actions and changing their behavior.

Climate change leads to extreme weather events and extreme weather events lead to disasters. Disasters force us to take measures. We are in a cycle like this. Does anyone remember that study? I wrote this for UNDP. This study describes the terrestrial-temporal change of 12 meteorological disasters. We always say that the number of disasters has increased, because we have changed the climate. How has it increased? How much has it increased? For the first time in this report, we tried to present it. We could do only so much with the data that we could access at the time. It is possible to do better. But there is a clear increase in the number of meteorological disasters due to climate change both in Turkey and around the world. The number of earthquakes has not increase. But the number of meteorological disasters is increasing. Look at the Munich Re statistics, compare 1960s and 90s. Compared to the 60s, the number of meteorological disasters has tripled in the 90s. Economic losses have increased 9-fold. Insurance losses have increased 12-fold.

Insurance companies are now hiring meteorological engineers after the hail storm in 2017. They are just realizing

that there is a discipline called meteorological engineering.

> **If 35 Thousand Buildings Are to Collapse, Disaster Management Is to Reduce This Number to 35**

I would recommend climate risk management. The units working on these issues in your institutions and organizations must create synergy. You need to do the work related to adaptation to climate change together without repeating yourselves, wasting time, spending money twice for no reason. This is called climate risk management. The IPCC has a relevant report from 2012. If we follow this report, we will have used our resources better. Our biggest problem is not fully understanding disaster management. When we say disaster management, people often think of search and rescue activities after a disaster, setting up tents, or distributing food. That is not disaster management. Disaster management is to reduce risk to a manageable level before the disaster happens. Today, we expect 35 thousand heavily damaged buildings in Istanbul. It is impossible to recruit 35 thousand search and rescue teams for 35 thousand buildings. 35 thousand buildings will collapse and we will manage this; there is no such mentality in the world. But we have got this mentality. It is not possible to prepare a search and rescue team for 35 thousand buildings. This is not disaster management. Disaster management is to reduce 35 thousand buildings to 35 buildings. What we need to do is to ask the question, "How can we be affected less by this?" We even need to think about how we can use the positive aspects of it for our own benefit, how we can benefit from it. This is the risk management part of disaster risk management. In other words, we need to take all these steps related to climate change such as hazard analysis, risk analysis, prevention, avoidance, mitigation, risk transfer in accordance with scientific norms. Not according to me, not according to you. We need to make use of the world's intelligence at international standards. We need to adapt to disasters with such works. Actually, the word 'adaptation' is wrong, it needs to be adjustment. If you follow the dictionary of technical terms, the entire terminology is entangled in Turkey.

The lack of water is drought. The duration and severity of drought are increasing in Turkey. You see the rainfall. Turkey's topography determines the rainfall in Turkey. You see the bottom one here. Droughts are getting deeper and longer. It used to be like this, but it is deeper and longer now. Lack of water is an important problem. I will try to break a misconception that I witnessed in Ankara. And I am sure I will not be able to. I visit Ankara very often and I even attended the meeting of TGNA Environmental Committee when I was the head of the department. Forget about this "mild drought every 7 years, severe drought every 7 years' nonsense. There is no such thing. I saw people preparing plans based on this. 10 years ago, someone said, "Professor, let us have some patience, we are entering the wet period within a year. You cannot manage a dam based on this. There is no such thing. Whoever invented it sold it very well. If you do not believe me, here you see 80 years of rainfall, perform a periodic analysis of the first 30 years. Then repeat this periodic analysis by adding 5 years-10 years of data to this data. There is no such pattern. If you are building your activities on this, stop using misconceptions in Ankara.

I explained this in my book. There is no periodicity in weather events. The weather does not say, "It has been 7 years, we need to give Istanbul some drought." The weather does not have such a memory. Chaotic environment.

With the Turkish Climate Change and Agricultural Sustainability Report, we tried to look at the soil water balance in agriculture for the first time. The water balance in soil is good in rainy regions. Plants use this water and then it is gone, no rainfall, too. It becomes necessary to perform irrigation. According to this balance, for example, 240

kg of rain falls in the Mediterranean Region in January. As you can see in the table, it drops to 120 kg. Also, the evaporation surpasses the rainfall in the 5th month. By 2070, the evaporation will surpass the rainfall in the third month. Soil water balance problem. We need to protect and plan planting areas accordingly. If you are interested, you can also find this report online. Agriculture consumes the highest amount of water in Turkey; however, it uses the water inefficiently. Meaning, we are trying to grow the wrong plant in the wrong place. They invited me to Yalova recently. They said, "Professor, there is a drought, we are ruined." I checked it and the rainfall seemed normal. I went there and turn out, they had planted kiwi fruit. Kiwi is a tropical plant. It requires three times more water than provided by the rainfall there. Everybody sews whatever they want and tries to transfer all the water to that plant. Beets, for example. The blue line in this table represents groundwater and lake water. The green line is rain water. See how much of the water is provided by rainfall and how much of the water provided by irrigation. Look at the world. Most of the beet is produced by rain water, while we try to produce it completely with irrigation water. We need to plant the right plant in the right place and use our water efficiently. This is not sustainable agriculture.

According to SWW, our annual water amount is 112 billion m3. We currently use a little over half of that amount. In spite of this, we are stressing ourselves by debating whether there will be a drought every year. A few years later, very soon... According to SWW, Turkey will use 112 billion m3 of water in 2023, which means we will use it all. We are under stress every day when we are using almost half of it. What will we do when we use all of it?

We are facing a problem like this. Thus, we need every drop of rain. There must be a national mobilization for rainwater harvesting. Rain water harvesting already exists in Anatolia in the form of cisterns, etc. We need to spread this. Do you see the picture? This man's biggest concern is to prevent water from getting in there. Let it in. This is like our Black Sea joke. "O believers", says the imam, "Stay closer to each other during the prayer so that the devil will not be able to get between you." One guy says, "Let him in so he can pray for a change." Let the water in for a change. Rain harvesting is very important for flooding, to reduce floods - urban floods. It is also important in terms of droughts. We are going to need every drop of rain. We also have problems with monitoring drought. The GDM monitors the rainfall, the Ministry of Energy monitors the water levels of the dams, the Ministry of Agriculture looks at the soil, and each ministry says something based on what they monitor. These should be evaluated by a single body. Drought-fighting plans are only prepared for agriculture and I have never seen them take any action. Every city should have a drought-fighting plan. Just as our financial budget is activated on January 1st, the water budget must be activated on October 1st, at the beginning of the water year. We have no water budget. We always say, "Water is very important", but there is no budget for it. Water budget is very important, drought prevention plan is very important. This concept must be adopted by Turkey.

Floods. I know get very upset. I do not refer to every flood as overflow like you do. There are 5 types of floods. River floods are overflows, others are not overflows. You cannot solve this problem if you consider them all as overflows. You have call it by the right name. The concepts you use control your thinking. We have not been able to name urban floods yet. Every day you swim in Ankara and you still call it overflow. Which river overflowed? That is not overflow. That is urban flood; there is a different solution, a different approach for it. First, you must understand this. You still cannot understand this.

Flood and overflow are different things. Floods that are increasing in number around the world due to climate change are urban floods, not overflows. Pluvial flooding is increasing. Riverine flooding is not. If you are going to work on floods, work on pluvial flooding. I wrote a 500-page report called Management of Urban Floods for IMM.

It should be out soon, if anyone is interested, they can read it. I do not want to take too much of your time.

Flood or overflow, call it whatever you want to call, but please differentiate your solutions. Look at it differently. The source is the weather. And there is also an exposure path, a path to the recipient. We currently cannot do anything about the source, but we can. How? By reducing greenhouse gases that cause climate change. It has become a political issue. Trump, you know, backed on his word. Do not forget this: As the number of extreme weather events increases, rainfall increases as well. Our biggest problem in Turkey is the changing rainfall regime. What is the Mediterranean climate? Hot and dry in summers, warm and rainy in winters, right? That is disrupted now. Winters are warm and dry. Rainfall is in the form of 'boran' in spring and summer. Now they will ask what 'boran' is. I should call it 'orage' as in French. The Turkish word is 'boran', my friend. There is an increase in orage.

This leads to increased rainfall. Snowfall is decreasing; groundwater feeding seems to be changing. This is especially problematic for receivers in cities where there are many waterproof surfaces. Receivers are buildings or cars and underground passages.

This report will be printed by the Marmara Municipalities Union. Istanbul is the only place in the world where concrete surfaces have doubled in 22 years. Istanbul is the city where waterproof surfaces increased the most. When waterproof surfaces increase, it causes floods. It is not a river overflow. These are urban floods that we call pluvial. Run off is rising very rapidly due to urbanization. These waters accumulate in the lowlands of the city. The lowlands of the city are the Büyükdere Street or Ihlamurdere. Why do you turn a stream bed into a street?

I was watching TV the other day, the anchorman says, "The stream passing through Beykoz caused flooding." Did the stream pass through Beykoz or did we build Beykoz on a stream bed? I find it strange.

As we build more waterproof surfaces, we will increase the number of floods in big large cities. If the Ministry of Environment and Urbanization is going to do something, they should maintain these ratios. Otherwise, you will keep saying overflow.

There are 3 different ways to fight against floods. The first involves the classic structural measures. Structural measures have been taken to combat floods since the Roman Empire and even the Urartians. Until 1950. In 1950, it became clear around the world that it is difficult to fight against floods using only structural measures. We also need to take non-structural measures. The number of dams built in Turkey is amazing. We have taken control of all rivers, large streams. But that did not solve our flooding problem. Because structural measures alone will not do the job. Another is stream remediation. Is this what you think of when I say stream remediation? You cannot see such remediation anywhere in the world. This is environmental massacre. You cannot farm fish her nor you can treat water. Look, the Japanese first started with flood control in 1896. Then flood control

plus water usage. In 1997, it became flood control, water use plus environment. You cannot fight floods unless you address all three of these. There is no such thing as stand-alone flood control. The Ministry of Environment and Urbanization issued a circular called Climate Change and Disasters recently. The circular includes this as well; water storage, water traps within the city. We need to store and hold as much water as possible in the city. For example, this is a football pitch in Japan. In extreme rainfall, this place is used to pond, accumulate, store, and delay water. The asphalt and pavement that you see is water-permeable asphalt and pavement. There is a street next to our house paved with cobblestone. Our ladies, I do not understand what happened to them, but they complained that they could not walk on the cobblestone sidewalk; the municipality immediately turned it into asphalt. There is no gutter on that street. When it rains, the street floods and the water flow to Üsküdar Square. Then they say, "Hit by a flood". Why? Weather used to be the scapegoat. Now climate change is the scapegoat. Nothing is done right, there is no infrastructure. They say, "What can we do, professor? The climate has changed." This is just a new excuse.

And this is an example of new structural measures. Think about it, you live in Ankara, you have a better idea about what is done in Ankara. How many of these new structural measures are we taking in Turkey? Are we raising the buildings above the 100-year flood level? In Bağlarbaşı, because it is a hill, the basement level is 60 cm from the curbstone and in Çavuşdere, Üsküdar, and the basement level is 60 cm from the curbstone as well. How is this basement? The concept of flood has no meaning anymore. If there is a high-ranked official from the ministry here, please make the connection between basement level and flooding. If we can adjust basement levels according to the 100-year flood level, we can prevent water from entering the buildings. It is that simple. We used to do this. Now we are not. There are many things that we can do such as building flood walls or sets, harvesting rain water, moving the buildings, installing temporary barriers, constructing waterproof buildings. For example, the level of basement here in this picture. These were engineers who did not have smart phones. They did not have computers. During the Ottoman period, the sultan came to hunt in Ihlamurderesi 2 or 3 times a year. Do you see how high the basement level of the building is, where the sultan stayed 3-5 days a year? The engineers without iPhones or computers knew that it was a stream bed. So they built the residential part sufficiently higher. When water comes, it does not go in; it does not damage the living area. Do you see the building that modern engineers with computers and smartphones built? Floor-level entry on a stream bed. Then they blame the climate change. You have had a regression of civilization. We are getting really nervous. Look. Now the whole world is redetermining the stream beds according to climate change and redefining the flood level. Unless we do these, we cannot protect ourselves from flooding. Transport buildings, upgrading buildings, constructing flood walls, dry flood protection, and wet flood protection. I took a course in the United States on management of floodplains. They are always based on these concepts. They have technical specifications for these.

You think that these are new concepts, right? Do you remember the Çarşamba song that involves flooding? Look,

this is Çarşamba. Do you see the old Turkish house? Look at the basement level. Why didn't these fools make it floor-level? Because they know, they have learned their lesson. Look, this happens very often in Istanbul, water is entering the shops. In rainy weather, they put a cover here and water cannot not enter. Why don't we do this? Very simple. We don't know how to use a sand bag either. I offered once, and they said, "You will humiliate us in front of the whole world." The world uses it. Is it less humiliating when you get dirty water in the building and have to clean it up? There are thousands of examples like this; you just need put a cover here.

Rainwater harvesting is very important for both drought and flood. If Ankara did this, it would be great. We direct rain water to the roads. When thousands of buildings direct rain water to the street, the roads, those roads cannot carry that much water, all the streets turn into streams. We water our gardens with drinking water, we need to water them with rain water.

If you try to build something like this in Istanbul, İSKİ comes immediately and charges you for waste water. Do not do this. Encourage people, do not punish them. Rain water harvesting is a very simple and very ancient method for drought- and flood-fighting.

The Germans put a new gutter between the gutters. I will tell you something, our municipality does not place gutters. I am looking for them everywhere. Currently, gutters have turned into super gutters. This is Japan, see the system they installed under Tokyo to drain the rainwater? If we did this, we would pass the subway through it, saying, "What could go wrong? Now that we have built it..." But I am not telling you to do that, let us do this instead. Let us place a gutter and carry the water. Where is it flooding? The underpass? They go there and put gutters and pumps. You cannot carry water from there. You need to keep the water at where it comes from.

Non-structural measures; that is where we fall short. We are very structuralist. We need to see it and touch it. Flood mapping, flood warning systems, evacuation plans, flood insurance… But you should not make the insurance equal for everyone. Those who built the basement appropriately will pay a certain premium, those who failed to build it appropriately will pay more. We need to use reward and punishment together. TCIIP applies the same premium to both sound and unsound buildings. This insurance does not serve its full purpose.

Ali Ümran Gümüşçü from GDM warns the people. "Dear citizens, a flood is coming, please be prepared." How will they be prepared? From elementary school to university, there is no information about it. Our geography books are terrible. No information on real life events, disasters. You are all educated people, but you don't know how to protect yourselves from the flood, too. We don't know how to protect from lightning. What would you do if you saw a tornado? We are in Antalya. You would stand in front of that tornado and take a selfie, right? Education is very poor, very didactic. There is no information about real life events. If you pick up and read this book, it tries to explain these issues briefly. A span of flood water can carry a person, 60 cm can carry 1.5 tones. It will take you away. You should never enter flood waters.

This mapping thing is very important. Unfortunately, we have problems related to mapping in Turkey. This is the old floodplain and this is the current floodplain. The former is connected with 100-500 years old flood waters and stream beds, the new one is connected with the topography. People construct buildings here according to old floodplains. Look, the floodplain is here, making the building safe. Some smart guy comes; he somehow gets the permit, fills this place up, and constructs builds on it. It puts old buildings in danger, too. Therefore, I don't know which ministry deals with it, but they need to make a rule, no activity must change the 100-year flood level in basins. This is the rule in the USA. You can never change the basic flood level.

I am almost finished, not much left. Look, we need to combine climate change adaptation, flood risk management.

We have little money, limited resources. Please pay attention to climate risk management; let us see if we can do it. This is the work of a scholar from the Netherlands. 18 metropolises have been examined; we have no problems in terms of coastal floods in Istanbul. It is 18th in terms of river floods. But we are top 5 in urban floods.

If we want to fight floods, we need to pay attention to environment. Look, our buildings are like this. We can't deal with urban floods unless we make buildings like this. That's for sure. We need to get the water underground with permeable surfaces. The water should not flow. When the water from roofs of thousands of buildings and streets begins to flow, it is not possible to stop it anymore. This is why green spaces are very important.

I prepared these maps while I was consulting in a project of the General Directorate of Water Management. These were done according to the EU Flood Directive. We need to do this. To reduce risk, we need to know the risk first. This is our law. Law No. 7269 on Disasters Affecting The Public dated 1959. Drought is not considered a disaster in this law, you see? Officially, drought is not a disaster in Turkey. Did you know about this? Those referred to as "others" have never been defined in Turkey. If you were the minister, if those responsible for the disaster statistics provided the you with the data, you could add these 6 disasters together and reach 100%. But there is no drought here. No statistics. Do you know that all international reports show drought to be 0 in Turkey? We have always ignored it. First, please respect the drought. Anatolia is a cemetery of civilizations destroyed by droughts. Droughts are at the foundation of this land. And it will increase even more.

We should not just include names of disasters in the law. Anything that we cannot cope with using local resources and cause economic and social damages should be referred to as a disaster. It doesn't have to be named. Today, we may have SARS and tomorrow, we may have swine flu. Are we not going to count them as disasters? There is a big problem in Ankara, I tell you. They also used "natural disaster" everywhere in the law. They can't even use the word disaster on its own. What if a plane crashes? I don't understand our 'by rote' approach.

Floods or droughts. Whatever you do, please do as part of a master plan. And the most confused concepts are hazard and risk. They bring me something, saying it is a risk map, but it turns out to be a hazard map. Risk is possible losses. There is nothing about losses. We need to read a little bit. As a nation, we don't use dictionaries. Although we don't know most of the words, we don't check the dictionary. We speak by rote.

Risk, hazard, exposure, and avoidance... If you are going to do something, please try to do it properly. Somebody comes and wins a project award. Performs a hazard-risk analysis, and done. There is no point in doing it half-heartedly. They need to be done as a whole, within a system. Within a master plan, we have to do it as a whole. Our climate risk management requires looking at these as a whole. If we can take all of this as a whole to reduce the hazard, including reducing greenhouse gases, it will be a good thing to do with a holistic approach.

Thank you. If you want a copy of my presentation or further information, e-mail me. I have published about 170-200 articles, presentations, and books. Grab one and read, they are free. No problem as long as I can contribute to my country.

Soru:

Thank you very much Professor. You managed to wake us up. We carried out a project within this scope. I'm Professor Dr. Kenan Peker, Fırat University. I met you in Konya. You gave me the example about beets. Our first work was as follows: There are 7 different irrigation channels, we have seen that the marginal effect of using more than 4 optimum inputs is insignificant. You gave good examples. Within the scope of this program, we performed a study related to agriculture, forestry and aquaculture products in Elazığ, Malatya, Bingöl, and Tunceli.

We would like to invite you there.

Why did we have a broad sample? With the system approach --- as you can appreciate, it is not possible to manage the climate at a local level. You emphasized something very important, you mentioned water harvesting. The most important issue that we underline there is the accumulation of rain and snow waters in winter and using those waters during 4 months of summer, when we need irrigation. Of course, the world is doing it under the ground using GPS applications. Most importantly, you said adaptation, it really does not happen immediately. Scientifically, you can take it from the mitigation stage to adaptation stage to resilience stage in agriculture. This is a process. In our own project, we have implemented the farm systems adapted to the climate starting from the Global System Management. It was a significant success. I sincerely thank you. If you visit Elazığ, we will take you to Malatya, Bingöl, and Tunceli as well. Thank you very much.

We have seen that this cannot be managed by focusing on a single sector. We have combined agriculture, forestry, and aquaculture regions and identified the longest tourism destination area of the Middle East and Europe with a four-component system including tourism. Thank you.

Kadıoğlu:

I worked as an adaptation specialist for the Asian Development Bank in Bukhara irrigation systems in Uzbekistan for many years. They are using greenhouses in deserts now to protect water. You use water for irrigation, when it evaporates, it come back. Thanks, we will talk with you later.

Soru:

Thank you. The most important outcome of our study was the identification of farming systems adapted to climate. It may be a first in the world literature. Thank you.

Soru:

Hello, Özge Şerifoğlu Akyürek, I work for the Ministry of Environment. As you mentioned, the exact meaning of both risk and hazard is unknown. In this context, risk and hazard analyses must be performed. But as the ministry, we will carry out an adaptation study including all 7 regions. Within the scope of this study, we are trying to conduct a prioritization and vulnerability analysis. However, as you said, since all parameters are interdependent - from flood to rain and drought - or there is the stage of socioeconomic factors, agriculture, tourism… there are climate parameters, rising sea water levels, rising temperatures... We need a detailed study in the background to connect these. First of all, there are Global Climate Studies conducted by both GDM and the Forestry and Water Management in our country. They use climate models and downscale them to the local point. The problem is that in all the data used, a data problem arises when an attempt is made to study flood or drought. Because of the data quality problem, we cannot see ahead properly. My question is as follows. How can we make the correct prioritization when we attempt to conduct multi-sector analysis? How should we identify risks, hazards, and vulnerabilities? I'm asking this question in this way, because when I look at the examples from Europe or the United States, I see that they all run a separate model for each sector. They conduct studies based on mathematical analytical studies, rather than making forecasts such as agriculture will deteriorate and the ecosystem will collapse only by looking at temperature and precipitation results from a global model. This may be due to the fact that organizations in Turkey approach the matter differently, but we certainly have a problem. How should we proceed? What is the right roadmap?

Kadıoğlu:

This is a rather broad subject, the most important problem of Turkey is the data problem. I have seen database projects in institutions in the last 30-40 years, but they are usually carried out by computer programmers without field expertise. No database is properly done. Databases show where floods happened. When you receive this

information, you cannot calculate the risk with the information in the databases. It does not contain risk-related information. This is Turkey's biggest problem. In 2005, I chaired the Hyogo Framework Action Plan. The topic of discussion was, "Where does the difference between developed and underdeveloped countries come from? Why can't they develop? Everybody around the world uses iPhone. We use the same textbooks with the US, don't we? Why can't we achieve the level?" In countries like ours, there is a disconnection between practice and experts. We do as we please in Istanbul. You do so, too. Everybody is reinventing the wheel, doing everything with limited understanding. We cannot create a synergy by adding on to our expertise. I wish they had received consulting when preparing these databases, we would have told them what kind of information they should contain, that we need exposure in risk analysis.

