

United Nations Sustainable Development Goals (UN SDGs)
Professor. Doctor Shiva Ji
Department of Design and Department of Climate Change
Indian Institute of Technology, Hyderabad
Climate Change conference and Summits

(Refer Slide Time: 00:12)



The slide features the UN SDGs logo on the left, which consists of a vertical bar with the text 'UN SDGs' and '17 goals to transform our world' below it. To the right is a circular graphic of the 17 Sustainable Development Goals. Below these is a grey box with the text 'Module 29' and a list of climate change conferences: 'Rio Earth Summit 1992', 'Kyoto Protocol 1995', 'Paris Agreement 2015', and 'COP 27 2022, etc.'. At the bottom left is a QR code and contact information for Dr. Shiva Ji. At the bottom right is a small video feed of Dr. Shiva Ji and the IIT Hyderabad logo.

UN SDGs
: 17 goals to transform our world

Module 29
• Climate Change Conferences and Summits such as

- Rio Earth Summit 1992,
- Kyoto Protocol 1995,
- Paris Agreement 2015,
- COP 27 2022, etc.

Dr. Shiva Ji
Design for Sustainability Lab, Department of Design
Adjunct Faculty in Dept. of Climate Change AND Dept. of Heritage Science and Technology
Indian Institute of Technology Hyderabad, India
shivaji@des.iith.ac.in

NPTEL

Dr. Shiva Ji
Indian Institute of Technology Hyderabad

Hello, everyone, I welcome you all to the module twenty ninth of the course of UN SDGs. In this module, we are going to cover these 4 summits, conferences which have happened over a period of time. The first one, Rio Earth summit 1992. Kyoto Protocol 1995, Paris Agreement 2015 and COP 27 in 2022.

(Refer Slide Time: 00:44)



The slide has a dark grey background with the title '*Rio Earth Summit 1992' in white. Below the title is a paragraph describing the summit. At the bottom left, it says 'UN SDGs - Module 29'. At the bottom right, there is a small video feed of Dr. Shiva Ji and the IIT Hyderabad logo.

***Rio Earth Summit 1992**

The United Nations Conference on Environment and Development, also known as the Rio Conference or the Earth Summit, was a major United Nations conference held in Rio de Janeiro, Brazil from June 3 to June 14, 1992.

UN SDGs - Module 29

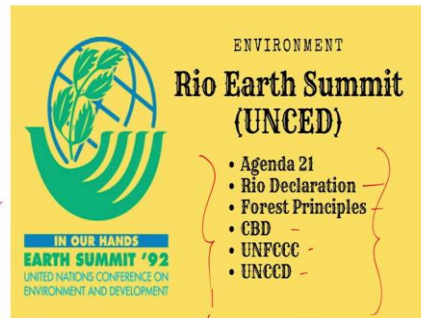
Dr. Shiva Ji
Indian Institute of Technology Hyderabad

NPTEL

So, yeah, so let us begin with the first unit Rio Earth Summit 1992. The United Nations Conference on Environment and Development, also known as the Rio Conference, or the Earth Summit, there are multiple names used for this conference was a major United Nations conference held in Rio de Janeiro, Brazil, from June third to fourteenth in year 1992.

(Refer Slide Time: 01:08)

Rio Earth Summit



UN SDGs - Module 29

4

Dr. Shiva Ji
IIT Hyderabad, India



Well, so, these are the major, like our focus areas, for this conference and major outcomes also Agenda 21, Rio declaration which came out of this conference, Forest principles, CBD UNF Triple C, UNCCD and this is the logo.

(Refer Slide Time: 01:32)

Rio Earth Summit

1992



Climate change, desertification and biodiversity loss are heavily interlinked and pose existential challenges to humanity. In response to these challenges, governments founded three sister "Rio Conventions" at the 1992 Earth Summit in Rio de Janeiro, Brazil.