One of the things we don't have is hazard profiling. I just showed it here. We need to perform a hazard-risk analysis. First, you take all the hazards - 40-50 main hazards. Then we need to convert this analysis into hazard profiles. The frequency or impact of the hazard alone does not matter. We need to look at the frequency and impact and find the risk priority. Risk prioritization should be divided into four groups. You choose four priorities: 1, human life and health. 2, Economy, commerce, agriculture, and industry. 3, environment. 4, cultural assets, heritage. Then we need to identify the vulnerability and perform a capacity analysis. Now, we do not usually include the capacity in Turkey, because it is 0. I explain this step by step in my disaster management course, in my planning and risk management course, but unfortunately there are data-related problems in Turkey. You need to review the newspapers. The Ministry should subscribe to even local newspapers. You need to gather all this in a center and enter them into the system. You need to have a system that collects data from newspapers, archives, and elderly people. Please don't set up fake databases. Computer programmers and electronics experts have been a problem for us. They see everything from an electronics perspective, as a computer program; they make something fancy on their own. But it's empty.

Talu:

You have assigned the ministry so many duties that I feel sorry for them. We cannot expect everything from Ankara. As you know, the new climate regime requires you to do something together. It cannot be done with superficial participation. What we say is that let us talk with the spirit of the new climate regime. So instead of saying that ministry must do this, NGOs must do this, universities must do this, this is a serious issue, I believe that we should all pay attention to our jargon. When you answered Özge, you mentioned the synergy between the practice and the expertise. This is exactly what we need. For example, I am an NGO representative. I am here to support the government to the greatest extent.

Kadıoğlu:

If the government asks for support, I will provide it. Look, you invited me, and I came. I returned from the States in 91. I had a comfortable job there. I came here because of my wife. Then my professorship got delayed because of her. They did not assign me as a professor for 3 years because of her hijab. And she says, "I ensured your education."

If Ankara calls for duty, I'm ready. It could be honorary, too. Not for money. It is not important as long as I contribute to my country.

Best Practices of Sustainable Low Carbon Transportation and Emission Reduction in Transport

Tolga İmamoğlu
WRI Turkey, Transport and Road Safety Manager

İmamoğlu:

Good morning, everyone. I'm luck, the professor's beautiful presentation and anecdotes have created a second coffee effect on everyone. I will address a community with a sharp mind. I would like to thank the Ministry of Environment and Urbanization and the İklimİN Project for inviting me. They also gave me a difficult task. When you look at the 2-day agenda, I am the only speaker in the field of transportation. My burden is heavy. I hope in half an hour - I've prepared a slide for you as well - I will try to tell you about what sustainable transport is, whether or not we have targets for establishing sustainable transportation in our cities, and what the benefits are in terms of air quality.

I want to start with a few statistics that we all know. Today, the world's population lives in cities. Especially 2007 was a critical year. For the first time in 2007, the urban population exceeded the rural population. If the trend continues in the same direction, the population living in cities in 2050 will account for approximately 70% of the world's population. If you ask about the effects of this urbanization problem on transportation, of course, I would

say excessive motorization. According to extreme motorization statistics, the stock of currently available and registered motor vehicles in the world is 1.7 billion. What is it going to be in 2050? About 4 billion. What does transportation have to do with today's topic? This chart makes it quite clear. In terms of emissions, the transportation sector comes second in the world. With the acceleration of motorization after the oil crisis in 1970s, the transportation sector is ranked second in energy consumption and emissions. Transportation ranks 2nd in Latin America, 2nd in Africa and 3rd in Asia. Electrical heating is ranked first, followed by other energy production efforts. As individuals, we are actually using an incredible amount of energy for transportation every day, which brought us to this point in terms of emission.

So, what is the effect of this motorization trend on cities? More than 50% of the world's traffic accidents which involve injury or death occur in cities. This applies to Turkey as well, 55% of such accidents occur in cities. We always see these news on holidays, they give you baklava recipe and then show citizens who lost their lives. In fact, we are losing our lives in cities, main arteries or between streets or on a secondary road. So it's not just on highways or intercity roads.

Another consequence is that 6.7% of deaths worldwide are caused environmental pollution. 23% of this is caused by transportation. 70% of this 23% is in cities.

So, according to the scenarios, if this motorization trend continues, what is the situation for both the 4-degree and 2-degree scenarios? If you take 2050 as your reference point, if the motorization trend continues this way worldwide, the transportation sector will not improve the climate change but rather play an aggravating role in terms of air quality in cities.

What should we do about it? This is part of my presentation. What is sustainable transportation? To understand this, we must first revisit or define misconceptions. What do you think of when I say urban transportation? Take the elevator and start the car? When I say urban transportation, do you think of your own private car or distances you will cover with this vehicle? Unfortunately, motorization and mobilization with motor vehicles are on much higher levels in Turkey as of today.

So why do we insist on this? This photo was taken in 2006, before the metrobus became a part of life in Istanbul. A completely chaotic environment. The photo below, on the other hand, is after the metrobus was introduced, the regulated version. Why do we keep doing this? Actually, there's a very good explanation. The most important thing that engineers or planners working in the field of transportation should know is that all of the problems we face are related to urban planning. Because as engineers, we always talk about how to ensure a better traffic flow, how to build more roads, how to implement signalization. But unfortunately, we do not have the opportunity or the ability to solve the transportation problem. Because skewed urbanization will always bring you more transportation problems. Unfortunately, we see a rise in urbanization in our cities, especially with the expansion of the city to different places which are discontinuous. As cities grow, we build more roads. As we build more roads, the roads get blocked. As the roads get blocked, we make more roads. Let's look at an example of this. Let's punch a hole in our belt as we gain weight, then we gain a little bit more weight and punch another hole. This is not a sustainable approach. We cannot achieve sustainable transportation with more roads.

In this slide, I would like to give 1 or 2 more examples related to important misconceptions. Traffic. Traffic is essentially a result. If we set off saying "I'm going to fix the traffic", we're starting on the wrong foot. Since traffic is a consequence, what we need to fix is accessibility. And mobility relying on this accessibility. These are very important concepts. Building continuous transportation systems do not work either. Do people have access to these transportation systems? This is very important. If you can access it, it becomes sustainable and you use it.

The need for motor vehicles is reduced.

So how can we move from this situation to this situation then? If we use the logic of preventing, changing, and then improving, maybe we can establish sustainable transportation in our cities with these three approaches. The first is public transportation systems. In Istanbul, Ankara, Izmir and many other cities, different transportation systems have been implemented rapidly in the last 10-15 years. But unfortunately, it's not enough. We are still not exactly at the desired level in terms of ensuring these systems are holistic, interactive, and accessible for those who use them. The perception regarding public transportation is also very important. The former Mayor of Bogota famously said, "A developed country is not a place where the poor have cars. It's where the rich use public transportation." People use public transportation in developed countries, not because they have no money or car. Is this public transportation? This isn't either. I put Istanbul, then I put other metrobus systems from around the world. In Brazil, security guards hit people with batons to force them in. Other developing countries have similar problems. This is our report. We prepared it together with Istanbul Electric Tramway and Tunnel Establishments (IETT). It is especially about how to promote public transportation systems better and how to explain them better.

This is not it either. People primarily want to commute from one place to another. They do not want to get injured or lose their lives during their commute. For this reason, the primary service quality of public transport is not about providing wi-fi or air conditioning. It also needs to be safe. We also have road safety reports for different transportation systems.

What about the bicycle? Maybe some of you have seen it yesterday in the foyer area. Lüleburgaz Municipality had a bicycle taxi presentation. Are we seeing cycling as a mode of transport in Turkey? The Ministry of Environment and Urbanization has been working on this issue for the last 6-7 years. We, the World Resources Institute, collaborated with the Ministry of Environment and carried out a bicycle project for the staff from the provincial and district directorates 3 years ago. There is even a sample project on the website right now. We carried this out in a part of Adana, municipalities can go and take a look. But the bicycle is still not a mode of transport in Turkey. If you ask why not, what are we doing? This is the case in many cities. Bicycle roads are being built on the coastline in Istanbul, Kocaeli, and Izmir We also set up bicycle sharing systems on the coast. In fact, the implementation of these systems on the coast hurts the perception of bicycle as a mode of transportation. It is seen as a recreational activity.

In Turkey, Konya has the largest bicycle infrastructure. They have a network of 300 km. But what did Konya do? People who cannot allocate any budget to transportation are cycling. Especially those over 50 years of age. But there are no bicycles in the city center. Bike roads were built only next to the newly built roads outside the city.

As a result, the infrastructure is discontinuous, and between 2012-2015, bicycle accidents involving an injury or death increased from 198 to 565. These do not involve falling or anything like that. These involve injury or death. In the previous year alone, 162 people died while riding a bicycle in Turkey. The bicycle is an environmentalist, a good mode of transportation, but it is also very dangerous if it is not implemented with the right infrastructure and without necessary security conditions.

Bicycle sharing systems are becoming more and more popular around the world, we are just setting them up on the coast. Look, everyone who makes a presentation about cycling definitely gives examples from Amsterdam or Denmark. I will not do that. I will give an example from Mexico City, which is a more chaotic city than Istanbul. They have bicycle sharing programs. But it's not a recreational system like ours on the coast. In 8 years, 4 thousand tons of carbon emissions were prevented, corresponding to 12 thousand trees. A very cheap and simple system. Even the Mexicans did it. We must ask ourselves why we can't.

We also prepared a guide together with the development agency in Istanbul. You can check it out. All of the reports I have shown in this presentation are free of charge. You can download them from our website. Walking is also a mode of transportation. Actually, the healthiest mode of transport is walking. We also work closely with WHO. WHO estimates that if a person walks additional 600 m everyday, their risk of heart disease will decrease by 2%. But when there's so many motor vehicles out there that release so much pollutants, whether or not walking can really reduce the risk of a heart attack, it's a separate issue.

This is sustainable mobility. Sustainable mobility is the integrated and interactive establishment of public transportation systems, cycling, and walking. We're not there yet. There is a new sustainable mobility movement in the world. Some aspects of this new sustainable mobility apply to us. Let's talk about that.

A new generation is coming. I do not know whether or not it is coming in Turkey as well, there is no such data from TurkStat. But in the UK and the United States, the average age at which people obtain a driver's license is rising. It used to be 16 in the United States and 18 in the United Kingdom. Today, people do not get their license until they are 22-23. But as you know, we get a driver's license as soon as we turn 18 in Turkey. However, I do not have the statistics for Turkey unfortunately. What is the new sustainable mobility in the world? Bicycle sharing systems, electric bicycle sharing systems, electric scooter sharing systems, vehicle sharing systems - I'm sure you know have heard about those Uber fights etc. Many different applications such car rental systems or trip sharing systems are common around the world.

We also have a new hope: electric vehicles. The number of our existing fossil fuel vehicles is 1.7 billion, but the number of electric vehicles is 2 million. So it's like a drop in the ocean. And electric vehicles are still more advantageous in terms of both infrastructure and operating costs compared to hybrid vehicles and others. Many regulations have been put into effect in order to get rid of fossil fuels around the world, especially in France, Spain, and England. Starting from 2020 in particular, diesel vehicles will not be able to enter most city centers in Europe. Although these countries are the biggest automotive manufacturers in the world, the reason they do not allow these diesel vehicles is that diesel vehicles are among the primary reasons behind leukemia. They really conduct their economic and health impact analysis very well, and when they look at the tax they collect from these diesel vehicle and the health expenses they face later on, they drive them out of the city center. Hopefully, we will not allow these diesel vehicles in the future as well. When it comes to batteries, that is, electric vehicles, the cost of these electric vehicles has been decreasing day by day since 2010. That's good news.

The sector is growing accordingly. Volkswagen announced their strategy of electric vehicles, for example. The industry is really working on this issue, especially Volvo in Sweden and Tesla in the USA.

So these are electric automobiles. The main point here is that public transport systems are converted to electric. This would be the biggest promotion of this endeavor. So one day, when you take a ride on an electric bus or an electric transport vehicle, you may consider buying an electric automobile. Electric buses are preferred in many countries around the world. As far as the problems are concerned, no matter how much the cost of the vehicle drops, infrastructure and related costs are still high. We have a lack of knowledge, most public transportation agencies still don't know about this. There are still problems related to the technology, because batteries are very heavy. Istanbul is a topographically disadvantaged city. When the air conditioning is on during summer and when the bus is full, this has an operational impact. We also have an old-fashioned supply chain.

In the world, on the other hand, many countries from China to Italy are advancing rapidly in terms of electric buses. Governments in particular help agencies buy these buses based on different business models. They help them with different financing items and depreciation items. Unfortunately, there is no such thing in our country right now. Financial mechanisms that help reduce risk are operational even in Colombia. I give examples from these countries on purpose, so it is not always the EU. Today, we are here thanks to an EU project, but outside of this county, these developments are taking place even in cities or countries that we believe are below us.

Manufacturers, especially automotive manufacturers, are showing resistance to the development of electrical charging infrastructure. The business model can be defined in 4 items: investment components, financing resources, financial products, and delivery mechanism.

Who do you think is the leader in this application, electric buses, in the world? China is number one. I don't remember how many million electric buses there are in Shenzhen right now, but 99% of the fleet is electric. You need innovation to achieve this, that is, you need the technology to manufacture these buses. Public financing is very important. Decreasing the cost of financing and stakeholders are very important. Currently, there are 39 electric buses in Turkey. We expect it to be 64 by 2020. In terms of passenger cars, we have 657 full electric vehicles and 9383 hybrid vehicles.

So, where are these electric buses? In Izmir, ESOT operates a fleet of 20 electric vehicles. They were commissioned in April 2017. ESOT also has a page like this, which is really beautiful. The reason is that the impact analysis of this system is shared with everyone since the first electric bus started operating in April 2017. You see here how much emissions have been reduced. 2442 tones. By the way, 20 buses prevented 2442 tones of emissions within 2 years. In Mexico, the bicycle sharing program prevented 4000 tones within 8 years. Keep this in mind.

There is a political problem here, but we must mention it. Since Izmir does not receive money from the central government, they bought these 20 buses by taking money from the World Bank and IFC. This is really something that we need to think about. I don't know what you think about the World Bank and IFC, but even though I have worked in lots of places with a World Bank contract, I'm not really a fan. But as you see, our 3rd largest metropolitan municipality may need them for 20 buses.

This is Izmir's timeline. We have a report about electric buses, and I can share it if you wish. IETT is one of the largest agencies in the world, but we still don't even have an electric bus. They tried to make a tender several times but failed. Tender processes are very problematic.

We came to another funny slide. I say funny, unfortunately, sad, yet funny. We produce electric buses in Turkey. We send 75% of them to EU countries. There are buses which have signs that read "Duracak" (Stop) in many European countries. In Malta, for example. But there are 69 in our country, and that is after 2020.

We have different companies producing electric minibuses. There is an electric cab. It parks in front of Kanyon,

we have a luxury taxi that suits the luxury stores. There was also a Uber-Taxi fight, we had 1 or 2 blue cabs in this way. If we were going to improve this cab thing, we should have started with electric cars. But we missed that opportunity. I'm talking about Istanbul. When it comes to the electric bicycle sharing program, there is only the program that is carried out by the student community at Boğaziçi University. None of the other programs set up in Izmir, Eskişehir, Kayseri, Konya, and Istanbul are electric. Especially in a country with a topographic disadvantage like ours, it is very important for everyone to use electric bicycles.

There is lately an electric scooter sharing system which was initiated in Kadıköy. A system called Martı, which means seagull. Electric scooters are kind of strange. Let me tell you a story of mine. Every year in January, there is an organization called the Transportation Research Board in the USA. All the transport engineers and planners go there. In 2013, someone wrote a paper about scooters. I laughed. At this point, there are now electric scooter systems in many places in the US and the EU, especially in a way that they will interact with the main public transport lines.

Don't think about it just as an electric scooter. The electric scooter sharing system increased metro use rates by 6% in Washington alone. 6% increase in metro use means less motor vehicle use and less emission. If you want to use these main public transport systems more effectively, you should use these so-called "micro-mobility systems", which feed the main public transport systems and are environmentally friendly as well.

What does the future hold, teleportation? We're not there yet. But if you're asking about the most advanced point in the world right now, it is Sweden. There is a mobile application. You travel every day. How do you do it? 1- You can use your motor vehicle, 2- You can walk, take the bus and then take one more bus. Or metro + bus. This program covers all transportation systems throughout the city from bike sharing to scooter, parking to car sharing system, car rental to bus or metro. The application makes a calculation according to your available options for your commute every day. It calculates how much emission you have reduced. And it deposits money into your account according to the result. The following day, you can use the money to take the next bus or bicycle sharing program free of charge. It is a reward system based on how much emission you reduce.

There is another nice application, very simple, yet very nice. It is carried out by Adidas and the transport agency in Berlin. When you buy a pair of shoes, you can automatically use it as a city pass, an electronic ticket. You can pass through the tollgate without swiping a card. It collecting data and encourages you to be active, to walk. This is a very nice system. There are many different applications around the world. I recommend you to follow them. Last but not least, it is very difficult to achieve the desired results in terms of air quality without establishing sustainable transportation in our cities. On my 8th slide, I shared them with you for 2- and 4-degree scenarios. I will be around if you have any questions. Thanks.

Combating Climate Change at Local Level Cities, Green Infrastructure Planning and Best Practices

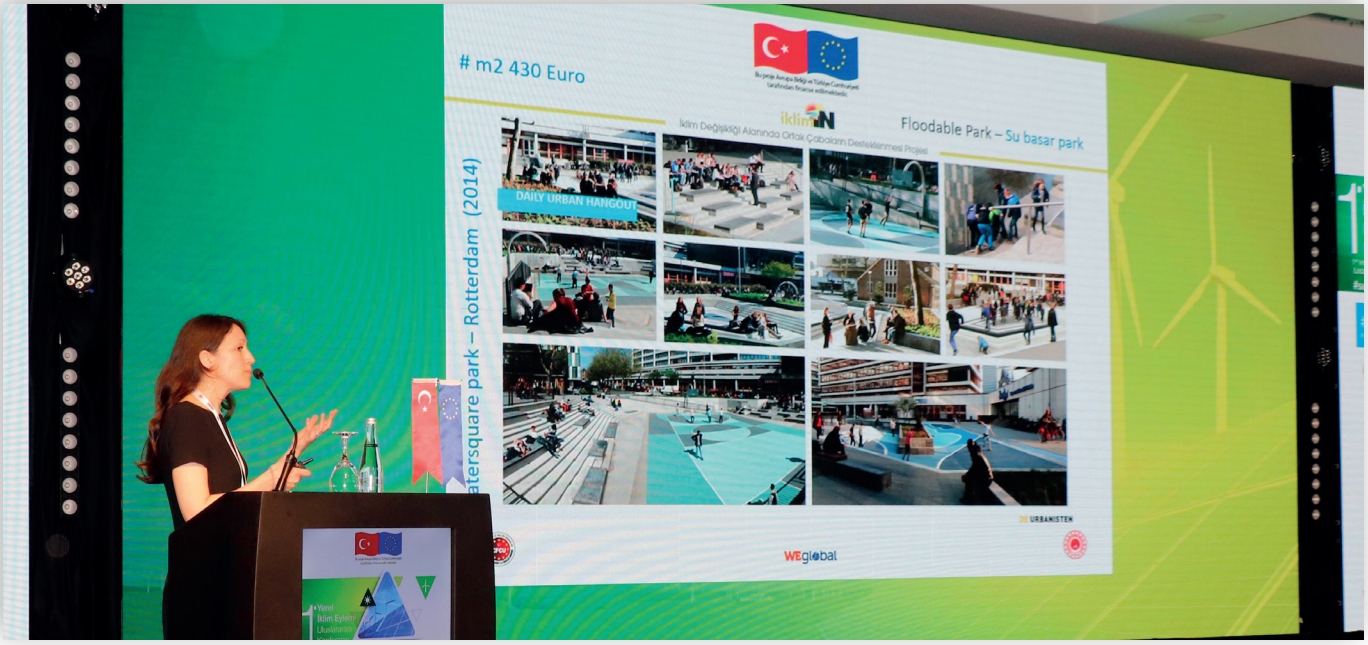
Green Infrastructure and Best Practices

Doç. Dr. Çiğdem Coşkun Hepcan
Ege University, Faculty of Agriculture, Department of Landscape Architecture, Faculty Member

Hepcan:

Hello everyone. First of all, I would like to thank everyone involved this organization for such a beautiful event. Today, I want to talk to you about green infrastructure and good practices. I tried to prepare a presentation that is not boring and rich with visuals. I hope you enjoy it.

First of all, I want to start with the definition of green infrastructure. We call it green infrastructure, but its exact equivalent in Turkish is 'open and green space system', which is defined as a green network of interconnected, natural, semi-natural, or cultural spaces that protect the values of ecosystems. This is the most beautiful definition of it. It's a green network. The best example of this definition is the Emerald Necklace in Boston. This is an example from the 1800s, proudly crafted by Frederick Law Olmsted, known as the first landscape architect. Why did they call it the Emerald Necklace? Because it resembles a necklace surrounding the city aiming to connect natural and semi-natural systems. If you notice, it forms a chain of streams and roads. Green areas make up the emeralds. They made such a beautiful description. It has many components: forests, agricultural areas, wetlands, parks, squares,



meadows, planted corridors, groves, gardens, special gardens, botanical gardens, campuses, all of which define their components. One of the best examples today is the example of the green infrastructure system built by the city of Barcelona. They prepared themselves for 2020. They were prepared years ago. You are looking at one of the maps on the screen and they are trying to find solutions which connect both parts and corridors functionally. On the top of the screen, they have a booklet about it as you can see. If you pay attention to the title of the booklet, it doesn't only define the green infrastructure, but also integrates biological diversity. This is a very accurate application, because cities do not belong only to us. We share cities with other living creatures. And they are trying to find solutions for them as well. They are also trying to understand how valuable ecosystems are for other living creatures as well.

One of the most significant reasons behind the problems that we face today is the fact that we have destroyed natural ecosystems in cities. Because while creating a living environment for ourselves, we always consider our own comfort. We ignore natural systems. When you do that, the points that we need to answer are what you see on the screen when we ask ourselves how we can improve cities. One of the most important of these is, of course, to increase the amount of green spaces in cities. But we need to do this with natural systems. A new definition has been introduced to the literature. Nature-based solutions. We are now discussing this in the literature. Because it is not possible to create a healthy urban system with artificial green spaces or artificial systems.

Apart from that, yes, we need to increase the amount of green spaces, but we need to create both parts and corridors. We need to connect them with each other. And the goal is actually to have accessible green spaces. So, when we go out and walk for 300m or 600m, we need to be able to reach a green space. This should be our goal. At least that's how successful cities define it. When we get out, we should have the opportunity to reach green spaces in a very short time without using any other vehicle.

What we're trying to achieve by creating an open and green space system is to transition from gray structures to green structures, to do this with resources that we have. If we have a stream, to integrate the stream into it as

well. In this way, we are connecting both blue and green ecosystems with each other.

When creating the open and green space system, as I said, we need to increase the amount of green spaces. I know, it is very difficult to increase the amount of green spaces in cities. Especially in a country like ours, which has an urbanization culture. Because, unfortunately, we are urbanizing with a very dense structure. It's hard to find places to create green spaces. However, cities need green spaces of all sizes. Big or small, it doesn't matter. The important thing is to have a healthy functioning ecosystem. Even if they are small, they provide great benefits within the system.

Why is vegetation important? Because it is a structure that increases resilience of the region against external effects. If there is vegetation cover, this structure is more resilient and strong. If the vegetation cover is weak, it has a structure that is weak and easily affected by the negative effects of all kinds of external factors. Now, when think about cities with this perspective, the chart actually explains it clearly. If you do not have vegetation cover in your cities, your city is weak in face of negative effects of climate change. It is explained as this: the more you strengthen this cover, the more resilient your city becomes. This is actually achieved by increasing the canopy cover. In other words, when we talk green spaces, we're not talking about just any green space. It's important to have a canopy cover. Because it is actually a tree that gives us extraordinary benefits in its life cycle without noticing. It improves our air quality, increases our comfort, improves microclimate, cools down the city, and provides shade. It makes us happy. If there is plant, there is biodiversity. If there is plant, you wake up to the sound of birds. When I woke up this morning, I woke up to the sound of two different birds. If there is plant, there is life. Therefore, if there is tree, it means that there is life in our cities.

If we want to make our cities more resilient to climate change, we must first ask what is waiting for us, so that we can prepare accordingly. Let's answer this question in a scientific way. Then, we will try to find out how we will integrate the scientific data that we obtained into our own physical plans. If we can answer these two questions, then we will have taken really good distance in these efforts.

It is very clear what the future holds for cities. First of all, hot days are waiting. We will use more sunscreen. We will wear hats more often. The rainfall regime is changing, there will be more rain, and it will rain in different periods. I've been wearing my rain boots since September this year. Because otherwise I cannot move in the city. Believe me, I keep a pair in the office and one pair at home. Because you cannot trust the weather in Izmir. It could rain any minute. We're walking around in rain boots because it is unclear where we are going to get caught by rain.

We are actually familiar with the picture that you see on the bottom left. Unfortunately, our cities can become like this after rainfall. But one of the striking examples I want to share is the Houston example.

Houston experienced a very severe flood after the storm a few years ago. I was very close to Houston at that time and had the experience of seeing this extraordinary event. It was very impressive. In the top photo are planes floating like whales. It gives you the shivers even when you imagine it. Unfortunately, the city seemed like the photo below. People lost very valuable things here. There were losses of life and property. 80% of the city was inundated. Not only Houston, but many cities around the world experience this. But there was an important point in Houston. Houston was built on wetlands as grew. 60% of it was formed on wetland. Eventually, it paid the price. Not once either; rainfall is changing so much that, unfortunately, it is exposed to extreme rainfall every two to three years. And they get these results. The wetland is such an ecosystem that it is a wonderful natural system that holds, manages, and cleans the water. It is one of the most beautiful systems which can allow us to protect our cities from the effects of excessive rainfall. Because the system is already working. Because wetlands serve

as a sponge.

I would like to share a second question, a second answer, and a different concept in the literature with you. Yes, can we build a city that is not affected by water? Many cities around the world have been looking for an answer to this question for years. They say, yes. And they came up a new term for it. Sponge cities. The main purpose is to manage incoming water. The water will surely come and we need to manage it. How do we manage it? With rational solutions. Before I go into more detailed solutions, let me share an example from Boston. Boston is a coastal city as well. First of all, they studied this. What should we do to prepare for climate change, what are our vulnerabilities? Professor Kadıoğlu mentioned this during the morning session, we need to obtain data. They noticed that their most vulnerable point was the coast. They are building parks with terraces on their coasts to stop the incoming water. They are creating elevated parks and flood or overflow barriers.

They are trying to renovate the entire coast in this way to take these measures.

Another example is from Copenhagen. It was seriously affected by changing precipitation regime. When rains that used to fall every 100-200 years began to fall every 5-10 years, they sat down and thought hard. They tried to create a strategic urban flood plan. They also sought answers to the questions of how to manage the water, how to relate it to the topographic structure in various sections. The goal here was to bring the water back to natural systems. In other words, they wanted to prevent the water coming to the city from going to impermeable surfaces and disappear, and instead let it flow to natural systems again. A basic plan was created for 8 points. Some of them were parks, some of them were streets, streams, or squares. They started to produce solutions for these places. This is one of those parks. A park on the banks of the stream on the left. They know that the water level will rise during heavy rainfall. They introduced a new concept: Flooded parks. I'll give you different examples of it in a little bit. They formed rainwater retention units in the park on the left. They are producing solutions that we refer to as biological channels. Water is quickly transferred to the necessary channels without making life too difficult.

But their main goal is always to be prepared for the incoming water. They say, "Yes, this water will come, let's manage it." A wonderful flooded park. We have flooded forests, which work with a similar logic. We aim to manage incoming water. They build parks at certain elevations. Of course, they make all the necessary calculations. During the dry period, the park is used in different ways and in the rainy period, it serves as a water retention area. Depending on the amount of water, they can even ride a canoe.

Other examples from the same region. Park's elements that allow for water retention in the rainy season.

Another example is from the Netherlands. This is a park in Rotterdam completed in 2014. You can see how impermeable the surface marked with red used to be. It looks a bit impermeable even after the application, but it actually has parts that connect it to natural systems. In 2014, they tried to establish a water retention unit in order to retain the incoming water. As you know, the soil in the Netherlands is below the sea level. They manage the water very well. They can find very good solutions for this. This is a park that caters to different users in many different ways during the day. Right in the center of the town. And then they have solutions which they prepared for the rainy season. We see 4 different photographs; one on a dry day and one on how to manage the amount of water that can come with rainfall, which can occur 10 to 50 times a year. Or when there's more water coming in or snow or ice. They are trying to produce multi-functional spaces. This shows the amount of water held after heavy rainfall. They also have control mechanisms. Once the water exceeds a certain level, it is immediately discharged to another area. It does not overflow and create an even riskier environment.

I wanted to share one of my favorite flooded parks with you. This is the Tanner Springs Park in Portland. Portland converted wetlands into structural areas in the 1800s, making this region an industrial zone. Later, the industry created here lost its function. And they left this area. They thought about what to do. They said, "We should carry out urban transformation and create a new city center." But while doing that, they wanted to make a reference to their old heritage. So, this place used to be a wetland. They wanted to make a reference to the wetland with their application and to preserve their history.

The park on the right is the newly formed park. But the bottom left is where the cars are parked. It was filled so much that it is still 6 m above the old level, even though it was excavated. But they dropped the elevation by tinkering with the topographic structure. They formed a unit in which surface water could be collected.

You cannot comprehend it until you visit the park, but when you read the signs and inscriptions in the park, you understand why they created such a space. The most beautiful part is that they created a space that connects the urban with nature. It's a space that belongs to everyone, where everyone is part of it. It's integrated into the city. They aim to both retain water and increase biodiversity. They created a wetland ecosystem here. It also serves the purpose of filtering the incoming water. They also control this regularly.

Professor Kadıoğlu showed a few examples during the morning session. Now I want to show you some point solutions as well as solutions related to corridors. This is one of the biological trenches. It's actually very simple to make. But when I say simple, I don't mean that you can just lower the elevation a little bit. The water coming from the surface stream has chemical pollutants in it. You need to equip it with plants that can combat these pollutants.

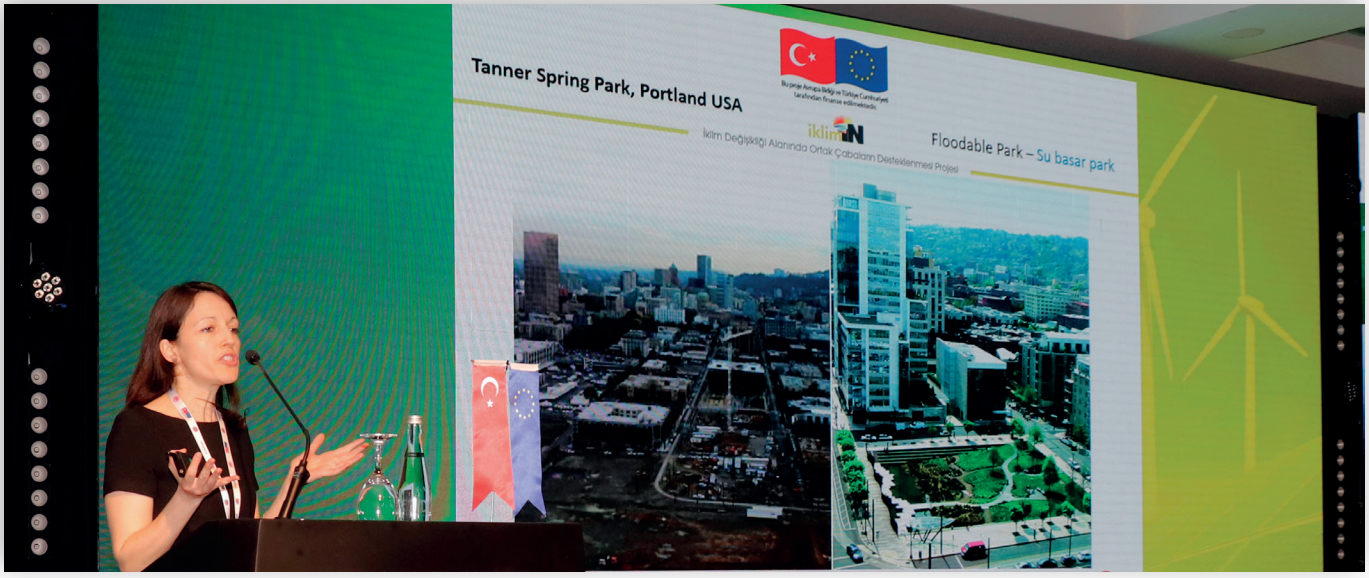
But it's doable. Look, there are solutions which show the difference between before and after. The main goal is the same; to retain the water coming from the surface as much as possible, filter the water a little bit, and then transfer it to natural systems in a different area.

This is a very familiar example. Many of you may be familiar with this one. This is an example from South Korea. It's one of the best known examples. A stream which was canalled in 1971. There used to be a canal there. The administrative units showed the initiative to use this space to build highways after urbanization. They transferred the water to the concrete canal underground. But over time, they realized how much the city's health deteriorated. Of course, the city was getting old. Everything has a life time, the road was getting old. Once security concerns began to emerge, one of the mayor candidates that year came up with an idea. He said "I'm going to turn this place back its old shape." Everyone thought that it was a utopia. But people live only as long as they can dream. This mayor had a dream and worked for it. He gifted the city a several km long stream corridor, which produces solutions similar to its natural structure. The space turned the city into a very special attraction center.

Today, this is a place that tourists certainly visit when they come to the city. It is one of the top places on their list.

I will take you to Boston once again. A very similar example. A 2.5 km long double-decker viaduct was built in Boston in 1959. Later in 1991, they started to work on a solution due to similar problems. And again, they developed an idealistic and rational project. They developed a solution which involves taking the transportation system underground and creating a green corridor on the ground.

They dreamed it and they did it. The works took 10 years to complete. Admittedly, an incredible amount of money was poured into this project, but cities must constantly renew themselves. Cities receive constant investments. We need to turn these investments in a slightly different direction. Today, the city has become an environmentally friendly, nature friendly and pedestrian friendly city. This corridor is connected with parks of very different sizes



for 2.5 km. And they developed applications increasing biological diversity and offering a rainwater solution in this region.

I want to give you an example from our country as well. These are the biological canals on the Ayazağa Campus of ITU. One of the most successful applications. They aim to direct the rainwater from the pavements and the road quickly into the canal. If you happen to be in that vicinity, I recommend you to visit this place on a rainy day.

Another good example is the central campus of the Ministry of Environment and Urbanization. I'm sure a lot of people here are familiar with this one. I haven't seen it yet. But I know from photos and information I received that it was a successful application. It is very pleasing that such a project was realized. A rain garden was developed on campus. It was not just an application, a regulation was also passed. This is also very successful. I would like to thank everyone who contributed to this. It was a good example. We hope to see more of this in other places as well.

We must certainly mention the permeable concrete. This is one of the best practices. Similarly, it is encouraging that a permeable concrete application guide has been prepared. Because water is really hard to manage. The more we use permeable surfaces, the higher the risk is. The less we use permeable surfaces, the more water we send underground, the better for us. I hope that we will see similar practices in other places as well. Hopefully local administrations will apply this in parks.

I want to talk about a very new project. This is one of the projects that received grants within the scope of the İklimİN project. Last week, we held the closing meeting in Izmir. It was a joint project of Izmir Metropolitan Municipality and the Landscape Research Association. This project aimed to answer those two questions I mentioned at the beginning. What does the future hold for the city and what can be done with the resources at hand? Of course, this was just a start. One of the most important factors for the project's success will be actual realization of ideas.

I mentioned impermeable surfaces. I would like to share some unfortunate and striking examples. These are our parks. We love to use concrete. But maybe it would be better to think in a slightly different way. Because these applications confuse many living creatures. Probably the most confused are the trees drowned in concrete.

I would like to share a few points while I recap the topic. Yes, green space is important, but not just any green space. If we want to improve green spaces in cities, and if we want to turn cities into richer, more livable spaces, we need to create green spaces where we try to improve their ecological qualities. In other words, we are not actually talking about grass fields. We are talking about plants of different sizes, types, ages, forms, we are talking about returning to nature. Finding nature-based solutions will lead to more successful results.

The one on the right is one of the slides that I use most often. It shows a biological desert and a biological paradise. Grass is truly a biological desert. Because you cannot observe a species that indicates biological diversity. You cannot even see a butterfly, a bee. You would not believe how many chemicals are in it… So let's keep this in mind when creating green spaces.

My final slides. Some striking examples. Is it possible to increase the amount of green spaces in cities? Yes, it is possible. Instead of saying that our cities are ruined, maybe we can learn from examples. These are floating gardens, trees. Some cities do this. Yes, they are difficult to manage, I agree. But not impossible. The slides on the right show gardens formed with plants that can filter dirty water. So they filter the water.

Or mobile gardens. We have so much concrete in everywhere that people are now forming mobile gardens. They put them in the back of their cars and take it wherever they want. Stunning examples, but what else can you do? You're walking around the city, can't find a green space, so you say, "I'm going to take my garden with me."

This example was created for users in the plaza in front of a shopping center. They moved the trees and formed a space there. This is a very common method. Pop-up gardens are gardens that emerge suddenly. They have an advantage; you can create different designs around the city. One day you spread them, one day you set them aside. It is like moving around the furniture in your house. One of the most famous examples is on the left, it is from Poland. The representative of the local government told us this: "There were so many systems down there that we couldn't grow plants." Don't let the size of it fool you, they have wheels. They're constantly being moved around.

I know, our streets are narrow, But if we want to form corridors, we can come up with solutions. We can plant trees on one side of the street in narrow streets. We can plant narrow-form trees. Or we can provide a solution involving trees in espaliers, which do not take much space. As long as we are determined, we can do it.

These are somewhat unusual examples, but they are doable.

Or we can use narrow-form plants. There are stunningly beautiful narrow-form plants in our ecosystem. We can create green corridors using narrow-form trees like this one.

I picked these specifically. These are plants specific to the Mediterranean landscape. These are drought-resistant plants that require little maintenance.

This is my final slide. This one is about how we can achieve our goals. Yes, we want to create a green city. We want to plan and implement an open and green space system and find successful solutions. But we need to create a roadmap for this. We need to prepare guides to this end. It's a small step, but that's what paves the way. You just need to spend some time thinking about it. And I think that we can create healthier, greener, more livable cities with solutions that we find. Because cities belong to all of us. We all share them. It is in our hands to form, create beautiful cities.

Thank you.

Energy, Community Energy and Energy Cooperatives

Faruk Telemcioğlu
GÜNDER, Secretary General of the Turkey Section of the International Solar Energy Society

Telemcioğlu:

Of course, we are advocating solar energy for a variety of reasons. Two main reasons concern this conference, carbon emissions and water use. This is the current electricity production in Turkey. Note that we saw the maximum increase in solar energy in 2017-2018. About 37%. We expect a similar increase in solar energy in the next 5 years. This is our projection. Of course, this increase will essentially be based on the concept of rooftops. Because the use of solar energy on the ground does not help much. It should be on rooftops. Why rooftops? I will try to explain this to you in a minute.

As you see, 60% of the solar energy Germany was produced on rooftops in 2012. Then 65-70% in 2015. Currently 80% of the solar energy in Germany is produced on rooftops. What this table shows is this: Whether solar energy installations in Europe are on rooftops or ground. Yellows indicates ground, blue indicates rooftops. Most of the installations are on the rooftops.

So, why has solar energy developed this much, become so popular in recent years? We have been using solar energy in water heating systems for about 30 years. If we look here, the decrease in cost of solar energy in recent years is about 86%. And now the cheapest electricity comes from solar. Yes, maybe the initial investment is higher, but the cheapest electricity comes from solar.

We are a sunny country, of course, we know how to makes use of the sun. In our country, this industry is in a good place. There are more than 30 panel manufacturers. There are people trying to manufacture cells. Last week, a foundation was laid in Niğde. Bereket Energy started cell production in Denizli. A factory is being built in Ankara.

Why solar power? Because it is cheap. Clean. And easy. You need to get two panels, look at the diagram, and figure out how to connect the inverter, how to connect it to the grid... It's easy to do.

Of course, it is very important that qualified persons do it, but as I said, it is clean, cheap, and easy.

We carried out a project on the rooftops of Bodrum within the scope of the İklimİN project. Our aim was to expand the use of solar energy on rooftops, to improve the cooperativeization of solar energy - because there are many sites there. There is a small industrial site, we wanted to ensure development there. The tourism sector uses the highest amount of energy in Bodrum. Not only hotels, but also yachts. We wanted to understand what sort of problems they have, provide training to all plumbers, electricians, and engineering companies in Bodrum. If you're asking why we chose Bodrum, that's why. The roofs in Bodrum are very suitable for this.

The income level is high. Bodrum has a great impact on Istanbul. If you are going to appeal to a population of 20 million in a country of 80 million and you must do it in a town, the only option is Bodrum. And the people of Bodrum are accustomed to the use of solar energy.

Why rooftops? We currently produce energy in the Southeast Region, transport this energy, and use it here and in Istanbul. This electricity transmission comes with a cost. There are also losses during transmission. There are leakages. But if we utilize the rooftops, if we generate electricity on rooftops, we can get rid of all of this. We would increase local employment and encourage people to invest. Today, there is a concept called prosumer. Both producer and consumer. This applies to electricity. This applies to solar energy. You produce your own electricity.

We carried out a project with the World Bank. There are 9 million 250 thousand buildings in our country within the scope of this project. When we look at the roof surfaces of these, 25% of them are residences, but there are also commercial buildings, which account for the most of the buildings, and there are public buildings and terraces. Why is this important? It is naturally easier to install solar panels on a terrace. During our meetings with the Ministry of Environment or other institutions, we discussed about ensuring that roofs and facades of new buildings face the south, and installing power and water lines on rooftops. But this has not been the case before; hence, terraces are important for us at the moment.

We need to support rooftops, because energy consumption starts locally and the production must start where the producer and the consumer are in the same place. It allows for encouraging small investments, ensuring support is provided equally, and most importantly, ensuring energy supply security, which means that even if a war breaks out in the Middle East, your power won't be cut off. This applies to the industry as well.

We carried out this project with Bodrum Municipality. The Mayor gave us lots of support. We informed the people about what solar is, how to use it, what the costs are, what the the legislation says. We printed and distributed guidebooks to this end. Then we discussed what energy cooperative is, how to set it up, how it works, how they can generate income with housing cooperatives and small industrial sites. We met with tourism sector representative, listened to their concerns. We learned how much electricity hotels consume on average per bed. We listened to what yacht owners need. Of course, the biggest problem here is financing.

In the next meeting, we invited financing experts. We told them about financing methods.

We provided trainings for all engineering companies, plumbers, and electricians in Bodrum on how to install solar

systems. This is the Marmara College in Bodrum. They have solar panels on their rooftop, they supply all of their electricity using this system. Then we organized a technical trip there. And as a result of the project, we established a 3KW system in a facility of Bodrum Municipality in Yalıkavak. We commissioned it and now the facility is generating its own electricity. They send the excess electricity to the grid.