These are:

- the United Nations Framework Convention on Climate Change (UNFCCC, also known as UN Climate Change)
- the Convention on Biological Diversity (CBD, also known as UN Biodiversity)
- the United Nations Convention to Combat Desertification (UNCCD)

UN SDGs - Module 29

5

Dr. Shiva Ji
IIT Hyderabad, India



So, Rio Earth Summit, Climate change, desertification and biodiversity loss are heavily interlinked and pose existential challenges to humanity. In response to these challenges, governments founded 3 sister "Rio conventions" at the 1992 Earth Summit in Rio de Janeiro,

Brazil, these are the United Nations Framework Convention on Climate Change, UNF Triple C also known as UN Climate Change. The second the Convention on Biological Diversity CBD also known as UN biodiversity. The third point the United Nations Convention to Combat Desertification UNCCD.

So, as you have understood this conference, this Rio Earth Summit actually gave birth to these three things, so, these three things actually came from this summit, and which took up actually lead in continuing the in like a message of this summit, for a longer period of time and even now, like we are aware like we have seen several conferences and meetings and summits and reports, coming out, on the subject of climate change and UNF Triple C is actually leading, that torch light at global level.

The 3 Rio conventions are the result of concerns over similar environmental and development issues and have sustainable development at their hearts. Well, at that time, if you realize, this year we are talking about like a 1992, a long time, from today. So, at this time, there were like some heart focused, areas for which, like this whole thing was actually a founded.

So, if you see the majority of this concentration was on the climate change as a global phenomenon and then issues related to biodiversity. The loss of biodiversity, the preservation on biodiversity, the concerns surrounding around biodiversity and multiple things. And then the sec the third point was about overall combating desertification and preventing soil from going into like a bad, soil usually if it is not cared for if it is left in like unattended.

So, there may be a chance that it can grow into a forest or there may be a chance if it is not properly handled, it can grow into a desert also, so leaving like a no humus, no moisture and no vegetation in the soil, killing everything and going almost like a dead. So, that kind of desert is not good for agriculture, it is not good for a hosting forest, but very few animals and other flora and fauna can survive in a desert.

So, compared to a forest and we are like where you see the life in its full a potential, a desert is kind of a place where there is life, but kind of you can call it as if your life were very short of like life and it is not good because it does not produces anything and it is up a lot of things. So, preventing soil from going in a desert format and maintaining those forests that was the enveloply premised on these 3 things were became the major outcomes of Rio Earth summit.

(Refer Slide Time: 05:07)

■ Rio Earth Summit



The three Rio Conventions are the result of concerns over similar environmental and development issues and have sustainable development at their hearts.

The Rio Conventions work closely together, with the overlaps in their work becoming ever stronger as the challenges related to climate change, desertification and biodiversity loss grow and cross-cutting solutions are developed.

UN SDGs - Module 29

6

Dr. Shiva B
IIT Hyderabad, India



The Rio conventions work closely together, with the overlaps in their work becoming ever stronger as the challenges related to climate change, desertification and biodiversity loss, grow and cross cutting solutions are developed.

(Refer Slide Time: 05:21)

■ Key definitions



- ✓ • **Climate Change** refers to long-term shifts in temperatures and weather patterns that in the long run risk completely altering the ecosystems that support life on Earth.
- ✓ • **Biodiversity** covers the totality of the world's animals, plants and ecosystems.
- ✓ • **Desertification** refers both to the literal expansion of deserts and the gradual decline in quality of soil, vegetation, water resources or wildlife.



UN SDGs - Module 29

7

Dr. Shiva B
IIT Hyderabad, India



So, key definitions over here of FEOC for the like these three, climate change refers to long term shift in temperatures and weather patterns that in the long run risk completely altering the ecosystems that support life on Earth. So, climate change, like we all know, like as a phenomenon, what it is, and it encompasses like a huge number of variables inside it. There are several agents like a stakeholder, there are several nodal points and during like, interrelationship at the cusp of it, we are seeing like that imbalance, which is happening in the prevailing climatic pattern on this planet in a long time.