This is another project, but it is also related with climate change, a project of the Global Environment Fund. The purpose is to create a sustainable financial mechanism in forest villages. This year we will set up solar systems in 4 villages, each with a capacity of 100 KW. The necessary cooperatives were established. We organized a workshop there in order to get people familiar with it and to explain its benefits. Each plant will have a capacity of 100KW. All costs are covered within the scope of the project. Feasibility studies were conducted, project drawings were prepared, and applications were received. I believe the project will be implemented in June or July. But in the second phase of the project, we will install solar systems in about 12 villages or on 450 rooftops. What we essentially want to do is to disseminate this in forest villages. There is a system related to solar thermal that has been implemented in forest villages since 96-97. When you install a solar system in your house, the Ministry of Forestry covers the cost. Then you pay it back in installments. The main purpose of this practice was to prevent those living in forest villages from cutting trees to heat water for laundry and bathing. According to the Ministry's data, we are currently saving 200,000 tonnes of wood per year. This is really important. And this is a process that has been going on for 10-12 years. The idea here goes like this: The Ministry of Forestry covers the installation costs on behalf of those who want to participate in this project, have the company install the system, and then people pay as if they're paying their usual electricity bill for 6-7 years. At the end of 7 years, people get the ownership of these systems and they do not pay for electricity for the next 30 years. Do not think of this electricity only as the lighting in a house. You can think of it as irrigation as well. We think that it will make a significant contribution.

The key point here is local governments. The more local governments support rooftop installations, the more development they achieve. There are some examples of this. The Union of Municipalities has a service called 'Letters to the Mayor"and we wrote to them. If a municipality builds a facility with a capacity of 1MW, the municipality in question makes a profit of TRY 190,000 from July to October. It would make revenue of TRY 120,000 on average every month, pays TRY 30,000 of this to the Provincial Bank, and makes a profit of TRY 90,000 to 100,000 per month. This is a very large sum for smaller municipalities. There are municipalities that implemented this. And we provided these systems to all of these municipalities free of charge. We provided consultancy and prepared their project drawings. We visited about 650 municipalities. We can carry out efforts to raise awareness among local people.

A counseling center can be set up or we can provide free land for cooperatives to be established. We can support agricultural irrigation, there are municipalities that implement this. Let's not give them coal, let's give them panels.

Because we give them coal and we complain about carbon and also that coal burns and vanishes. But you can use the panels for 30 years. This is really important. Municipalities don't sell electricity, but they pay for electricity. If they install panels instead, the payback period of this investment is about 6-7 years. So you invest the money that would normally go to electricity bills for 7 years, but you don't have to pay for electricity for the next 30 years.

You can power waste treatment plants, water pumps. In many of the municipalities that we visit, they don't run the water pumps because they don't have the money. This is really important. You can illuminate bus stops. It could be used for heating in very cold places. You can put up informational signs. Municipalities can build charging stations on the streets. Municipalities should also encourage the public. They should give the people certain incentives. There are municipalities that do this. For example, Bozkurt Municipality in Denizli gave free land to cooperatives. The municipality acted as a guarantor for irrigation cooperatives. They also do not charge permit fees for the construction. The municipalities in Bornova and Güzelbahçe do this as well. Municipalities can shorten the permit processes. They can require the use of solar energy in some places. Local governments charge several fees, garbage collection tax, wastewater tax, real estate tax, sanitation tax, etc. They can offer discounts. Even if we don't provide them with financing, we can still do small things that will resonate with the public, simplify and facilitate the processes, and raise awareness.

Solar energy is the cheapest and the most convenient energy source available in our country. We need to use this especially on rooftops. As the society, we will support all such uses. Thank you for your patience.

Agriculture, Adaptation at Local Scale and Best Practices

Prof. Dr. Mehmet Somuncu
Ankara University, Faculty Member

Somuncu:

Everyone is following the session in a lively and carefully manner at this late hour of the morning session, thank you very much for that and I greet you all with respect. I would like to draw a general frame first. In short, I will try to explain the relationship between climate and agriculture. Then we will look at the urban-rural balance in Turkey and agricultural production. After that, we will discuss the effects of climate change on agriculture in Turkey. Then I will try to give concrete examples related to adaptation to climate change in Turkey, especially based on our field work.

We need to draw the framework briefly. What is the relationship between climate change and agriculture? As you know, climate change due to the change in atmosphere affects agricultural ecosystems. As a result of this, there are some concerns in agricultural production and post-production processes and we know that this impacts food security and those who make their living from agriculture.

Turkey is a country with an average altitude of 1031 m. The topography tends to elevate from west to east. We have areas

with truly high agricultural productivity only in the coastal regions, delta plains, and in the western and southern regions.

What is the agricultural capacity of Turkey, what is the population's demand for food? While Turkey had population of 13.5 million in 1935, according to 2018 data, we have already reached 82 million today. In terms the distribution of this population in the context of rural and urban balance, the ratio of those living in rural areas was approximately 75.7% in 1927, but today, the ratio is 7.7% according to TurkStat. But this is not accurate data, just data on paper. This is the result of a recent law, which changed the status of 16,000 settlements within metropolitan borders from villages to quarters. But in fact, the rural population is around 23%.

What's important here is this: Where have we arrived from the past to the present when we look at the distribution of the population, which has been growing since 1927, by active economic sectors? In 1927, 90% of the population lived in rural areas. The remaining were employed in the service industry or manufacturing industry, a very small portion. When we look at 2016 data, the ratio of those living in rural areas and earning their livelihood from agriculture dropped to 18%. This, in turn, led to a gradual decline in the share of agriculture in GDP, which is 6.6% today. Of course, the advancement of the industry and the service sector has a huge impact on this. But as you will see in the slides in a minute, I can say that there are other important factors as well.

These factors include people leaving rural areas and migrating to urban areas, the reduction of agricultural land, the decrease in total arable land used for perennial plants in particular, the decrease in the number of livestock. I would like to give you some figures. According to agricultural data of 1970, the number of ovine animals in Turkey was 65 million. The population was 45 million. Beginning from 2004-2005, it has started to increase partly thanks to some measures taken by the government, but we all know that the problem of meat and livestock is a serious problem today. The decrease in the number of animals brings about changes in pasture areas as well. We see a gradual decrease in pasture areas.

I'm going back to the beginning. So this is the case. The agricultural production has decreased, but the population has increased. It is 82 million right now. And about 77% of this population lives in cities and has a certain food demand. That's essentially the point. There are people who live and make a livelihood in rural areas, but people living in the city has a certain food demand as well, and as you know, almost all of the food production depends on soil and agriculture.

We also know that, according to 2017 data, the adequacy rate has begun to decline in some products such as sunflower, lentil, barley, etc. in recent years. This is happening in wheat from time to time, I'll show that one as well. Please see this chart, this is very important. It shows the relationship between population growth and wheat production since 1950. They are almost parallel until the 1990s. But after the 1990s, the population growth has been proportionally higher and wheat production draws a horizontal line. In other words, the average of the last 5-6 years is around 20 million tones. It sometimes falls below the adequacy rate.

As you can see here, there is an excess in some years and we are able to export it. But in some years, it is 96 in 1996 and 89.2 in 2014-2015 for example, which means that these are the times when we had to import wheat. This was the case especially during droughts of 2007-2008 and 2014-2015 unfortunately. Inevitably, we have to import wheat in such cases, which is one of our most basic consumption items.

After giving some background, now I'll address the main topic. There is a relationship between population and agricultural production. If you manage your agricultural production properly, there is no problem. But if you can't manage it, some problems are inevitable.

In this context, we all know that when we look at the overall structure in Turkey, in relation to inflation and similar financial aspects, the most important topic is agricultural production. The rising inflation is because of agriculture or insufficient food. There are three main factors here. The first is people leaving rural areas as I showed earlier, the second is inefficient policies in agriculture, and the third is, of course, negative effects of the recent climate change on agriculture.

Let's take a brief look at how climate change impacts agriculture in Turkey. We can talk about various things here such as drought, which I just mentioned. We can also talk about frost, floods, etc.

When we look at the negative effects of climate change on Turkey, the most prominent effects on the list include phenological changes, which cause floods and droughts, the decline in production, the increase in frost events, the frequency of extreme weather events, the increase in agricultural pests, spread of diseases, adverse effects on fisheries, temperature stress on plants and animals, deterioration of plant nutrition, and especially the decrease in water resources.

Let's see this perceptibly. "Amik Plain turned into a lake". As Professor Kadıoğlu explained in the morning session, Amik Plain did not turn into a lake. As you see here, this kept happening in recent years. It happens when there is very heavy rainfall, but Amik Plain was already a lake. Here we face the negative consequences caused by improper land use. You can see Amik Lake in this 1/100,000 scale topography map from the 1960s. It is indicated with deep blue. As we come to the second half of the 1970s, a map printed later than the first one, Amik Lake is dried and drained. This is actually what happened.

We are now experiencing this very often. Especially after heavy rainfall in greenhouse areas, Antalya gets hit by floods, tornados, and similar disasters, which seriously damage greenhouses.

The point where we arrive consequently is this. All of this can lead to a reduction in agricultural production, a consequence of this is increased food prices, and ultimately a problem or risk of food safety. It does not exist right now, but it seems inevitable in the future. So what do we need to do?

There are two main issues that we all already know about. The first is reducing emissions caused by agriculture and the second is adaptation. A lot can be said about adapting to climate change in agriculture, but I would like to show you a few examples based on our fieldwork.

When we say agriculture, you should not only think of crop production, but also livestock, fisheries, and forestry activities. We need to think about it within this context.

I would like to share a few examples of local best practices with you. As you know, various strategies can be

developed against climate change in terms crop production. These include planting drought-resistant crop varieties, product diversification, good agricultural or organic farming practices, making changes in planting order and calendar, mixed planting, etc. We all know these things, but what we need to look at is how these are implemented in Turkey.

It is the same in husbandry, there are strategies for adaptation to climate change.

I would like to share the first example with you. These are examples from organic agriculture and good agricultural practices in terms of adaptation to climate change.

As you know, organic agriculture is about ensuring production is compatible with natural environment, creating a closed system with sufficient capacity based on farms and use of local resources, and controlling and certifying the whole product process instead of just the final product. The benefits are; it provides continuity in soil fertility, which is extremely important in terms of ecosystem and climate change, it allows for controlling diseases and pests, ensuring the survival of animals in nature and efficient use of natural resources. What is the overall situation in Turkey? If we look at the first and last figures between 2002 and 2017, the number of products used to be 150, but today it has reached 214. The number of farmers reached 75,000 from 12,000. The area used for organic agriculture has reached 520 thousand hectares from 57 thousand hectares. There is an incredible improvement.

There are significant improvements in terms of good agricultural practices as well. These can be interpreted as positive developments in terms of combating or adaptation to climate change.

A concrete example of this is the Ilgın Village Organic Agriculture project in the district of Eğil, Diyarbakır. Some of you might know this, it is a UNDP project. Ilgın is a semi-arid area on a plateau surface within the borders of Diyarbakır province in the southeast of Turkey. There is a large body of water next to the village. But prior to this project, it was not possible to benefit from this water body.

The residents of the village, approximately 500 people, used to carry out dry farming activities, in other words, they used to grow grains and grain varieties only, but the situation has started to change with the implementation of the project in 2009. Eğil Organic Grain Producers Association was established in 2013 with the scope of a pilot project aimed at organic fruit and grain production. Production started with 34 people. Then the number has increased and after the irrigation facilities were developed, the certification process has started and showed a serious improvement. The products that they produce and what they look like after packaging. There is also a gradual transition towards vegetables and fruits. They have come a long way to this day.

So, what did the farmers gain from this? First, the traditional product pattern has changed in the village. Organic production has increased. Organic production awareness has improved among the villagers, which is the most important gain. We always expect villagers to adapt to climate change on their own. But as you know, our people have a tendency to act individually. Organized structures, cooperatives, etc. are not very common and therefore, such projects are extremely important.

High value-added products are now being produced and the capacity and productivity are now higher as market oriented activities have been initiated. There is now communication and cooperation between producers and institutions, and the Organic Producers Association was established with the increase in employment and more than 450 farmers have become members. Assessing all these cumulatively, the farmers now have increased resistance and awareness regarding adaptation to climate change. They continue to be an exemplary village.

Another example is the Beypazarı district of Ankara, which is a province where we work. This district is actually

Ankara's vegetable and fruit store. Especially in the context of vegetables. In Beypazarı, something has been initiated in recent years; greenhouse cultivation. We normally see this mode of production in areas where the Mediterranean climate is dominant. Here you see a picture of greenhouse areas around Antalya.

Beypazarı, on the other hand, is in the Central Anatolia Region, 100 km from the city center of Ankara, and has a semi-arid climate. So, greenhouse cultivation was not considered for this place until recently.

When we look at the general conditions, especially the part of the district where vegetable farming is carried out shows an interesting structure. The northern part of the district is mountainous. Its southern part consists of plateaus with an altitude of 1000-1100 m. The corridor in between has an average elevation of 675m. We can't exactly say that it is a microclimate, but it has properties that resemble a microclimate.

The average temperature is 13 degrees and the precipitation is 393 mm. A typical climate observed in steppes of the Central Anatolia.

There is actually limited agricultural land, only 33%. Irrigable areas make up only 14%.

There has been considerable developments related to greenhouse cultivated in this district since the early 2000s. We know that there are efforts of the local farmers and other institutions and organizations, especially the Ministry of Agriculture. This process that has been continuing since the early 2000s started with seedling cultivation on a 60 decare area. Today, there are 5 enterprises. They continue this activity on 96 decares. The seedlings are vegetable seedlings. Most of the products go to the domestic market, but there are exporters as well.

There are 1400 people working professionally in agriculture and greenhouses.

These are the photos that I took while visiting the area in 2007. At that time, they were making slow progress. Here you see the places where greenhouse cultivation takes place. Today, of course, it is more advanced. Photos of two greenhouses growing seedlings.

There is another development; good agricultural practices. This has been more widespread in recent years. While there were approximately 6000 decares in 2007-2008, we reached 12800 decares today. Farmers can sell their products easily since they are already in the vicinity of Ankara, but the big chain markets are the permanent customers of these farmers thanks to good agricultural practices. In other words, the products grown by these farmers are immediately sold to these markets within the framework of existing contracts. The awareness of the farmer and the methods of production have changed drastically here as well. There is also organic farming. This place is Akçakavak Village, it has been assigned quarter status now. It is the village where the first organic agriculture was initiated in Ankara. It started in the late 1990s, they are still going on. Organic farming activities are carried out on an area of 25 decares.

Another project in the same area. It aims to raise awareness among female farmers and include them in the production process. Beypazarı Municipality has allocated this 2000 m2 land for this project for 16 years. The Ministry of Agriculture supported the activity within the framework of a project. 10 female farmers are growing products on their own land directly and they have completed their first harvest.

To sum up, what did Beypazarı gain with the transition to greenhouse agriculture, implementation of good agricultural practices, organic farming practices, and especially inclusion of female farmers?

The production method has changed and the product variety has increased. It is now possible to harvest more than one crop per year. It is actually possible to harvest three crops in greenhouses. There is increased capacity and productivity. Products with high added value are currently being produced. The farmer's income has

increased. Meteorological and climatological risks have been reduced to some extent, especially in areas where greenhouses are located. This is, of course, very important in terms of climate change.

The final example relates to increasing energy efficiency and use of renewable energy resources. Mr. Telemcioğlu actually showed this in more detail. Rooftop systems are extremely important in solar energy and even more important in agriculture.

This has started to improve in Turkey. As you know, Tire Milk Cooperative is one of the oldest cooperatives in our country. They have a serious production capacity. They have a solar energy project. This project was designed by the cooperative and supported by the Izmir Development Agency. The grant provided to the cooperative covered 75% of the cost. So, the roof of the factory, or let's say the facility, where Tire Milk Cooperative carries out production is fully covered with solar panels. And these panels power the facility. This is the only application right now, but they say that they are making efforts to spread it to the other 60 villages where they operate or buy milk from.

Solar energy is also used in the project involving female farmers in Beypazarı. In this way, they can perform irrigation in a place that is very far from any electricity source.

We can draw the following conclusions from these examples: Turkish farmers are aware of climate change. We are constantly conducting field surveys. We worked in Ankara, Beypazarı, Polatlı, and Eskişehir. They didn't know this by the name of climate change, and only recently began to realize what it was since climate change has become so well-known in public. But they were aware of its effects on production. They saw that yield was lower in dry seasons; they knew that it was difficult to access water. Therefore, farmers have this awareness now. Secondly, farmers are taking measures to reduce the negative impacts of climate change, such as declines in yield, natural disasters, and diseases. There are at least individual efforts related to this. In some places, we can observe this in the form of collective effort.

Also, the support provided by the Ministry, institutions, organizations, and local governments is very important to ensure farmers adapt to climate change. Orientation, awareness, or certain support packages are extremely important. This support is of great importance not only in terms of material support, but also for raising awareness among and providing training for farmers. And finally, we can say this: My observation is that activities carried out based on a project and by receiving support from organizations such as the Ministry of Agriculture and Forestry, local governments, cooperatives, farmers' unions, and the UNDP yield very fast results. Farmers clearly see this and feel more prepared to combat climate change. They embrace these efforts at a higher level.

Thank you very much.

Question:

My question is for Mr. Telemcioğlu. I'm from Baskil, by the way, you mention that you had carried out a project Baskil. That village was not your choice, it was the village determined by the local authorities. It was a wrong choice. It is a village located very close to the city, and it does not have the characteristics of a forest village. But unfortunately, it is considered a forest village. You must have been there; it is within the municipality's borders. I know it was not your choice. I would appreciate it if you picked actual mountain and forest villages.

Telemcioğlu:

This is a joint project of UNDP and ORKÖY. ORKÖY picks the villages. We only provide a few criteria.

Question:

You're on a very good road; I'm a forest villager as well. While identifying the characteristics of villages, the Ministry of Forestry made a distinction as villages in the forest and villages at the edge of a forest. We have problems with the accuracy of sources and data. Professor Kadıoğlu put it very well. We need to create data based on sources. Thank you.

Question:

My question for Mr. Telemcioğlu, as well. Doğanay Tolunay, Cerrahpaşa Faculty of Forestry, İstanbul University. There is a development related to solar energy. Researchers working on solar energy developed a project called solar tree, which involves placing tree-shaped solar panels in forest areas to generate power. Unfortunately, forests are under tremendous pressure. I believe that forests have not been discussed sufficiently in this conference. Maybe we can address forests in future meetings. I don't believe they are members of your society, but forests are not prioritized when it comes to renewable energy resources such as solar power. Forests are also renewable energy resources. Do you think it is right to damage a renewable energy source while creating another one? Do you have any negative opinions about these initiatives in forest areas such as solar trees? Thank you.

Telemcioğlu:

According to the legislation related to solar energy, you cannot install panels in agricultural areas and forest areas. This is just a project aimed at ensuring the development of forest villages. We have a friend here from the ministry. The biggest experience is not being able to find suitable areas within forests. That's why we just went back to rooftops. Of course, these systems should not be installed in forests, agricultural areas, and pastures. In fact, we currently have an installed capacity of about 88 MW. The total surface area of rooftops in Turkey is 1.1 billion m2. So, if we install panels on just 1/3rd of this, we would meet the entire energy requirement of Turkey. We don't need to install panels on land or in forests. That's why we want rooftops so much. There is a study conducted by the Ministry on this issue. You will send the power that you generate within a month to the grid, if your consumption is higher than your contribution, you will pay the difference, if your consumption is lower than your contribution, and you will receive payment. The payback period will be much shorter and the use of solar panels on rooftops will increase tremendously. We have rooftops of industrial buildings; we have rooftops of commercial buildings. We have buildings in agricultural areas as well as cold storages and gas stations. We have more rooftops than we can count. You're right; we don't need to do anything in forests. Thank you.

Question:

My question is for both Mr. Telemcioğlu and Mrs. Hepcan. Mr. Telemcioğlu, my question is as follows: One of the most important steps when building a solar farm is the accurate calculation of the number of sunny days in that area. Because what we call cloud formation is time-dependent and when it happens, it can destroy the structure of the entire farm. Therefore, some foreign researchers carry out studies. The aim is to minimize investment and operating costs associated with solar farms. Although Turkey is a country rich in solar energy, solar farms are installed in wrong places. I was wonder if there has been a scientific study on this.

Telemcioğlu:

This is a matter of feasibility. It depends on how much you will invest and get back. Today, Germany has worse conditions than Turkey's Black Sea Region, but they have a solar capacity of 50MW, which more than half of

Turkey's. Think of it this way. You should not wait for the sun in Antalya. The efficiency that you get with one panel in Antalya is equal to the efficiency that you get with 3 panels in the Black Sea Region. It doesn't change anything. There are also scientific studies on this subject. In particular, there is the Solar Energy Institute of Ege University, there is METU GÜNAM, and we have a research institute in Niğde as well.

If you take a look at open-access resources on the internet, not only GDM, but also NASA has applications that calculate the annual solar energy efficiency at each point of Turkey.

Question:

All of the institutions that you mentioned are only working on panels and films. GÜNAM's work is mainly focused on film production. So, as far as I know, there is not a similar study conducted in Turkey. The only thing that you can get from NASA is data. But you can't make projections. You can get daily radiation data. But there's no calculation for 2030 or 2050.

Telemcioğlu:

Turkey has an installed capacity of about 5000MW at the moment. There are considerations about building large solar farms in both Niğde and Karapınar/Konya. As I stated earlier, when you get this data from open sources, you can model it according to your panel and conduct feasibility studies.

Question:

The plan behind this depends on a few models and mathematical approaches. Hence, the only data that you can access right now is solar radiation data. There is nothing related to future projections.

Telemcioğlu:

No right now. You can take the data and averages of the last 60 years from GDM. Of course, it is not possible to predict the future when there is climate change, but climate change increases our panel efficiency.

But let's not forget this. Solar energy is not the base load. It's only available during daytime, not nighttime. So, it's a difficult energy resource to manage. You need to be able to complement it with other resources, to compensate when there is no sun. Of course, there will be coal and hydroelectric power plants. But it is possible to decrease their number based on the current conditions and environmental concerns.

Question:

I will make a small addition. In China, an old quarry was flooded with water and they built a floating solar farm on it. They generate 40MW there. They revived an old structure and helped revive the habitat there. 40 MW corresponds to approximately 400,000 households.

My second question is for Mrs. Hepcan. Are wetlands and greening works that you mentioned structures that would also prevent urban heat island formations?

Hepcan:

Thank you. Yes, wetlands have several functions. One of them is to manage, to retain, and filter water. But they certainly reduce the effects of heat islands. The heat island effect occurs when the impermeable surface heats up during the night and re-emits this heat. The more vegetation there is, the lower the heat island effect will be.

But if we want to reduce the heat island effect, we need to improve the canopy cover. If we plant two trees, we get a much higher yield than vegetation consisting of bushes and covering an area of 4 m2. What's important is the canopy. Broad-leaved plants.

Question:

Nuran Talu. I have a question for Mr. Telemcioğlu. How many forest villagers are there in Turkey according to the latest figures. Or-Köy's 2001 figure indicates 11 million.

Telemcioğlu:

7 or 9. However, there are about 23,000 forest village, as far as I know..

Question:

Let's say 7 million. I will ask a question about the social and economic dimension of climate change. In your program, has there been any effort to establish solar energy cooperatives for forest villager women, to inform them and to help them? Or is the forest villager still a man? Because there is a status called forest villager woman, their number can be considered as about half of 7 million. Women help their husbands in the forest with their power. There are women who make a livelihood solely based on forests in. In this sense, was there a gender-sensitive target group choice?

Telemcioğlu:

Yes. We prepared this project with UNDP in 2013. The legislation on electricity has changed a lot since then. When we were preparing the project, our idea was to build the systems and have women carry out the maintenance and operational activities. We wanted to provide employment for women. But since we had to resort to rooftops as required by the legislation and as you know, they even shut down the General Directorate of Cooperatives about a month ago and the systems are now owned by individuals, not a cooperative. So that aspect of the project changed a little bit. However, the project's interim assessment meeting is on the 27th of this month. Maybe we will find a solution, but women and co-operatives do exist. We carried out another project with UNDP. Drying of fruit in the Eldivan district of Çankırı. Only women were involved. When we provided these trainings to women, even their posture changed. In all UNDP and GEF projects, issues such as women and employment are always a priority.

Question:

I attended the meeting late; maybe you have already mentioned this. I am the Deputy Secretary General of Antalya Metropolitan Municipality. We have solar energy applications here. But in 2020, I don't know if anyone from the Ministry of Energy is here, they will stop providing support. The support term has ended. Municipalities and the private sector actors who are investing in this area are doing so with the incentives provided by the law. Otherwise, the payback period of the project and its profitability are slightly reduced. Do you or the Ministry of Environment have any initiatives to this end? We have investments waiting in line and we are waiting for this law to pass.

Telemcioğlu:

If you're going to make those investments to profit, then don't, they will not allow it. The Ministry of Energy does not want to make payments under YEKDEM. They shouldn't, too. Today, the solar panels installed on the land can

redeem themselves even if they are not feed-in tariff. I can't say the same about rooftops. Because if you build them on land, you are doing it as a commercial activity. But this is an individual investment when the consumer installs them on rooftops. What we call support justice is that we should not support every type of energy in the same way. To each according to how much they need. For example, it was to the state's advantage to guarantee purchasing solar energy five years ago. It encouraged improvement. But, as an industry, we don't want this in the field of solar energy anymore. If we're going to support something, let's support biogas, biomass. We don't use agricultural wastes and animal wastes at all. We shouldn't just think about the solar. He should consider them all. If you're going to make those investments for your own needs, there is no obstacle anyway.

Question:

That's not what I meant. Today, all solid wastes in metropolitans are kept in integrated facilities, not in uncontrolled disposal areas. They are fermented in biogas facilities. You generate energy by gasifying the pulp. This allows for protecting the environment and nature and the purpose is to reduce waste to 0. You have a cost here and have to spend money. You use the energy again in production. You turn the waste into energy and contribute to production. This needs to be supported; we want support from the government.

Telemcioğlu:

We will provide as much support as we can as long as it's socially motivated.

Combating Climate Change on Local, Participation at Local Level

Gender Sensitive Solutions

Dr. Nuran Talu
İklimIN Project, Climate Policy, Senior Expert

Nuran Talu:

We will talk about a new field of policy. The world has been doing this for years. If we do this in Turkey, we will truly be an advanced society. But there are very recent developments, we need to know about them. Professor Aslı told me in the morning. The issue of gender equality. In Turkey, we import words. The Turkish version of word 'gender' is 'social sex'. The public administration of our government did not like this. I'll quote without comment. YÖK (Council of Higher Education) sent a letter to all universities recently. From now on, women researchers will not use the phrase "gender equality" in matters related to gender equality. I'm reading it to you without comment. From now on, we will say "justice based woman". Justice is already a women's name or a political party's.

'Based' ('Temelli' in Turkish) is a quarter in Ankara. I did not irritate me. We will now go down from climate justice to women's justice, women's rights, and women's human rights. Therefore, this is a new piece of information; do not say gender equality from now on. Go on by establishing the relationship between justice and women. But women have a relationship with human rights, this is true as well.

It is a topic of discussion for the last 2 days; I've been talking about it for 38 years. Climate change is such a topic that we cannot deal with it without serious interaction between science and politics. It's a new story of growth. In other words, it is trying to put politics, namely Ankara, Washington, New York, Paris, into a path which transforms development paradigms and involves the low carbon economy, the neutral carbon economy, and a climate-resistant future.

It's breaking down the long-established energy lobbies. We're talking about other energy resources. It seriously affects relations between states. Or to be more precise, it's changing their agendas. Merkel calls Mr. Erdoğan and says "Sign the Paris agreement. We're in the G20, only you and Russia didn't sign it, why won't you sign it, let's act differently." It affects water safety. It determines food prices. The average Jane comes back from the market with an empty bag. It has a class dimension; it increases the number of social movements and actions. But Turkey will get used to this word 'action'. Because Paris does not say climate fight anymore, it says climate action. The title of this project includes local climate action as well.

We need to be big in numbers and hand in hand. That's why we're trying to make a case. We go to men, we work with them in unions and universities, and we say that civil society is important. We say that being hand in hand is important.

Climate change adds different concepts such as climate justice and climate ethics to the political map. More importantly, it reveals inequalities.

Climate justice and inequality. So, I agree with Ankara's decision one more time. When we use the word justice correctly, we can solve this inequality problem.

We observe that social and historical inequalities surface in the climate problem once again. We're not the disadvantaged section; women are. It says gender there, that's us. Their problems are handed down to future generations, exponential reflections. That's why justice is important. It brings together problems or benefits related to different social sections, classes, social groups, and genders. You see, because of food security and low yields in agriculture, it caused an injustice for poor farmers and the urban poor due to food prices. More importantly, there is another inequality happening in the field of gender.

This is a review of the last months of 2018. When you look at the rates of climate change caused by the rich and the poor, there is a category called "lifestyle consumption emissions". The poorest 50% is responsible for only 10% of these emissions. The richest 10% is responsible for about 50%. 70% of the poor are women around the world.

We're going to talk a little about our unjust suffering. But our goal here is to step into another policy area, to be an actor. We have surrendered to social norms. There are examples in Turkey and this is the case around the world as well. Gender inequality is also on the floor in climate change. Those who work on this topic are very familiar with these examples. I'm sure Professor Kadıoğlu is already talking about this in his lectures.

5 times more women died than men due to the flood in Bangladesh in 1991.

Indian Ocean tsunami, 2004, 567 women died.

Cyclones in Bangladesh, 80% of the victims were women and girls.

Why? Men are outside and hear the alarm. As we just mentioned, cultural and social norms require women to sit in their homes and wait for their husbands. Hence, women who live near the coast are more likely to die in a tsunami.

Very cruel, but true, these are all research findings. Fathers firstly save their sons, not their daughters. Why? So that their family name will continue.

Disasters also cause women to lose their sources of income, this is more sociological. Why? Because disasters destabilize the household economy, make them poorer. Single women lose their sources of income 100%. Or there are fathers who say to their daughters after disasters, "Don't go to school, it costs me a lot". We have numbers related to these.

Water scarcity and drought are more common in African countries. Women's sufferings in the process of bringing water have been the subject of research reports for a long time. This includes being raped in the dark. These are all sociological problems caused by climate change. Pregnant women are more vulnerable in terms of health. Elderly women and parents who live alone are more energy-poor. More importantly, perhaps a study has been conducted for Syria as well, but women migrants are also a serious subject of research in Turkey.

When we talk about the worlds all the time, we get bored. Actually, we are here. This story is about how 7 of the 31 people died unjustly in a climate disaster during the flood disaster in Ikitelli in September 2009. We have the names of these people. They worked in a textile factory. They wanted to reach the factory on the day of the incident. 7 female workers were entrapped in a van with no windows and double doors. But the company manufacturing the products of those famous brands talk about these deaths as "Unfortunately, they did not want to get wet and did not get off the bus", when in reality, the women did not want to lose their daily wages.

We all know that climate change is threat to human rights, we talk about this, we write about this. We saw that it's not fair. The rich countries are not much affected by rising sea levels. Because they have money, they can migrate somehow, they can move to better places. But the lives of the poor are more deadly.

When we place the issue in the category of women's rights, women's human rights, this is what we see.

These are not things that we make up. There must be people who study, read, research women and women's human rights.

There is even a foundation working on this issue, women's human rights, in Istanbul, in Turkey, they work on this very seriously. They categorize these rights into 5: Rights against violence, economic rights, political rights, civil rights, and fertility rights. What we're trying to inquire with regard to these 5 categories is rights against violence, which is the most talked-about in Turkey. It is a woman's right to not die. But there is also the right to a living space. Like the right of Aunt Dudu living in Artvin to not let her nature destroyed.

Economic rights are related to women working in agriculture, energy, industry fields - often working in non-managerial positions. These three are the crucial sectors of climate change.

Political rights - we will discuss whether climate politics are being debated with women who vote and run for office. Why? Because do we vote for a climate-friendly mayor or a parliament member? Are the elected women really climate-friendly?

Civil rights - education and health, and there are cross-cutting sectors related to climate change here.

Fertility rights may be the topic of another ground. Women's right to fertility is defined as a human right, it is true. But if we look from an environmentalist's perspective, it is clear from international documents that the world is ruined by the excessive human population.

You may say, "You're always the victim, the innocent." In fact, according to research findings, women have a lower carbon footprint than men. There is a difference in the West. Women with high income have a higher carbon footprint than poor men in developing countries. Therefore, women in the West do not look very climate-friendly.

Women's car ownership is lower than men's. This is a little more balanced in Turkey.

Women prefer environmentally friendly products more often. They are open to change in their personal lives. They are more likely to prefer climate technologies. While men say nuclear energy can be an alternative, women's attitude is different. They say no. But women in urban areas are unfortunately over-consumers and we see this clear enough in their lifestyles. Cobblestones were mentioned in the morning's session; there are women in Istanbul who want asphalt because they can't walk on cobblestones with high heels. This is the problem.

Let's go back to the world now. We always give examples from around the world. Why? Because climate change is a global problem. We're trying to avoid making bears upset and prevent glaciers from melting. But we're experiencing floods in our neighborhoods.

The relationship between climate and women is a matter which has a story of almost 20 years and came about as a result of a serious chain of UN decisions. Why didn't we know about this? Maybe men aren't interested because it's a women's issue. But we women didn't know much about this 20 years ago, let's face it. I was attending international events in those years. I was representing the state. In those days, the conversation had just begun. But we manly women were probably running around saving our ministry. We were not very aware of our own presence, rights, and sufferings in relation to climate change. Why? Because we did not have researches and documents in front of us, data was inadequate. Hence, the world still continues to research this topic.

But the women's climate is taking root. When you look under this tree, the entire world has been making climate decisions from COP7 in 2001 to COP24, that is Katowice.And be aware, women, you are victims, not because we have a number of responsibilities against you, but so that we can make decisions on a global level.

The basis was mainly established in 2014. But if we go further back, the Bali Principles of Climate Justice were published in 2002, just after the COP7 meeting in Marrakech in 2001. In the first sentence of these principles, they state that gender equality should be included into the solution processes of climate change. The 2014 Lima Gender Work Program was renewed. The Paris Agreement of 2015. Just like municipalities now have local climate action plans; we also have a gender action plan.

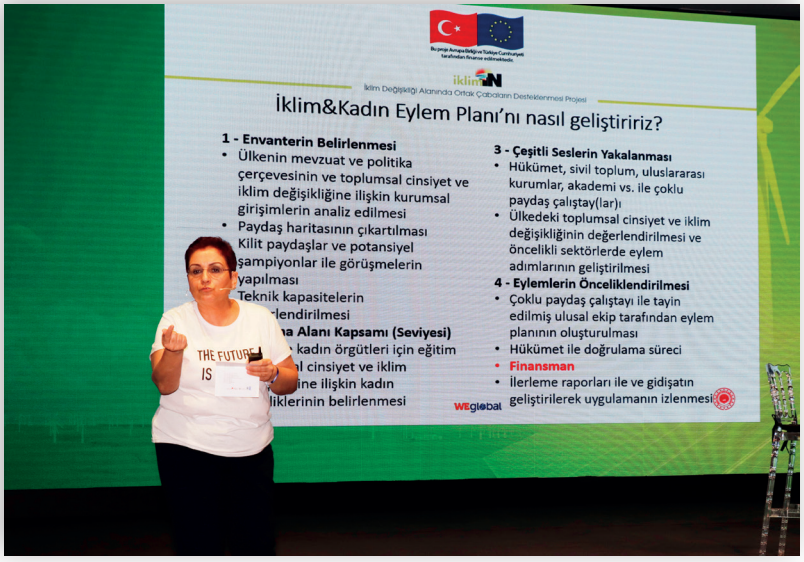
This is very serious. Now we will explain whether or not Turkey can implement the gender action plan.

In Katowice, the climate change action plan has important decisions regarding 13 points in the Paris Rules Book.

These are all cross-cutting decisions. We listed those decisions.

The Paris Agreement is not an ordinary international framework agreement or economic agreement. As I said, I'm a woman who has been attending these meetings since 1992. It has different codes. It delivers a very different message. Some said, "The Paris Agreement is weak, inadequate, it does not provide tangible targets, it does not push states." No. It pushes states so much. It pushes them into a completely collective work dynamic.

I'm a civil society organization representative. I have an association of moderate means. Right now, I am now



responsible for putting this new policy field into the political repertoire of our government, our state. And I support them.

There are a number of reasons why women should be key actors in climate action. Victimization is one thing, being an active actor is another. This is called act on the GAP, Gender Action Plan, it is the message of COP24. It's a matter of initiating the women's action plan. There are 5 topics. We all say this, we are 100% of the population, 50% of it are women. I wonder what women do about this? We say that climate change affects us differently, in either a positive or a negative sense. We say that we have a lot to say in terms of climate resistance in societies. More importantly, countries accepted this. We have to, there are UNFCCC decisions. It calls on female climate experts.

A gender action plan has 5 main points and there are those responsible for these 5 main points.

Capacity building, information sharing, and communication are essential. We're doing this right now, it's so new.

There is an order of those who are responsible including state actors and non-state actors.

Gender balance, participation, and leadership of women. It says meaningful participation. I'm underlining this again. In other words, we are giving women roles, we invite them to our meetings, and we keep their numbers equal. The UN has indicators. How many women were trained when the project was over? Our numbers are not good enough. We have other things to do and we are focused on those.

It is the same here. UNFCCC's job. We will talk about the same things with all UN organizations. We will talk about the same policies regarding gender equality.

Gender-sensitive application and application tools. If you're managing something, laws, institutions, money... you need to look at those. We will see how women's projects are supported financially in the field of climate. When we initiate these efforts, you will support us as state actors and make it easier for us to access those resources. We will also talk to you about your facilitating aspects to improve your women's policy.

Those who have responsibilities are states, non-state actors, and members of parliament - as I mentioned earlier, you need to change the legislation. More importantly, you have to change the language. Dear Minister Mehmet Emin Birpınar told us to take off our ties. What are we going to take off as women? 50% of the audiences were women here. So, you have to change this language. Unless we change it, we cannot internalize it. Almost all of the Climate Adaptation Department staff are women. If I were in their place, I would start wearing a tie from now on, in fact, it would not be a good practice either. It's like racing. However, we are talking about acting hand in hand. So that's a different job.

Someone mentioned balcony cleaning. They said, "Do not wash it by pouring water. Wipe it to combat climate change". Let your husbands do it. They enjoy themselves in the balcony at night. Let them do it. This is a balance.

We know about monitoring and reporting.

How can we develop this climate action plan? If we learn these general constructs, we can implement the climate action plan together. It's not women's job, it's our job, all of us. We will do this together.

We will determine the inventory, we will determine the scope of the working field, and we will ensure everyone has a voice. We will prioritize our actions and ensure funding. I'm talking about the steps of an action plan.

Determining the inventory - in other words, we will capture gaps in legislation, benefits, losses, exceptions. We will determine whether the institutions are getting closer to the legislation. For example, I am explaining to the women of the climate change adaptation department the necessity of working with women and climate cross-section. We will draw our stakeholder map. This is very important, because environmentalist women, climate-sensitive women, most of us are very manly. Actually, we also need to work with women's organizations. For example, there is a women's organization called KAHEV, which is one those organizations. They are providing education on women's health. We can have them explain the relationship between women's health and climate and employ them in awareness raising activities. We have lots of examples.

We will determine our work field. We'll find what women's priorities are. The important issue here is that the social norms in Turkey are always pushing women into a different priority. I'm talking about the natural gas charge in the electricity bill. Women should stand up against this first, rather than asking for more nurseries. The number of nurseries can be increased. But we need to put something above that mother model. I'm a mother, everybody is a mother. Everyone has a daughter or a son. That mother model exhausts us, pulls us back. This should not happen. Look, a lot of mothers here are doing a great job as female climate change fighters with their very young babies. This is what we emphasize.

Funding is very important this is an important research. It was conducted by OECD in cooperation with the World Bank. The world sees women in three areas. Disaster, energy and agriculture sectors. For example, in Turkey, EBRD conducts studies related to women once in a while in their urban planning and urban investments, waste management, or urban transportation etc. in Turkey. A study shows that IDO employs 667 men and 17 women in Istanbul.

We said that it is a story that goes back to more than 20 years, international organizations finances women who are interested in climate change in the fields of food, agriculture, and water. We want that too. There is the Women Delegates Fund. This is because the low ratio of women attending climate summits such as UNFCCC. This has created the need to increase the number of women delegates by certain developed countries. They have established such funds in Sweden and the Netherlands. They sponsored the average Jane from the village and enabled her to attend these summits.

The Green Climate Fund, which is the most important one, we want that one. The Green Climate Fund has an important report from February 2019. It's about the Gender Action Plan. It shows which actions this Fund gives money to. Pay attention, this is important. 29% of the official development aid of USD 23.7 billion granted by OECD DAC members to combat climate change is adjusted according to gender equality. 3% was allocated for the main purpose, that is, to work directly on the relationship between climate and women. There are also secondary goals such as increasing the number of women in IDO. There is 26% money there as well. The distribution of climate aid focusing on gender equality is 46%, only for adaptation. This is very important, very valuable in terms of Turkey's integration policy. Because, in fact, women have a lot of place in the sectors we refer to in terms of adaptation to climate change - agriculture, water management, disasters, and many other sectors. The energy is always man-

dominated.

Transnational networks. We have such networks, too. C40 for Climate introduced this concept just a month ago. We are calling on Istanbul C40. Metropolitan Municipality is a member of C40. The C40 member must establish this relationship. These are all alliances working on women and climate. We can participate in these alliances as non-governmental organizations, universities, public organizations, and local organizations.

This part is a little important. Because we are the ones who give birth, we are the ones who create generations. So we need to take a look at the intergenerational issue. Let's take a look at what women are doing for climate in this regard.

There is a description for each generation. The silent generation is those born between 1927-1945. These grandmothers wanted a determined and realistic action plan against climate change in Switzerland. Switzerland does not have a gender action plan yet. Therefore, they are trying to struggle for next generations on behalf of their grandchildren. The Baby Boomer generation is those born between 1946-1964. This generation corresponds to the birth boom in the American jargon after World War II.

Generation X is those born between 1965-1979. They are a little confused. Because they transitioned from roller washing machine to smartphones. They had much to learn and perceive. Their movements are weak in terms of climate. But we have two target generations. One of them is generation Y. Women in generation Y are boycotting birth. They say we won't give birth to babies in a world like this. There is the birth strike.

But this is our generation. Generation Z. Our target. Look at Greta. We produced Gretas, too, they organized demonstrations. She did a very right thing. School boycott. They did not go to school. There have been serious objections among this generation in cities and countries since August 2018, asking, "What are you doing to our future?" The ones that you see below are very serious studies, Young Women and Girls, conducted by I think the Stockholm Research Institute in partnership with the United Nations Environment Program.

In Turkey, we tied our kerchiefs and we focused on the world, it was melting.

We drew a roadmap which we finalized last year with UNDP's GSGP support. We can't fall behind the world. You can look at this roadmap to see how a climate action plan should be made in Turkey. We worked in Ankara. "First", we said, "We should transform from the victims to active actors." We have a duty. We need to organize, we need to work together, hand in hand, and we need to pioneer. I'm one of those pioneering women, my name is climate woman. It would be beneficial to use a jargon like this. Women's actions gave birth to serious movements in Turkey. I'm not talking about a feminist world. We have gained considerable equality rights together with you in the Civil Code.

In this study, we established the structure as follows: There are areas where we are directly excluded because of the dominant gender roles. Because we're affected by climate change. But there are also areas where we will create great impact if we become pioneers and we will create this great impact with 100% of the population. We have something to say about non-equality, women's labor, entrepreneurship and ecological deficit. The role of women should not be ignored in ecosystem protection in Turkey. If you don't protect the ecosystem properly, you cannot be a climate change-resistant country. Speaking of ecosystem, we were talking with Mr. Mikdat Kadıoğlu in the morning. Of course, it's a joke, but the professor said, "They say climate change turns males into females." What males? Male turtles. So we asked someone who knows about this and we have got an answer. The sex of baby turtles depends on the temperature of sand. These are important issues.