And this change is getting like absorbed in a very kind of like a frequent in intervals and it is recurrence is happening more and more, bringing in abrupt, like a changing in that like a pattern like the climatic pattern, which has been existing on this planet for a long, long time. So, that abrupt climate change, we know it as a like a climate change.

Biodiversity, it covers the totality of the world's animals, plants and ecosystems and their whole lives like interrelationship between them like how they are positioned, how they are related to each other, how they are helping each other, even if you see like one species, feeding on another species, but that is the way actually nature is right and it actually helps them also in multiple ways.

So, you may have seen documentaries on famous like these discovery or NGC channels, or even, like, books and literature like how, a food chain. So, even the predators also help the animals from the lower like a levels, to grow in multiple ways. So, that biodiversity is essential for the maintaining like all of them. If you end up killing all the predators, all the lower animals are also going to die. So, there is so much interdependent, even if we see them like eating but that is not actually is the actually like a threat to the existence of the lower like a species.

Third point desertification, it refers both to the literal expansion of deserts and gradual decline in quality of soil, vegetation, water resources or wildlife. So, maybe it can happen at a very faster rate or maybe at a slower in like a pace, but a change in the quality of soil, which makes it bad, leads towards like desertification or maybe a increased salinity or increased acidification. So, both are not good a balance is actually like essential to maintain the lack of a proper a level of nutrients proper life in like a topsoil and of course, in order soil is a kind of a sustainer of all sorts of vegetation and retaining moisture. So, it is very essential for the planet.

(Refer Slide Time: 08:25)

■ What is a UN Convention? ✓

COP-27



A UN Convention is a binding agreement between different countries. Under such Conventions, nations adopt key goals at annual Conferences of the Parties (COPs) and report periodically on progress in implementing these goals. Each Rio Convention has a supporting secretariat. A key task of the secretariats is to organize annual COPs which are attended by national delegations and numerous participants of observer organizations, including from business and civil society. Other key tasks are to help governments report data and to organize technical workshops.



UN SDGs - Module 29

IPCC ✓

8



So, the question arises here, what is a UN convention and what is it like doing. So, we will see, UN convention is a binding agreement between different countries. Under such conventions, nations adopt key goals at annual conferences of the parties, COPs like COPs, like we keep hearing like it was COP 27, was concluded in year 2022 in the month of November.

So, this COP stands for Conferences of the Parties and parties are those nations which are a member of the UN Convention. And report periodically on progress in implementing these goals. Each Rio convention has a supporting Secretariat, a key task of the secretariat is to organize annual COPs which are attended by international delegations and numerous participants of observer organizations including from business and civil society. Other key tasks are to help governments report data and to organize technical workshops.

So, now what UN convention is so, UN convention actually hosts these conferences of the parties, COPs every year and the countries the organization the independent research agencies, other scientists, Civil Society member people from industry and businesses or any person who may be interested through some genuine channel can participate in these conferences and can listen to what others are saying and can speak also about, their own observation and findings.

So, it works in a very scientific and technical way with the support of like several independent organizations such as maybe IPCC, you may have heard of, Intergovernmental Panel on Climate Change, it is an again, kind of international organization, which is constituted by like a different multiple, a lot of participating countries and scientists and

engineers and all the people from all walks of life and together, they actually study the phenomena of climate change and its extent how much the changes it is bringing in one place and all of those different user impacts of climate change also.

So, this puts upon a comprehensive actually documentation where you can see these changes happening in the terms of data and the numbers, you can see like, how many people got affected for so and so region, and how many people got displaced for so and so region, how many places fire actually, literally, look of fires actually have occurred, floods have happened, and how much of extent of desertification has happened in the last maybe one decade, two decade and so on.

So, these are some examples so, this is where, all of these things actually take place. That is why UN convention is an integral part of doing such things and carrying out these exercises, such as climate change studies, or even implementing UNSDGs, et cetera, et cetera.