We already have housewife roles, but as we said, we have to improve these. We are already victims in disasters, but we don't really want to use our female labor as farmers. Delegations with mustaches. The gender distribution in the official delegation in Turkey. You can see the figures of the UN Climate Change Conference of the Parties between 2000-2017. Turkey attends the climate negotiations with a male-dominant delegation. There will surely be objections in the hall.

65% male, the remaining 35% female. But we have the higher number in the technical team, which means that we have a head on our shoulders. This is an important point.

This is the case around the world. In the UNFCCC's decision-making positions, for example in August-September 2015, only 63 out of 206 heads of delegation were women. In Turkey, 81% of the managerial positions are occupied by men. Of course, this ratio of 81% does not apply only to the Ministry of Environment and Urbanization. As you know from the Ministry of Agriculture and Forestry, they all join delegations. The cross-section of all delegations is 81%.

We are not included in climate policy planning, too. Have you ever seen women's policies or actions in IDEP?

Raising awareness among forest villager women on energy saving - IDEP. This is important. But what we're trying to explain is this. Female forest villager is the poorest among all women. That woman is trying to win her bread. We want that woman to be empowered economically; we want that woman to become an actor within the climate economy, the low carbon economy --- whatever the name is. Do we want too much?

We are not included in the climate change energy efficiency action plan. We are not included in the action plan on reducing negative effects on health. We are not included in AFAD's roadmap. We are not included in the action plan on women's empowerment in rural areas. Why we are not included? Because we love our female farmers, we give them some training, we put them on TV, and we are done. We can't keep it up. Because we perceive them as unpaid family workers.

What can you do? All local government candidates promise a women-friendly municipality. We see this as a fiasco from the beginning. Instead of signing a woman-friendly commitment, we want a female candidate. We tell them that only then they can create local climate action plans by internalizing women and climate policies.

Let's look at our local climate action plans. Bursa, Antalya, İzmir, Gaziantep, Kocaeli, Denizli, Kahramanmaraş, Manisa, Mersin… We're not included in any of them. As I said a minute ago, we don't understand this in terms of including women. We understand this as socioeconomic development. In other words, we have a say in the city's carbon budget, building plans, water management, and absorber area systems. We want you to include us in action plans so that we can vocalize our opinions.

We are not included in climate public opinion surveys, too. We all do most of them. Konda conducted a great research. We are not in that. We can't produce any data on women. We conducted a training needs questionnaire,

a perception study, and 63% of women responded. It means we have the will. REC Turkey conducted a CEO perception study, all CEOs are male. Perhaps there is only Sabancı. We need to look at these. We're not in EDAM. Professor Dursun Yıldız, Chairman of the Water Policy Association conducted We tried to explain, we said, "There are women, too. Open a file for them." No.

Most of farmers are men. That older woman is American. Farmers meet in Ankara, wearing caps. On International Women Farmer's Day, our men say, "We would die for our women, we love you." We don't want that kind of love.

In the end, we have identified 9 steps for Turkey in this book. Don't worry, it's not imported. Climate-policy, climate-agriculture, climate-food, climate-nature... An action plan can be prepared for each of them. We all need to contribute starting with the government. We have provided trainings on health, labor, and urbanization disasters. In Çanakkale, in Konya. We have seen very considerable participation.

Look, very interesting things are happening in Turkey. Women are manufacturing solar panels. It describes the benefits of producing solar panels with our femininity, our feminine moves, and our feminine figures. We will generate our power from the sun. They especially wanted women for this job. Because women are more skilled in this and more polite. That's why they don't prefer men. This is an important thing. We can quilt; we can do this, too. We demand employment in this.

Female climate experts in the economy, the economy of solidarity - cooperativization was addressed though. Why not?

We wrote this with the red card in mind. These are true; call me Nuran the radical if you wish. Call me a hard worker if you wish. The Mayor of Gaziantep Metropolitan Municipality is a woman. The Chairman of the Union of Municipalities of Turkey is woman. We need to provide them with education. We all must. This is our duty.

She says, "Decisions related to home investments are made by women." We can manage home economics. But we want to take part in energy economy as well. These are very important.We want this to be Turkey wide. Istanbul wide is not enough for us.

We identified the most basic determination, we wrote 9 fields here based on this basic determination. We tried to provide guidance. We didn't do it on our own. Turkey's climate change combating policies are gender-blind. I tell this to women executives. There is no gender-based climate change data. Where are representatives from Niğde? Thank you Niğde. For the first time, Niğde collected separate data for girls and boys. It means what we're doing works.

Turkey's climate policy is pushing women into a high-carbon lifestyle. Are shopping malls climate-friendly? No. But women live in shopping malls.

Mass awareness is important. It is important that the subject is a woman and there are women's organizations, non-governmental organizations, and women's research departments.

The agricultural sector is important to introduce women's labor to the economy, the climate economy. We have lots of opportunities.

Women working on climate have a weak perception of gender equality. I'm going to say it one more time. We need to sit down and work with female climate experts at the Ministry of Environment.

There is no gender-based separation in climate data.

Dudu from Akhisar, Resmiye from Avanos, and these women work for climate at the local level, in rural areas. It's

impossible not to be like them, why not? But when Resmiye manage to re-use flush water as an inventor at home, this issue was discussed as a result of the project. But she says, "They put me on TV, They put me on NTV, after that, nothing." There should be something after that, that what we're trying to tell them.

Common efforts are very important.

Thank you.

Question:

Countries were asked to establish gender contact points and Turkey established a contact point as a co-leading country. But we don't know what they did.

Talu:

Thank you for reminding me. We have 2 women as the national gender equality contact points. One of them is Tuğba İçmeli, I think she is in Bonn. Ayşin was here, but she had to leave. There is an alliance between gender equality contact points. The Ministry of Environment will certainly send those two amazing women. And they will share their experiences when they return. So far, no one has contacted us about our work. We are expecting national woman climate contact points to fulfill their duty. The duty of doing something together.

A Future Without Seasons

Bünyamin Sürmeli
Meteorological Engineer,
Weather Reporter, Speaker

Sürmeli:

Experts and professors talked about many aspects of climate and energy. I will not dare talk about their fields. I will just explain that climate change is an ethical and moral problem, and that when we do this one essential thing, we don't actually need massive conferences anywhere in the world.

> **Climate Change Is Actually a Moral Problem**

Climate change is actually an ethical and moral problem. Where does it come from? Professor Kadıoğlu talked about this in the morning; he talked about the change of 1-1.5 degrees that used to occur in 150 thousand years. We have caused an increase of 0.9 degrees in 150 years. IPCC mentions a minimum of 4 degrees by 2080. Now we need to look at what happened 150 years ago. With the industrial revolution, more energy was needed, and with this energy, we started to heat the atmosphere. Why didn't the problem occur 150 years ago? The atmosphere, the seas, and the land have a reflex time. It is not like kinetic energy. They keep their patience for a while and then react. But it's a little difficult to reverse this.

Now we said the industrial revolution, but with this revolution, many people gained access to many necessities. Food, clothing etc.

Buildings were built, a lot of services were provided. But after a certain point, we achieved maximum production and maximum consumption. That's what it came to. Why are we watching so many ads? Consume, consume, buy, you are worth it… An unbelievable attraction is being created. Years ago, our mothers and fathers did not use to consume as much as we do now. They were quite happy, too, maybe even lived longer than us. But they're saying us, "Do this, you'll certainly be happy." We associate happiness with consumption. How long does a purchase take? The longest of them, if you take into account mergers and so on, it doesn't take more than 6 months. Most of it takes seconds. We are constantly under the pressure of purchasing and consuming. Do we consume what we buy? Now, Mrs. Talu talked about this. Let me ask a question to the ladies. How many shoes do we have? How many bags do we have? Back to men. How many technological devices do we have? How many times do we order everything in the menu so that we will look wealthy in a restaurant?

What we're actually saying is, "If I purchase it, if I own it, I will be happy." Does anyone feel the need to buy the sun? No. Both you and I, we all benefit from the warmth that it provides. Do you need to buy a tree, a forest, a grove? It's enough to look at it and sit under its shade. So, unfortunately, we live on earth as a mob of remotely controlled people who have just been programmed to buy. And the goal is to earn more. My humble advice, let's not let anyone exploit us. Let's live as we need and stop wasting.

> **We Are Proceeding Towards a Future without Seasons**

As I said in the beginning, if we do this one thing, this meeting wouldn't be necessary. Let's get there. Here, after briefly explaining the ethical and moral question, I would like to move on to the media aspect. Look, we're moving towards a future with no seasons.

How many of us in the world? About 7.2 billion. Another 2 billion is expected by 2050. Lots and lots of people. 9 billion people. What are they going to eat? It is indicated in reports that there will be a loss of approximately 10% in wheat production and corn production if the temperature increases by 2 degrees. Is this a big loss? But when we look at it from a population perspective, it corresponds to 900 million people. If we assume that 900 million people would be a realistic distribution, we are talking about a loss which will affect so many people - almost 3 times of the USA'a population. IPCC says that the temperature difference will exceed at least 3.5 degrees by 2080. So what will be the number of people who are likely to be affected then? Maybe 1.5 billion. Maybe then it means something. It means that it's certainly going to affect somewhere close to us.

794 million people are starving. 2 billion people cannot get the necessary amount of vitamins and minerals. On the other hand, 1.9 billion people are overfeeding. Those two sides are different. 600 million people are obese, twice the population of the USA.

What do we have on our plates? Proteins, grains... we mostly consume these. Are we eating that whole plate? Let's say we had dinner at an open buffet today. Let's take a look at ourselves and see how much food we got on our plate and how much of it we ate.

1/3 of every food produced goes to garbage without being consumed; some during production, some during processing, some in restaurants/markets, some in our homes. One of 3 products goes to trash. Minimum %33.

What does a loss of 33% mean? One question. Kyoto Protocol. One of the first climate protocols. What was the purpose of that? How much of our carbon emissions did we want to eliminate? 5%. The effect of a 5% reduction

would be at least one step, indicating intent. We're talking about 33% here. Is it only the food that changes the climate? There are several other things; technology, power plants, factories, textiles. But this piece of information is very important. We can only get rid of the climate change if we stop wasting food. You know why? Because if we collected this wasted food in somewhere, if we saved the energy that we spent on producing this food somewhere, creating an imaginary country, do you know what would be rank of this among the countries emitting gases that cause global warming? 3rd. China, America and our imaginary country. It would rank higher than India, Russia, France, Germany, etc. Imagine China eliminating all emissions today, or 20 years ago. Would we be talking about climate change today? Technology, textiles - ladies can buy as many bags as they want, gentlemen can buy tablets, computers, etc.

So, if we wish to stop climate change, we just need to stop wasting. What are we going to do? We have a culture of rapacity; we need to abandon this perspective. We need to consume as much as we need, not more. Have a taste of life. After buying a car with God knows how many installments and driving it for 5 km or 5,000 km, instead of asking ourselves, "What should be my next car? What should I replace this with?", we need to ask ourselves, "What places should I visit?" In other words, we need to enjoy what we have.

We need to adopt this mentality, but unfortunately, we are all experiencing the same bombardment. We are constantly exposed to an external stimulus. Buy, replace, what could happen, you can earn it again… I'm sure you remember those ads. You deserve the best; the door of a Rolls Royce opens, a lady's leg comes out first and then herself. You're a hero, a lion, buy it. We should prioritize life, not that.

We, as a nation, attribute sacredness to bread. In fact, tomatoes, potatoes, this applies to all food in our culture. Let's look at the losses. TRY 1.5 billion worth of bread goes to the trash annually and TRY 16.5 billion worth of vegetables and fruits goes to trash. Trash. Consider production issues, spendings, etc. Add them all up, ant this figure grows exponentially. So, what do we need to do here? Stop wasting. Wasting is the biggest problem.

I want to remind you one more thing. There are 600 million obese people, while 794 million people live on the edge of hunger. There are 3 main greenhouse gases: Carbon dioxide, water vapor, and methane. One of the sources of methane, yes, there are several, but one of the sources is livestock.

While gas released by livestock is a factor in climate change, if there are 794 million people living on the edge of hunger, then there is a strange problem here. On one side, the climate is changing, let alone increased spending, on the other side, people are starving. Also, the vast majority of these people, especially in sub-Saharan countries, are trying to meet their protein needs from cereals. The amount of protein in legumes is decreasing due to climate change and the amount of sugar and carbohydrate is increasing. While people are hungry today, they will be even hungrier tomorrow. This is a very clear ethical problem. People should not be hungry while the climate is changing due to gas released by livestock. An abnormal problem.

This tells us that there are people who cannot find food to eat, while others eat theirs, too. Since the climate is changing, some people live as if they were 3 people.

We talk about many technical things, but there is essentially a moral problem behind climate change.

When you say a Japanese wonder, it is perceived as if something was coming down from space. They invest in

education, R&D, work hard, and they invent something. This is the case of the media as well. Media organizations should also act within certain lines, have certain responsibilities as they are directly involved with the society. It serves a purpose. A media organization is not a group of scholar. In other words, it does not publish research papers related to climate change. Media is often influenced easily. This doesn't only apply to Turkey, it is even more pronounced around the world. In this part, I will tell you about an important study.

> **There Is a Difference between Covering Weather Events and Covering Climate Change**

When we look at the news related to climate change in newspapers from around the world between 2004 and 2019, the research shows that the interest increased between 2007 and 2010. As we all know, there is a difference between covering climate change and covering weather events in media. Covering weather events, disasters, catastrophes on TV, radio, or newspapers does not come with a responsibility; the goal is to score high ratings. So, it is different than covering climate change. What we're talking about here is climate change. The most significant increase in media interest was between 2006 and 2010. The study examines many regions including Africa, Asia, Europe, and the Middle East.

How do European and American media cover the climate change? The UK covers climate change policies, law processes, economic impacts, and political impacts more often.

Norway, Denmark and Germany focus more on news related to renewable energy.

1 or 2 examples from these countries. News mentioning airlines emitting less carbon. This is a news story on climate change by explaining how much more or less carbon airlines emit. There is no incident. No floods, avalanches, etc.

News related to climate change in the Guardian. In fact, everyone is predominantly reporting about their own locality. California, for example. The press mostly gives estimates of forest fires and drought. Studies on the Pacific Ocean in Oregon and Washington, because they suffered due to the ocean in the past. As you know, tornados begin to hit Oklahoma and Texas around April-May. Hurricane news in North Carolina, Florida. Because the Gulf of Mexico, hot water, there are always systems from the Atlantic hitting those states.

In fact, weather events in the world media are mostly about local weather events or political impacts.

I have brought a few examples for you.

By the way, news involving non-governmental organizations and civil initiatives are covered very frequently in the media. Look, this is the study I'm going to tell you about. A collaboration between the University of Zurich and the University of Hamburg. Of course, they cannot work in every country to collect global data. But they included 27 countries in this study. What are the criteria? Whether the country is industrialized, its economic situation, its state of development, its sensitivity to climate change, its vulnerabilities, whether there are changing responsibilities or obligations... The overall framework that they found is this: Climate summits which leaders attend and climate-related policies are covered more often in media. Actually, we're talking about the climate in the right place right now. The more state gets involved in climate-based action and determining policies, the more media coverage is achieved. This is what global data shows. The whole world is this way unfortunately. There are more reports of climate change in the Kyoto Protocol countries. Meteorological disasters and unusual events drop behind. In other words, even the most watched weather events are far behind those on climate change.

UN Climate Conference, Paris Climate Summit, IPCC Reports; these receive very serious interest. Activities of non-governmental organizations, scientific publications, and political institutions are covered. Films, projects… Al Gore made a move, Di Caprio made one. Such movies make climate change a talking point. In other words, it is easier and more striking to talk about disasters and explain the long-term effects of climate change via these movies. Because they cover disaster events as well as presenting projections related to the future.

Let me give you a very simple example. State Meteorological Service announced that it was going to inform the public about weather events using colors. In fact, there is no change in what they do. They will use green, yellow and red. Even this was covered by TV channels for days. It's just a change related to how information is presented. If the bureaucracy or state is involved, media definitely shows interest. This is the same all around the world. The second is the activities of NGOs.

Other than that, it is always weather events that would increase ratings.

What are we doing at CNNTürk? We are the first news channel employing an on-site meteorologist, which I cannot take any credit for. We are somewhat pioneers. We are trying to bring climate change to the forefront as much as possible. Of course, climate change is covered frequently in the news usually when a weather event happens. Let me show you a short video. (Video Screening)

We shot 26 episodes in different parts of the world. We tried to explain how unusual climates emerge and how these climates are changing. But as I said before, media organizations are also commercial organizations. You can make such programs only as long as you can find money and sponsors. But there's also this. Instead of using that money in another field, CNNTürk showed initiative and preferred to use it in this field.

These are seasonal works which we can only do when we have a budget. Other than that, we have daily shows. We're trying to include climate change in those shows, too.

From the Perspective of Young Climate Fighters

Panel

Moderator:
Bünyamin Sürmeli

Participants:
Lidya Lara Şahin *and*
Zehra Dağlı *from the Grant Project of Antalya Metropolitan Municipality*
Nisa Erdem *and*
Buse Taşpınar *from Niğde Ömer Halisdemir University*
Melda Karademir *and*
Taha Özkan, *Kadıköy Municipality's Climate Ambassadors*

Sürmeli:

We mention carbon dioxide as a big item when we talk about climate change. CO2 increase is important for us, isn't it? It is the reason behind it all. Do you know how much CO2 is in the atmosphere? 0.04 percent is CO2. Even those under the age of 20 can now observe the climate change. What creates all this is a change in this 0.04 percent. A change of 1 or 2 in 100 thousand or million makes us experience all this. If our young people can inform 10 people around them, wouldn't it make an impact in the world? It would. If we assume that we made a difference in Turkey only among 7 billion people, if we assume that 80 million out of 7 billion live properly, avoid emitting carbon to the atmosphere, wouldn't it make a difference in the world? Don't tell me what we do wouldn't make a difference.

For this reason, our young friends make up the most important part of the panel. Because they can reach people. They can reach people

around them.

Let's hear Zehra's poem.

I became a flower
My mother was soil, my father was the sun
The sea was my friend
First I sprout
Said 'Hello' to the world
Then I grew
But couldn't find friends to greet around me
I asked the drying poplar next to me
They had polluted my mother
She doesn't give me sibling anymore
I turned my head to the sweeping wind
They had made my father angry
He would burn and fry everything from now on
My eyes looked for a friend
I saw, but couldn't recognize them
The fish saw my suffering
They answered me with their last breath
They had poisoned my friend
I longed for the blue
I longed for the comforting rain
I longed for cheerful sounds of birds
I became a flower
Found my world destroyed
Then I suddenly remembered humans
Turns out they were
Involved in this scenario all along

Lidya:

Hello, dear elders. The average temperature of our world has increased by 1.5 degrees since the 19th century. What causes global warming, which is the main reason behind the temperature increase, how does it hurt the world, and what can we do to prevent it?

As you know, the most important cause of global warming is fossil fuels extracted from underground, which disrupt the oxygen-carbon dioxide balance in the atmosphere; thus the greenhouse effect occurs. The ozone layer is depleted. Let's talk about its harms. Glaciers in the poles, the coldest regions of the world, are melting, animals are dying, water levels are rising, and the climate is changing. Natural disasters now occur more frequently.

As the city of Antalya, we contribute to global warming, too. The use of fossil fuels, unconsciously used pesticides, marble quarries, degradation of water resources are very common in our city. In recent years, we have seen an increasing number of tornados, tropical fish invading our seas, and increased air pollution, which are early signals of climate change.

These are developments that could ruin our future. These may destroy the future of us, the youth, our children, and our grandchildren. You adults are leaving us a very bad legacy to live with. We will have to deal with these problems. The world is our common heritage. We have the right to speak. You have to leave us a better world than you found. When we grow up, we want to breathe the same clean air, walk in the same clean forests, swim in the same clean sea. It's not impossible to prevent the temperature rise. I will give you an example of what you can do. Improve the forestation efforts, save energy. Use solar energy. Consume less. Reuse. Recycle and reduce the use of fossil fuels. So that our future will be brighter. We are taking lessons. We are doing our homework. Please don't forget your obligations to us. Fulfill your duty.

Sürmeli:

Thank you very much. If we listen to it as a matter that concerns adults as well, she said some very striking things. She says, "You're violating my rights, you're not leaving me a world to live in."

Lidya and Zehra are joining us today from Antalya. They are not here only to tell us this. They are actually spokespersons for studies conducted on adaptation of coast to climate change. Thank you very much.

Zehra:

The Project on Adaptation of Antalya's Sea and Coast to Climate Change is carried out by Antalya Metropolitan Municipality and Turkish Marine Research Foundation. We are here today on behalf of our friends and our generation to raise awareness within the scope of this project.

Sürmeli:

Now, two ladies from Niğde, Nisa and Buse. Welcome. They're carrying out works that reach people, too.

Buse:

First of all, let me start by telling our climate journey. One day, they hung posters our school, saying the climate change is coming, and we were curious about what this is. Then they performed a test. In this test, we did not understand anything. Then they came for a conference. At first, we were glad that we could skip the class. Then it grabbed our attention, we were very curious. We listened very carefully to the presentations.

Nisa:

It was actually the same in our school. It's usually boring when they come to our school for a conference. We usually fall asleep. I thought I would get bored. But when I went down for the presentation, the time flied by and we were very excited.

Buse:

What have we learned in this project training? Climate, greenhouse gases, sources of greenhouse gases, climate change, how to fight it… We also learned about the carbon footprint. This is the first time I've heard of the carbon

footprint. After that, I have started to think about the carbon footprint of everything I ate and did. I have also realized that renewable energy resources also affect the carbon footprint.

Nisa:

Of course, we have not let what we learned in this training go in vain. We have applied them in our daily life. We spread it around us. For example, last summer, we took our dusty bikes in the cellar and started to go everywhere by bicycle. We went everywhere by bicycle all summer, which was so much fun. I recommended it to you, too.

We usually have products containing palm oil in our cafeteria. Actually it's in most of them. I also told Sadi, the cafeteria's owner, what palm oil is, why it is bad, why we shouldn't consume it. To warn Sadi. I insisted for an entire semester and observed a serious reduction in the second semester.

I applied these myself, but I informed my peers as well. I have a lot of friends who stopped consuming products containing palm oil after I explained them its harms. Their awareness has increased.

Buse:

We started to take the stairs again. I noticed that the elevator consumes a lot of energy. That's why we use stairs now. We put up educational posters on the elevators for those taking the elevator. Now, when people are thinking about where to look in the elevator, they can learn something by looking at the educational posters.

Nisa:

Also, there are separate bins for recycling in our school. We throw all our recyclable waste into these bins. We also decompose our waste at school.

Buse:

I sort plastic and paper wastes at home as well. I have also raised my family's awareness.

After the trainings, we purchased an energy class A fridge. I had talked to my father back then, we specifically purchased a class A. Now, we explain why when we have guests.

Nisa:

Also, our teachers handed us cloth bags. We used these cloth bags. We use them when we go to the store. Because the colors are also attention grabbing, people around me also asked what it was. I told them about cloth bags taking the opportunity.

Buse:

Our teachers said that climate-dependent sectors were going to be formed. Last Monday, a solar panel factory was opened in Bor. We got to see it.

Nisa:

This factory has a panel production capacity of 5 GW.

Buse:

We learned a lot from the climate project. It was very beneficial. Because...

This is our climate.

Sürmeli:

Thank you very much. Why do we need education at a young age? Because when these girls take our places in 20-30 years, they will not allow anyone to read a letter like Lidya's. They will treat the world better.

Now, Kadıköy Climate Ambassadors. They are taking actions influencing their immediate surroundings.

Melda:

Hello, I am Kadıköy Climate Ambassador. We have been involved in the integrated and participatory climate action project of Kadıköy Municipality. Within the scope of this project, the Kadıköy Climate Ambassadors emerged as a civilian initiative. Despite the successful completion of the project, we still continue to work actively. We come up with projects both for providing information and raising awareness.

Taha:

First of all, who are we, Kadıköy Climate Ambassadors? We have received training as part of the integrated and participatory climate action plan of Kadıköy. Then, we started our activities. We're still going on. What we want to do is to tell resident of Kadıköy about things that might prevent these issues and problems that occur in Turkey and around the world.

We received trainings on April 1st and 8th. The participants held a meeting with the World Cafe session on April

13th-14th. Our current mayor, Aykut Nuhoğlu, also attended this meeting. He shared his opinions with us. The issues we discussed at that meeting were included in the report on the action plan for sustainable energy and climate adaptation.

Our starting point was the Kadıköy Environment Festival. On June 5th, we assumed a role and introduced ourselves to the society for the first time. The good thing is, we've filled about 4,000 forms. This showed us how to draw a path using feedback, and we introduced ourselves to people in Kadıköy.

We have been continuing our works in the Ecological Park, which is our new home.

Sürmeli:

What are those works?

Taha:

A training called the World in My Schoolyard was provided for preschool teachers. We were asked to get their feedback. We were asked to visit mukhtars. We visited about 40 schools and 21 mukhtars one by one and collected feedback. The feedback from this education for children was promising for us. Because kids pay more attention to these things both at home and school. Both school administrators and educators said so. We also forwarded this feedback to Kadıköy Municipality.

On September 8th, the California City Council made a call to all local governments. We also asked for support

from Kadıköy Municipality as civilians. On this path, we organized two events on September 1st and 8th. Before that, we had a meeting with our Mayor. Then we printed these posters for September 1st. On September 1st, we shared the documentary adapted from Naomi Klein's book "This Changes Everything" with the Kadikoy residents for the first time in Koşuyolu Park. Our aim on September 1st was to make a call for September 8th. To reach more people. I think we've succeeded.

Melda:

Hello again. First of all, let me introduce myself. I'm an environmental engineer. I am currently a PhD student at the Urban Planning Department of YTU. As Taha mentioned, we organized a documentary screening on September 1st. We gave voice to the climate in Kalamış Atatürk Park on September 8th. It was an international call. As Kadıköy, we became one of the two districts that responded to this call. In the preparation phase, we held a windmill workshop in the Design Workshop in Kadıköy. Then, Mr. Mayor gave a speech in the event venue. He emphasized that climate-related activities should be carried out not only in the public sector, but also with climate volunteers. The opening involved riding our bicycles from Bostancı to Moda. Then we drew attention to climate studies by setting up stands. At the end of this event, we gave a voice together for the climate with the participation of our mayor. Then we continued our works. First, we participated in Kadıköy 2019 Environment Festival workshop. We worked with NGOs as rapporteurs. Secondly, we held a Katowice summit, a panel was held at the Istanbul Policy

Center. We attended as climate ambassadors. Our third activity was the energy efficiency week between 7-13 January 2019. In order to draw attention to energy efficiency, we posted awareness-raising videos on our social media accounts on a voluntary basis. We participated in a joint project of TUBITAK and EU as stakeholders. We actively participated in their energy consciousness workshop. We had the opportunity to express ourselves by taking part in the experts' meeting with participants from the ministry and the municipality. Finally, the UN Climate Summit for Cities Project design workshop was held in Kadıköy. There was also a simulation of the Climate Summit in Poland. So we participated in that as well.

We are currently working on sustainable energy training. We also started to design projects to reduce the urban heat island effect. We are also working on green spaces and corridors. We want to be your stakeholders in efforts related to rain water, water management, and community health. After all, climate is an issue that concerns all of us. We would be very happy if we could work with organizations that are aware of this. You can contact us anytime.

Sürmeli:

As you know, the world heats up slightly more at the equator zone and less at the polar zone. Thus, the world has to reach a balance somehow. For this reason, there is constant heat transfer from the equator to the poles. As a reference point, we can clearly see that that the glaciers in the poles are melting. But imagine that you have a piece of ice on your head. What happens if all the heat in your head goes to the ice? It will start to warm up, but it will fall forwards or backwards, even in the form of ice. When it warms up this much, the cold can somehow go down, forward, or back. It often goes to the United States in this period. What we call a polar vortex. The cold flows through the middle parts of the US with the loosening of jet currents. And freezing temperatures occur reaching -30, -40 degrees during the day. Trump shared a tweet about this. In the middle of that freezing cold, he tweeted, "Oh, do you see how hot it is?". What he actually means is, "You were talking about global warming. Where is it?" When these young people begin to occupy decision-making positions, they will use initiative to carry out more environmentally friendly activities in favor of the climate. Hence, we thank them for their devotion to such efforts.

Panel: Local Climate Financing

Moderator:
Talat Yeşiloğlu
Editor in Chief
Economist Magazine

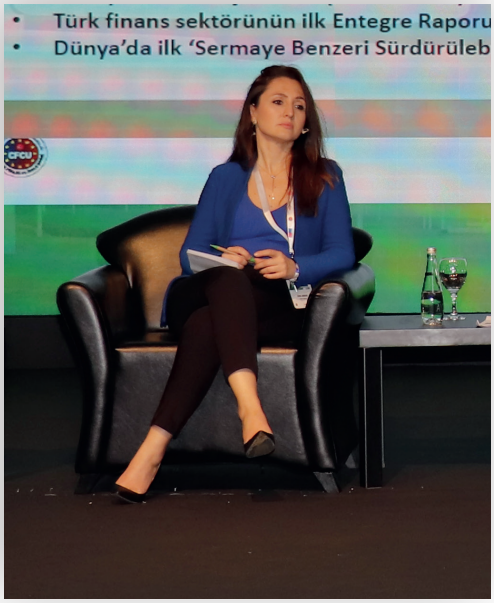
Participants:
Esra Arıkan
Senior Environmental Specialist, World Bank Turkey
Emre Oğuzöncül
Director (Energy Efficiency and Climate Change), The European Bank for Reconstruction and Development
Derya Özet Yalgı
Sustainability Director of Garanti Bank
Gizem Pamukçuoğlu
Senior Manager, The Industrial Development Bank of Turkey (IDBT)
Derya Sargın Malkoç
Deputy Director, Türkiye İş Bankası

Yeşiloğlu:

Thank you all, hello. The last session of the two-day conference will be with our banker friends. Funding is very important; I would like to briefly explain why. I have been working in the journalism industry for 32 years. I have worked in the economy department for 30 years. So, I didn't see a project without funding. Mrs. Talu told this, Greta was first in Poland in December. After that, she attended the World Economic Forum, also known as the Davos Economic Forum, which has been hosting the world's leading business people and political figures since 1970s. She came by train, a 3000km ride, to talk about carbon emissions. Many CEOs listened to her, but in a somewhat sarcastic way. Because they came to Davos with about 1500 private jets. It will sound ironic, but young people like Greta are not only in Sweden, Norway, Denmark. They are all over the world. As you know, groups are forming in Turkey as well, in Bebek Park, in Ayvalık. I don't think CEOs who don't listen to Greta or Ege today, or young people in Iğdır, will be able to keep their seats in the next few years. Because the share of the generation that we call generation Z in total population is increasing. They will gradually have more decision-making power and higher influence on economic activities of companies. Thus, I think that the more activists like Greta emerge, the more they talk about climate, and the more companies will have to discuss these measures more seriously. We said Davos, we said Greta... 5 risks were pointed out in the final declaration in Davos. These are the most likely to happen. First, the greatest risk, unusual

weather events. The second is the failure to prevent the climate change and adapt to it. The third is natural disasters. The fourth is data diddling, and the fifth is cyber attacks. CEOs actually associate 3 of the 5 risks that can affect the world the most and have the most impact on the economic and political future of the world with climate. Therefore, I think that CEOs of companies will consider them more in the coming period. Let me give you another figure to how important funding is. The amount of investment necessary for a more livable world ahead of us is about forty trillion dollars by 2040. I don't know what kind of a calculation was made. If we consider that the total size of the world economy is around 80 trillion dollars, it becomes clear how big that number is. Hence, it shows how accurately the credit and funding opportunities of our dear banker friends should actually be used.

Arıkan:



Let us briefly talk about funding sources, how it can be obtained from the World Bank, a international financial institutions. The World Bank is an organization which consists of 189 member countries continuing its operations around the World Bank and in Turkey since the 1950s. It supports Turkey's sustainable growth in particular through credit and grant tools. One of the main focus areas of the World Bank group is climate change and it is an organization which has high objectives regarding this, makes promises, and strives to fulfill them. One of his latest promises is to increase the amount of credit given for climate change to 200 billion dollars between 2021-25. 50 billion dollars of this will be used in adaptation projects. Of course, if they can ensure this is used in the right places as you say, we're talking about a very good sum. In my speech, I will rather touch on funding options which are more specific to Turkey.

There is still much work to be done in Turkey. The potential for combating and adapting to climate change is still a very high in Turkey. How does the World Bank work with Turkey? We sign a four year partnership agreement, a strategy document between the World Bank and the Ministry of Finance every four years. One of the important topics within the strategy that we signed between 2018-2021 is, of course, sustainable development. Large investments have been made in sustainable energy and cities. Every year, the World Bank extends a credit line of approximately USD 1.4 billion. There are small amount of grants as well. If you ask why sources of grants are limited, the World Bank has a national income per capita criterion. Turkey is regarded as a wealth country with a per capita income close to USD 10,000. Therefore, grant sources may be limited. But our interest rates are low and payback period is long, so our loans are preferred a lot. We are also preferred because we have easy access to climate-related funds and grants such as the clean technology fund, especially in the climate field. Let me tell you about the projects we have. I'm not going to mention closed projects. The new agenda includes the development of geothermal energy. There's a USD 300 million loan package for the private sector. Apart from that, we have energy efficiency and energy efficiency in buildings support for SMEs - a very new project, about to be signed - There is a loan of USD 150 million and USD 50 million for clean technology fund support. Of course, it is not enough to generate renewable energy; the system still cannot fully sustain this. Thus, we work closely with TEIAS. We have invested in smart grid systems to prepare the system for this tidal or non-continuous energy. And we are trying to improve the transformer substations to get more renewable energy.

Perhaps the most interesting for the participants here, and most importantly the representatives of municipalities, is the sustainable cities project that we organize in series. This is a continuation of the municipal services project that we have been running together with the Provincial Bank for years. We are currently providing support to Antalya, Muğla, and Denizli Metropolitan Municipalities. For now, investments mainly focus on water, wastewater, and solid waste. But a new one is on its way. It comes in a very big package. It comes with a package of USD 500 million to be implemented in the next 5 years. It's a little more climate-oriented. It's especially related to light rail systems, bicycle paths, green buses, disaster risk management, and flood and overflow protection. If the municipalities need investment, they can reach us through the relevant institution, the Provincial Bank. Prioritized municipalities will receive USD 500 million in support over the next 5-7 years.

Yeşiloğlu:

Mrs. Arıkan, I'm curious about something. There was an attempt to build a 0-carbon city in Dubai and Saudi Arabia in the Middle East. If such an initiative comes to Turkey, would it be subjected to positive discrimination? In other words, how can a municipality get support from the World Bank if they say that they will create a 0 carbon district?

Arıkan:

I believe it would get tremendous support. Because there are a lot of requests for projects, the country priorities surely apply, but we have our own evaluations as well. If there is a city to provide a commitment to climate, I think it would be received well. You know, there are popular words such as "smart cities", "sustainable cities", "zero waste", "zero carbon cities". These change depending the conjuncture, but my guess is that we would be interested.

Yeşiloğlu:

Mr. Oğuzöncül, as the representative of the European Bank for Reconstruction and Development, can you please tell us about your efforts and funds that you provide.

Oğuzöncül:

I'll use the advantage of being in the last panel and refer to previous panels. First of all, I'd like to thank Mrs. Talu, she talked about us briefly. EBRD was established in 1991, after the dissolution of the Soviets, with the aim of including countries that left the Soviet Union in to market economy. It's owned by 67 states including Turkey and 2 institutions, the EU and the European Investment Bank. It has expanded in terms of its geographical reach and it has operations in 38 countries from Morocco to Mongolia.

We invested about EUR 9.5 billion in 2018.

We have operations in Turkey since 2009. Although Turkey had been a member since 1991, our operations began in 2009. So far, we have transferred EUR 11.1 billion to various investments in Turkey.

You will not see the branches of our bank, we have two offices in Turkey. One in Istanbul and one in Ankara. We have about 80 employees.

We're talking about the Paris Agreement. With the increasing awareness regarding climate change, we have actually evolved within the bank. First, a unit called energy efficiency banking was established in 1994. Then, in the 2000s, it expanded a bit and energy efficiency banking became a sustainable energy mission to cover all sector teams. We started to finance renewable energy as well.

About 10 years later, in 2013, we added water efficiency, resource efficiency, which we can also call raw material efficiency, and turned this into a sustainable resource mission.

In 2015, we spread turned this into an even wider concept in line with the Paris Agreement. We wanted to take a more objective approach. The transition to green economy by including all environmental projects and wastes is also known "GET", we have created an approach called green economy transition. Our goal in this respect is to direct 40% of our bank's investments will to projects related to GET by 2020.

What have we done in Turkey related to GET projects? Turkey is the country where our portfolio is the widest. Although we have been in operation since 2009, our biggest investments have been in Turkey.

Actually, we have achieved the GET number long age in Turkey. To this day, EUR 5.3 billion of the portfolio amounting to EUR 11.1 billion were transferred to projects related to sustainable energy, energy efficiency, source efficiency, and waste management. With these investments, we have contributed 2.6GW of renewable energy. 2.6GW corresponds to 6% of Turkey's renewable energy capacity. Atatürk Dam is 2.4GW. We contributed to renewable energy in Turkey on a slightly larger scale than Atatürk Dam. There is of course geothermal, bio, sun, wind, and hydro.

Thanks to our investments, we achieved a reduction of 11 million tonnes of CO2 equivalents. There are 22-23 million registered vehicles in traffic in Turkey. This corresponds to 11 million tonnes of emission, approximately

2.2 million vehicles in a year.

In terms of water saving, we achieved 8 million m3 per year. This corresponds to annual water use of 45,000 household.

We are a development bank. Our activities include commercial finance and we can provide preferential funding by working with various institutions. We provide access to grants by working with donors. On the other hand, we provide technical consultancy and policy dialog services. I will talk about these.

We have a project called the new zero waste, which may be similar to the zero waste project of the Ministry. We launched it in 2015. We are working with various private sector companies to support projects that will reduce waste. At this point, we are able to offer very favorable loans thanks to preferential financing from CTF. What we are trying to achieve here is to offer this preferential financing to companies who want to switch to waste reduction technologies earlier than their competitors. To date, we have provided approximately EUR 142 million EBRD financing and EUR 9 million CTF financing to 6 major projects. A material saving of 810 tones was achieved.

Who did we work with? We worked with large companies. Sütaş, Şişecam, etc. Şişecam's glass collection boxes are a product of this project.

Once the new zero waste project was initiated, a child project called Materials Marketplace of Turkey emerged. This is actually a B-2 platform similar to eBay. We conducted this project the Sustainable Development Association. Thanks to this platform, companies can use byproducts or scrap products of other companies. Our purpose is to achieve a circular economy in Turkey. This is our goal. We have 71 member companies right now; our goal is to expand this to a country-wide platform.

There is a project name EBRD Green Cities. First, we took part in Gaziantep's climate change action plan. This action plan was the first time that we were involved in a city's action plan. Gaziantep was a good example for us. After that, we thought about how we can expand and enter 20 cities, which includes Izmir in Turkey. This involves both financing and a green city action plan. We hope to start this in Izmir next month. Our aim is to increase the

number of cities from 20 to 100. That's why we want to work with other cities in Turkey.

Finally, the GEF program. In Turkey, there are three programs named TURSEFF, MIDSEFF, and TUREFF. TURSEFF is the oldest of these, almost a ten-year program. It's about energy efficiency and renewable energy in SMEs. Then we added municipalities. So many projects have been funded - there is an upper limit of EUR 5 million. We have distributed EUR 580 million in total. There is a solar portfolio of about 350 MW here. There are several energy efficiency and resource efficiency projects. The electric bus investments of Kayseri and Manisa municipalities are also within the scope of TURSEFF. We work with local banks here. We provide banks with funds, banks provide customers with funds and also technical consulting.

MIDSEFF is the bigger version. Over EUR 5 million. TUREFF, on the other hand, is a program that we developed together with urban transformation aiming to achieve energy efficiency in residences. All 3 are currently active.

I just mention policy dialogue. We worked with the Ministry of Energy on projects such as national energy efficiency and national renewable energy action plan which was released earlier. Together with the Ministry of Environment, we are working on eliminating waste, "end of waste". We are working on a regulation that will change the definition of waste so that waste from industries such aluminum, iron-steel and glass can be brought back in the economy. We are currently in the process of drawing a roadmap, it is a very new project. But we believe that once this is implemented, we will be able to reach a circular economy.

We are also working on biofuels. We also worked on how to shape YEKDEM after 2020.

Yeşiloğlu:

I want to give the floor to Mrs. Yalgı, the Sustainability Director of Garanti Bank. I am particularly curious about the transformation that has taken place after the Paris Agreement and your approach to the green loans that you have granted.

Yalgı:

Thank you. I would like to thank all supporting institutions, the Ministry of Environment and Urbanization in particular, for their invitation.

In 2013-2014, we made an attempt to look at this issue more strategically and to find solutions for it. We decided to address climate change in four components. We first thought about how to prioritize low carbon investments. At this point, we have adopted the shadow carbon price practice, which is quite new in the world. Then we implemented a deforestation reduction solution which is a little different from the rest of the world in terms of most standards and which we see as a solution specific to Turkey as Garanti Bank. We had a project to protect old forests, to compensate for coppice forest species, and to plant more of these species. We did this in the form of applying it to all the loans that we provide. None of them is just a social responsibility project. The third is green office standards.

When we look at the effects created by our loans, the amount we can reduce with green office standards is very low. But there is a carbon emission reduction goal in all Garanti Bank branches in Turkey. Fourth, we had a special action to deal with Turkey's water crisis. We took action to manage the impacts of the projects that we financed. All of this is part of our bank's environmental and social risk management. The picture below shows how we implement these systems in all customer segments. Here we take these actions 100% in the entire portfolio. But let's say that this is a project financing operation, we finance millions of dollars of investment, and its effects are much greater. Then we take much more sophisticated measures.

As you have heard here, there are systems implemented by banks around the world, such as the Equator principles. Additionally, we also raised the issue of carbon pricing. For many years, we have been aware of the environmental and social risks of fossil fuel power plants that can turn into both financial and nominal risks. But somehow we had to put approval processes into a methodology. By applying carbon prices in all cash flows within these projects, we started to evaluate them as if there was an additional cost item compared to renewable energy projects. The prices that we considered at the time would cause 30-35% minus change over EBITDAs. Likewise, we started to prioritize renewable energy. We started to reflect this price on them positively. As a result, 100% of the loans that we provided to the new power plant since 2014 went to renewable energy projects.

We do these things, we take action on these issues as a bank that has most of its operations in Turkey. However, there are some regulations in Turkey, whatever the investment trends may be, banks have transparency to developments in the EU. Whatever happens there, the same thing happens in Turkey as well. Or they are reflected in our credit terms. Why? This is the shareholder structure of our bank. Nearly 49% are owned by a Spanish bank. When you look at the rest, 44.96% are institutional investors. Only 44% of them are investors are what we call SRI inventors, who transfer their portfolios to companies that manage them environmentally and socially well. On a country basis; the UK, North America, the rest of Europe... All changes we make here must comply with their standards, otherwise it is reflected as a negative for us. This whole partnership structure also applies to the real sector, which is mostly foreign.

I gave a few examples of the questions that we received. They are even above European regulations. They ask whether we follow good standards. So we have to comply with the best standards and there is a race with Brazil and China and other developing countries in this regard.

We're a commercial bank. But last year, 5.8% of the amount necessary to fund the bank itself was achieved through agreements with strict environmental and social criteria. This year, it will be 10-12%. Maybe it will increase even more. The rest includes some basic environmental and social standards. Therefore, we have to follow these standards on the borrowing side.