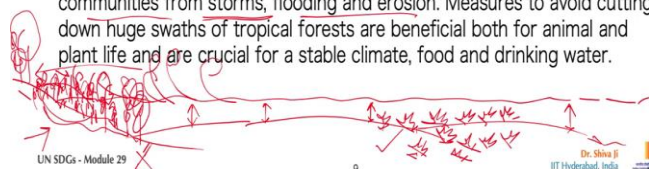
(Refer Slide Time: 11:28)

■ Coordinated solutions



Given that land and marine ecosystems absorb more than half of man-made carbon emissions, it is clear that protecting these systems need to be a central component of climate action. At the same time, healthy biodiversity and healthy soils play a huge role in building resilience to the unavoidable impacts of climate change.

The biggest overlap in the work of all three Rio Conventions is in the field of "nature-based solutions". Such solutions refer for example to the protection of coral reefs and mangrove forests that protect coastal communities from storms, flooding and erosion. Measures to avoid cutting down huge swaths of tropical forests are beneficial both for animal and plant life and are crucial for a stable climate, food and drinking water.



UN SDGs - Module 29

9

Dr. Shiva B
IIT Hyderabad, India

Coordinated solutions, given that land and marine ecosystems absorb more than half of manmade carbon emissions, it is clear that protecting these systems need to be a central component of climate action. At the same time, healthy biodiversity and healthy soils play a huge role in building resilience to the unavoidable impacts of climate change.

The biggest overlap in the work of all 3 Rio conventions is in the field of nature based solutions. Such solutions refer for example, to the production of coral reefs and mangrove forests that protect coastal communities from storms, flooding and erosion. Measures to avoid cutting down huge swaths of tropical forests are beneficial both for animal and plant life and are crucial for a stable climate food and drinking water.

So, you see like a some example over here damages to the coral reefs or a mangrove forest like usually coral reefs are like underwater, in the oceans. Maybe due to shallow, a marshy areas where there is very little depth of water, but it harbors a huge species of like aquatic animals.

So, if this is this like a water level. So, just a depth of like a few meters maybe at some places 1 meter, some places 5-10 meters or 20 meters within this range actually, these coral reefs actually even like work and these corals actually you may have seen in like they are pictures, they actually harbor they give provide shelter to like a number of aquatic species. So, which becomes likely you can say underwater in like a forest, where there are a lot of species of aquatic animals.

And then about a mangrove forests to mangrove forest also come where there is like a shoreline. So, if this is the seashore, this is the like a sea waves and if this part is the land area. So, mangroves actually happen to exist in like at this like a place at this juncture where there is like a saline water merging with the soil. So, up to like a certain extent and into and it is deeper inside. They actually like an grow and they help oceans and they help saving a soil erosion plus they also harbor a number of aquatic animals, birds and several other species like even you may be may have heard of Bengal tiger.

So, in the Sundarbans, so, Sundarban is an area where there is a huge swath of like these mangrove forests and including like a big animal such as like a wild buffaloes and some like elephants and elephants not particularly in this area, but in the like harder surface areas, but yes Bengal Tiger lives in this like a forest, where there is like regular catchment often tide low tide and high tide.

So, in the recent decades and last like one or two centuries with the advent of industrialization, there is a huge damages in like a happening to search, a forest right and coral reefs and normal forests also on the land, and that is causing the concern because one or two places was, but now that extent of damage is getting into very high like quantum and bringing a lot of damages direct damages which are you, one can even like observe and see clearly a coastal communities from storms.

So, now there are these storms are not like directly hitting the land and those settlements where people used to live for centuries because of the loss of these a mangrove forest plus loss of coral reefs is now kind of like a damaging all of those like species which used to live in these places and now they are simply getting into killed.

So, the the loss of like a deer species is also becoming one problem plus flooding and erosion, multiple other regions. So, these climate change, catastrophes are not so like an unknown now. So, multiple places have multiple types of catastrophes in some extent or like this thing.