There is a significant increase in social bonds, environmental bonds, and sustainable development bonds around the world. Turkey was excluded from 4-5 of them. We made one of these, one of them was about green mortgage. We have a USD 150 million transaction with IFC and a EUR 75 million transaction with EBRD. We have been issuing social bonds for financing women entrepreneurs which we have been focusing on for years. We also have provided more than USD 5.2 billion in loans to renewable energy. The green loan structure is a growing practice in the world after green bonds. We have implemented 3 green loans including Garanti Bank in the Netherlands.

Actually, regarding green bonds, we issue a bond and we have a commitment to make the incoming resources available to sustainable fields. Green loans have been getting more popular for the last two years. Last year alone, there was a volume of USD 167 billion in green bonds. Green loans are taking baby steps yet. But these

were seen in Turkey. When you are giving a loan, they take a picture of you in the due diligence stage with regard to environmental, social and governance issues. Then the loan agreement is signed. The interest rate of the loan decreases as your performance increases during the term and vice versa. The goal is that both parties manage to keep the risk at least constant. Even the bank encourages improvements in this.

I mentioned two in Turkey. One of them was implemented by Zorlu Energy, a corporate loan worth USD 10 million. The other is Akfen Energy, a loan of approximately USD 260 million. There are many banks involved in this. We're one of them. We have been there as the sustainability coordinator.

What does the future hold for us? In the past, we would always manage the risk on a transaction basis. Now, we will start to follow these on a portfolio basis. The same trend, just as investors or borrowing institutions consider whether the entire bank is sustainable or not, banks will consider whether the institution that they finance is sustainable in all of their operations, not only the funded operation.

In connection with this, there are some methodologies that analyze the situation of all institutions in the world according to various scenarios. Scenario analysis stands before us as an assignment. Thank you.

Yeşiloğlu:

We also have Mrs. Malkoç here, she is representing İşbank. On behalf of İşbank, she will provide information on environmental and social risk management practices in loans and the financing of renewable energy.

Malkoç:

Thank you very much. In fact, the Paris Agreement points to a very important global consensus on combating climate change. It also accelerated and embodied climate action.

But when we look at the practice, we are actually far behind what is desired. There are many valuable scientific studies on climate change. But I think one of the most recent works that is very clear, concrete, clean is the UN Environmental Program's 2018 Emission Gap report. If we want to achieve the 2 degree target of the Paris Agreement, we need to make at least 3 times more effort if we want to reach the 1.5 degree target. This is indeed a very serious need for all of us in terms of acceleration.

Our to-do list is long, but when you think of 2030, it is important to keep in mind that our time is limited.

Therefore, effective and comprehensive and collaborative actions are very important.

As İşbank, we believe in the transformative power of financing. We also believe that it has both resources and positions to find solutions to global problems specific to the financial sector.

The topic is broad but I would like to briefly talk about renewable energy and then our environmental impact assessment model, both of which have been on the agenda for nearly 10 years in our bank. But with the

acceleration provided by the Paris Agreement, they are now given more place.

This was also discussed in the afternoon sessions, energy is one of the key sectors. Therefore, any investment in renewable energy is the basis for combating climate change. The financing that we provide for renewable energy is one of our most significant steps in supporting the transition to a low carbon economy.

While this support meets the increasing energy needs of the country, it also provides energy security with environmental solutions.

As of the end of 2018, the share of energy project financing in our entire portfolio is over 50%, a higher rate than the country's installed power. We want this to keep going up.

We also benefit from the resources that we provide in cooperation with international financial institutions in the financing of renewable energy. Mr. Oğuzöncül gave the details. Our cooperation with international financial institutions such as EBRD, IFC, and EIB is extremely important. Their criteria also raise the bar for us.

Identifying the environmental and social risks of the financed projects, determining the extent of these risks, determining what can be done to limit the risks and impacts, and evaluating all of these before credit allocation and taking into consideration the credit allocation decisions are the factors that stand out. In short, the assessment and management of environmental and social risks as well as these traditional economic and project feasibility risk is very important in credit assessment processes.

In fact, when we look at the results of scientific research related to the fight against climate change and the cooperation so far, we have to accept that the responsible financing approach will be the new normal of the sector. The main issue for all of us is how fast this new normal will be a reality.

Our current lending practice involves conducting environmental and social impact assessment for all projects with

an investment value of more than USD 10 million, both on a project and investor basis. We have a model for this. This model has been prepared with reference to the expectations and standards of international organizations such as EBRD, IFC, and way beyond national legislation. Within this framework, we evaluate projects under 26 main components including natural resource use, waste management, air pollution, water pollution, environmental impact, stakeholder participation, complaint mechanisms, and occupational safety and so on. As a result of this multidimensional assessment, investment demand is classified into 4 different risk categories. According to the category of investment, it is defined whether the project will be financed, if it will be, what to do to eliminate these risks and impacts, or it's not possible to eliminate these risks, then to reduce and compensate.

A number of scientific plans are determined with the participation of technical consultants in the background. These actions are presented to the investor as a commitment list and included in our loan agreements. We're trying to sort of guarantee it. It is monitored whether these commitments are fulfilled regularly with the participation of the relevant teams of our bank throughout the loan term.

This holistic approach that considers sustainability in our environmental and financing decisions also enables us to finance projects that support climate action both locally and globally. In our risk assessment approach, we address environmental and social impacts as a whole. This enables us to improve our customers' perception of climate-related risks. Some of the companies are already conscious about it. For those who are not, it is a new perspective and a new risk management area. When we look back, we have made these companies more prepared, stronger, and more robust against climate risks. Here, capacity building has the effect of raising the bar all together. In this way, we ensure that investor companies prioritize and contribute to the fight against climate change.

Yeşiloğlu:

Mrs. Pamukçuoğlu, you are here representing IDBT. Where do you stand in this picture? What kind of efforts do you have?

Pamukçuoğlu:

Thank you very much. As IDBT, we will continue providing support in this field as the only development and investment bank of Turkey.

I want to start with our mission. We are working with the mission of supporting Turkey's economic development and improving capital markets. Our vision is to become the first bank that our stakeholders consult and prefer to become a partner for Turkey's economic, environmental and social development.

We are Turkey's first development and investment bank. Therefore, we do not engage in retail banking. We don't collect deposits. We mainly work with corporate companies. We make the real sector aware of this issue and develop these investments with the financing opportunities we provide. In fact, since the early 2000s,

sustainability has been at the heart of IDBT's operations. We are Turkey's first carbon neutral bank. In our loan assessment processes, we make our loan decisions by taking into account not only financial feasibility, but also environmental and social feasibility. We work mainly with transnational development banks. We are working with 11 important institutions such as the World Bank, EBRD, IFC, German Development Bank, Islamic Development Bank and Japanese Development Bank.

Since we work with these very valuable development banks, we are be able to follow what's going on globally, what the agenda is, and how we should contribute to Turkey. We have access to know-how.

Since we do not have the authority to collect deposits, we see the valuable contributions of the Treasury and the Ministry of Finance while providing our various resources.

Funding themes such as energy efficiency, resource efficiency, renewable energy, gender equality, job security, R&D, innovation, SME banking, sustainable tourism are on our agenda and we provide financing in these areas.

On the sustainability side, I think 2015 was a very critical year. For the first time, countries have made commitments to take action in this field with the Paris Agreement. A financing package of USD 100 billion was announced. In addition, the UN has published the Sustainable Development Objectives. As IDBT, we take these development targets into our agenda. We form our business model accordingly.

73% of our loan portfolio of approximately USD 6 billion consists of sustainable loans. Thanks to the loans we have extended to date, we have been instrumental in reducing 12 million tones of carbon emissions.

We financed 290 plants in renewable energy financing. We provided approximately USD 4.4 billion in funding and supported the 6066MW installed capacity. We achieved 9 million tones of CO2 emission reduction.

We have 14% of Turkey's installed capacity of renewable energy financing. In four corners of Turkey, we are involved in projects whose feasibility we believe in. We are definitely trying to support investors in terms of feasibility of projects. Because they are putting capital and the value of this investment is one of the priorities for us.

To this date, we have financed 84 projects in the field of energy efficiency. Energy efficiency can be applied in every sector, we have given financing primarily in iron-steel, automotive, cement, chemical and plastic sectors. We reached a loan portfolio of USD 655 million in total. 2.4 million tones of CO2 emissions were reduced.

Energy efficiency projects: insulation and lighting, energy efficient technologies, plant modernization, energy generation from waste heat, and green buildings.

Resources are very important. We know that access to resources will be much more difficult in the coming years. Resource efficiency is also critical to us. To date, we have financed USD 316 million to 57 projects. We saved about 82900 tons of raw materials. 1 million 280 thousand m3 of water savings, 12 thousand tons of waste savings and 842 thousand tons of emission reduction were achieved.

We will continue these investments. But for this, we need access to financing opportunities. That's why we definitely include alternative sources in our agenda. Especially in 2015, I would like to briefly mention the green and sustainable bonds that are occupying the agenda even more intensively.

Actually, for the first time among the supranational development banks, EIB issued green bonds in 2007. They also wanted to introduce funding opportunities in this area. The market did not use this product much. However, with the Paris Agreement, since the countries undertook serious commitments, they said that they would have

access to resources in this field. And then Poland issued its first green bond. France issued the largest green bond with USD 7 billion. We, on the other hand, issued the first green and sustainable bonds of Turkey, Middle East, Central Europe and Africa in 2016. Our issuance received very high demand. We reached 14 times the investor demand of the issue and approximately 40% of the investors were the responsible investors that we call SRI. This shows that there is considerable interest in this area and that access to finance through bonds contributes to the issuer. We financed renewable energy, energy efficiency and resource efficiency projects under these bonds. The bond also has a social dimension. We also financed social infrastructure projects, gender and health investments. This issuance has been very successful and we have provided USD 300 million to the appropriate projects within a year and published our impact report. Investors also saw that they are instrumental in making a positive contribution to their investments. In 2017, we issued another bond. It was a sustainable bond. This time it wasn't actually just a loan. We issued a subordinated bond. This was worth USD 300 million and in the same way; we used all of the resources we obtained in 1 year to the related loans.

You can see our impact report on our website. We financed over 40 projects in total. And we made very considerable effects. As IDBT, we calculate our impacts ourselves. We have such a capacity because we have a technical team consisting of engineers, financial analysts, sectoral analysts, and sociologists. We can measure both social and environmental impacts.

However, as IDBT, we wanted to get the verification of this. We also assured international impact standards by Ernst and Young in our impact report.

We really believe in this product as IDBT, we have seen many benefits and we want to have an ongoing financing product in Turkey. For example, we see that municipalities in the USA have access to financing through green bonds. Even cities issue green bonds. There are companies as well such Apple and Starbucks. Therefore, this is an important financing opportunity. We also provide consultancy support to make this more widespread. As you know, YDA is an important construction company as well as a giant group. It has a lot of investments that include energy efficiency and health investments. We will support them in issuance of a local green bond in Turkey. They

decided on TRY 200 million with a green and social theme. However, they received a serious investor demand and increased the issuance amount to 400 million. IDBT's sustainability consultancy company, Escarus provided an independent 2nd Party opinion report. In this report, it was confirmed that the framework of the bond issued by YDA was in compliance with internationally accepted Green Bond Principles. We will also prepare a report that measures the contribution YDA made with the bond.

Thank you very much for your time and attention.

Yeşiloğlu:

We have a few minutes for questions.

Question:

What kind of a cooperation can we arrange with the ministry? What steps should be taken as part of the procedure? I know you also provide technical consulting, is that true for all of you?

Pamukçuoğlu:

As IDBT, we worked with the Ministry of Development for the 11th Development Plan. At the same time, both IDBT and Escarus are always open to all kinds of support and services. We will gladly try to help.

Oğuzöncül:

I mentioned the policy dialog in the presentation. In fact, we are currently working on many projects with both the Ministry of Environment as well as the Ministry of Energy and Industry. In such projects, we determine the shortcomings and what needs to be done together with this ministry. Once we have found the relevant donor funds, we can produce projects. The "end of waste" project is one of the projects that we carried out with the Ministry of Environment.

Yalgı:

We have a sustainable finance working group within the Turkish Industry and Business Association. We will issue a declaration as representatives of the financial sector, and we would love to discuss it afterwards.

Malkoç:

Lending to public institutions is our main field of activity. You can get a loan directly with a Treasury guarantee or if you are included in the central budget. This is prioritized together with the Ministry of Treasury and Finance and the project is being developed with us. We are about to sign a USD 300 million project with the Ministry of Environment and Urbanization. We have credit projects as well as small technical support projects including a grant, albeit very small.

Question:

I'm a community health specialist working on climate-health relationship. During your presentation, Mrs. Sargın, you opened a paragraph regarding the effects of investments in terms of climate-related community health. I'd like to thank you for that. I'd like to access your risk assessment materials related to that. Are they open to access?

Malkoç:

It is not open to access as far as I know. But I will discuss this with the relevant team in our bank to see whether or not we can at least share main titles.

Question:

We need to develop materials about this. The issue of climate and health - WHO has published a report for the first time after COP24 - a topic now on our agenda. So I'm going to contact you and ask you to help me with this. Thank you.

Question:

I have a question for the IDBT representative. You mentioned in your presentation that you supported HEPP projects. As an institution, do you follow how the projects that you support are operated, whether there is any resistance by the locals? HEPP projects in Turkey are implemented in a very unscientific manner. Do you follow the projects that you support in terms of these aspects?

Pamukçuoğlu:

We have been financing energy investments since the early 2000s. We have financed the first HEPP investments in Turkey. So, we have actually financed HEPP projects which we believed to be efficient and we have not financed HEPP projects for the last 2-3 years. Because if we don't believe in feasibility, we don't take part in those projects. Environmental and social impact is very important for us. We have not been involved in HEPP investments for a long time, but we do all the work and analysis that you mentioned. Since we mainly provide our resources from supranational institutions, we have various criteria and reporting obligations. We follow these projects in terms of their impact and contributions throughout the loan term.

Arıkan:

All intermediary financial institutions working with us must comply with the World Bank's environmental and social impact and performance criteria that set standards in the world. From time to time, this is above our own EIA legislation. Sometimes we talk to the Ministry to see why there is still a difference. It's always possible to do better, and we want to take the standards up a bit. Especially in relation to HEPP, we carried out a cumulative impact assessment study with the Ministry, which is not required by the legislation, but we believed that it was necessary, and then there was a good change in the regulation thanks to this.

Yeşiloğlu:

Thank you for your participation and patience.

Annex 1. Agenda

1st International Conference on Local Climate Action
15-16 March 2019 Antalya, Turkey

DAY 1

09.00-10.00 Registration

10.00-10.50 **Opening Remarks**

- Mr. Angel Gutierrez Hidalgo de Quintana, Acting Head of Cooperation, Delegation of the European Union to Turkey
- Mr. Menderes Türel, Mayor, Antalya Metropolitan Municipality
- Prof. Mehmet Emin Birpınar, Deputy Minister, Ministry of Environment and Urbanisation

10.50-11:00 Photo Shoot

11.00-11.20 Coffee Break

11.20-12.30 **Panel: Climate Action from Global to Local**

Moderator: Prof. Mehmet Emin Birpınar, Chief Negotiator for Climate Change for Turkey, Deputy Minister, Ministry of Environment and Urbanisation

- Mr. Ovais Sarmad, Deputy Executive Secretary, United Nations Framework Convention on Climate Change (UNFCCC)
- Dr. Shipra Narang Suri, Coordinator, Urban Planning and Design Branch UN-Habitat

12.30-13.20 Lunch

13.20-14.00 "Climate Change Adaptation for the Sea and Coasts of Antalya "and "We Combat Against Climate Change with our Bicycles" Grant Projects' Display in the Foyer Area

14.00-14.20 Sand-art Demonstration

14.20-14.40 **Local Climate Action Policies and Practices in the European Union**

- Jose Ramon Picatoste Ruggeroni, Adaptation and LULUCF, European Environment Agency (EEA)

14.40-16.40 **Panel: Local Governments and Climate Action Policies and Practices in Turkey**

Moderator: Rıfat Ünal Sayman, Director, REC Turkey

- Abdülmelik Ötegen, Deputy Secretary General, Union of Municipalities of Turkey (TBB)
- Fatih Erol, Director of Environmental Protection, İstanbul Metropolitan Municipality (İBB)
- İbrahim Yılmaz, Head of Agricultural Services, Gaziantep Metropolitan Municipality
- Ali Değirmenci, Deputy Mayor, Denizli Metropolitan Municipality

19.00-21.00 Dinner

21.00-22.00 Fire of Anatolia, Climate Themed Show

1st International Conference on Local Climate Action
15-16 March 2019 Antalya, Turkey

DAY 2

09.30-10.30 **Session 1: Combating Climate Change at Local Level**

- **Disaster Management, Best Practices and Measures:** Prof. Mikdat Kadıoğlu, Faculty Member, İstanbul Technical University
- **Best Practices of Sustainable Low Carbon Transportation and Emission Reduction in Transport:** Tolga İmamoğlu, Transport and Road Safety Manager, WRI Turkey

10.30-10.40 Coffee Break

10.40-11.00 "Niğde High School Students Combat Against Climate Change" Grant Project Display in the Foyer Area

11.00-12.30 **Session 2: Combating Climate Change at Local Level Cities, Green Infrastructure Planning and Best Practices**

- **Green Infrastructure and Best Practices**: Assoc.Prof. Çiğdem Coşkun Hepcan, Faculty Member, Agean University
- **Energy, Community Energy and Energy Cooperatives:** Faruk Telemcioğlu, Secretary General, GÜNDER
- **Agriculture, Adaptation at Local Scale and Best Practices:** Prof. Mehmet Somuncu, Faculty Member, Ankara University

12.30-13.20 Lunch

13.20-14.00 "Capacity Building in Climate Change Adaptation of Agriculture, Forest and Fisheries" and Grant Projects' Display in the Foyer Area

14.00-15.00 **Session 3: Participatory Approach at Local Level**

- **Gender Sensitive Solutions:** Nuran Talu, Senior Expert, Climate Policy, İklimİn Project
- **The Role of Media in Developing Participation:** Bünyamin Sürmeli, CNN TURK Meteorologist
- **Young Climate Supporters' Point of View:** Representatives of Niğde Ömer Halisdemir University, Antalya Metropolitan Municipality and İstanbul Kadıköy Municipality Projects

15.00-15.20 Coffee Break

15.20-16.30 **Session 4: Local Climate Financing**

Moderator: Talat Yeşiloğlu, Economist Magazine, Editor in Chief

- Esra Arıkan, Senior Environment Specialist, World Bank Turkey
- Emre Oğuzöncül, Manager, Energy Efficiency and Climate Change, EBRD
- Derya Özet Yalgı, Sustainability Manager, Garanti Bank
- Gizem Pamukçuoğlu, Senior Manager, TSKB
- Derya Sargın Malkoç, Deputy Director, Türkiye İş Bankası

16.30 **Closing**

Annex 2. Display of Grant Projects in the Foyer Area

“Adaptation of Seas and Coasts of Antalya to Climate Change Project”

The introduction of the ‘Adaptation of Seas and Coasts of Antalya to Climate Change’ project, which was held in partnership of the Antalya Metropolitan Municipality and Turkish Marine Research Foundation, was performed by Elif Özgür Özbek in the foyer area in the afternoon of the first day of the 1stInternational Conference on Local Climate Action. The project whose duration is 24 months and aim to prepare the risk management strategy of Antalya against the climate change by determining the effects of changing climate on tourism, fishing, biodiversity and our historical and natural heritage will be completed on September 15, 2019. In the presentation where the project activities were explained in detail, the activities and results of the project were conveyed to the participants.

Within the scope of the project activities,information was provided about Project Launch, Basic Perception Survey and its results, the affectability maps of coasts, in-museum trainings, capacity building activities and focus group meetings. In addition, it was also announced that a sea survey was conducted, and cooperation was made with the diving centers.

“We Struggle against Climate Changewith Our Bicycles Project”

In the presentation made by Gökhan Atay, the Deputy Mayor of Lüleburgaz Municipality, in the foyer area of the project entitled ‘We Struggle against Climate Change with our Bicycles’ that was held by Lüleburgaz Municipality, information were given on the subjects to initiate a bicycle-taxi pilotprojectfor reducing carbon emissions, to encourage the public to use bicycles against climate change, to determine the carbon emission rates of Lüleburgaz, to raise public awareness on carbon emissions and renewable energy sources, and to cooperate on these subjects with the local actors.

In addition, it was stated that 3 bicycle-taxis were procured and used actively in Lüleburgaz within the scope of the project. It was also explained that bicycle-riding trainings, carbon footprint research, chimney and particle measurements in winter and conferences and workshops were held within the scope of the project.

“Capacity Building in Adaptation to Climate Change: Agriculture, Forestry and Fisheries Project”

In the presentation made by Mr. Kenan Peker in the foyer area of the project entitled ‘Capacity Building in Adaptation to Climate Change: Agriculture, Forestry and Fisheries Projects’ held by Fırat University; it was stated that capacity building for sustainability of production was the main purpose of the project when taking into account the historical effects of climate change among several villages selected by sampling for the representation of 280 forests and villages of the TRB1 Region. Furthermore, the public awareness activities performed within the scope of the project activities, field researches made in TRB1 Region, pilot-schemesin selected areas, trainings, drone shootings, seminars and videos and the documents prepared for the related activities were explained in detail.

“Increasing the Knowledge Capacity and Expanding the Awareness of Niğde High School Students for Struggling against Climate Change by Sustainable Education Project”

In the presentation made by Çağdaş Gönen, Ece Ümmü Deveci, and Meryem Nur AYDEDE in the foyer area of the project implementation,which was entitled‘Increasing the Knowledge Capacity and Expanding the Awareness of Niğde High School Students for Struggling against Climate Change by Sustainable Education’ and carried out by Niğde Ömer Halisdemir University between 14 September 2017 and 14 September 2019, it was stated that the aim of the project was to expand the awareness and increase the knowledge levels of high school students so as to increase capacity on the issue of climate change. Regarding the project activities, it was also expressed thatstudents and teachers were trained in the project so that 2,000 students and approximately 10,000 individuals were reached through these trainings.

Enhancing Required Joint Efforts on Climate Action Project

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