(Refer Slide Time: 15:59)

■ Coordinated solutions



Land degradation is not only extremely harmful for biodiversity, but accounts for around 60% of global methane emissions. Methane is a powerful greenhouse gas that is released through various unsustainable agriculture practices, including meat production. Sustainable agriculture and land use is also a shared area of work of all three Conventions as is recognized in the Koronivia joint work on agriculture.

Another key overlap includes the recognition that societies need to rapidly introduce and scale up the use of clean and sustainable technologies. This applies notably to renewable energy technologies such as wind and solar power. These are key to reducing greenhouse gas emissions whilst diminishing pressure on land and forest biodiversity by providing alternatives to unsustainable and polluting biomass fuels (e.g. charcoal used for cooking).

UN SDGs - Module 29

10



Dr. Shiva Ji
IIT Hyderabad, India



Land degradation is not only extremely harmful for biodiversity, but accounts for around 60 percent of global methane emissions. So, land degradation, you may not have observed the direct impacts, but there are several direct and indirect impacts of human like as such, are things. Methane is a powerful greenhouse gas that is related through various unsustainable agricultural practices, including meat production, system of Agriculture and land use is also a shared area of work of all 3 conventions as is recognized in the Koronivia joint work on agriculture.

Another key overlap includes the recognition that societies need to rapidly introduce and scale up the use of clean and sustainable technologies. This applies notably to renewable energy technologies such as wind and solar power. These are key to reducing greenhouse gas emissions while diminishing pressure on land and forest biodiversity by providing alternatives to unsustainable and polluting biomass fuels, like charcoal earlier it is used to for cooking and all.

So, you see, there are a lot of impacts of like a such things one of these you got to know like including meat production. So, meat is a very kind of like a high energy, water and all sorts of resource consuming like on our product, plus, it has a lot of impacts also post in like a conjunction also.

So, in the like, an all of these in like a 4, categories of food items, this comes as one of them like a high energy consuming and sort of like the worst one, one and it is advisable to avoid for so and so reasons, because it will like this, this extent often like its damages are such a like an audience is increasing in volume that now it is being set by such like agencies like United Nations and many more, that meat production, must be actually reduced for saving the planet.

So, such is the extent of damages are like coming out of this particular item, and we saw over here, like, how a biomass fuels, like, if you see conventional nuclear fuels, this is why LPG and these alternate cooking mediums were actually introduced several decades back and these were kind of gradually like a phased out, coal based or charcoal based on like a cooking because it produces lot of smoke and like a particular particulate matter and things because it is irrecoverable and once it is lost, it is lost for forever.

So, you cannot make a coal because coal, natural coal, you may have heard you may have read in like a how many millions of years it takes for the biobased things like trees and look at the logs etcetera to convert into this kind of like a form, like often like a coal. So, that is not possible for us to do in a shorter period of time plus it has a lot of impact, very high impact compared to like these alternative solutions.

Plus, the best is to use the like a clean energy solutions and like a solar power or wind farm, et cetera, minus that battery in the energy store is a component which still has like a high quotient. Keeping that aside, actually, like, if we are able to like a crack, this fully clean, energy sources that would be the best, with almost like nil impact on the planet.

(Refer Slide Time: 19:38)

■ The Rio Conventions and sustainable development



Each Convention contributes to the goals of Agenda 21 adopted by governments in 1992 in Rio de Janeiro. Agenda 21 has the central objective goal of achieving global sustainable development in the 21st century, with sustainability defined by the 1987 United Nations Brundtland Commission as "fulfilling the needs of current generations without compromising the needs of future generations, while ensuring a balance between economic growth, environmental care and social well-being."

ESE
Sus. →



So, the Rio conventions and the SD, sustainable development. Each convention contributes to the goals of agenda 21 adopted by the governments in 1992. In Rio de Janeiro, Brazil, Agenda 21 has the central objective goal of achieving good global sustainable development, this was the prime target. In the twenty first century with sustainability defined by the 1987 United Nations Brundtland Commission remember that, ESE aspects of a definition where it is reserving resources for tomorrow generation was also underlined.

As fulfilling the needs of current generations without compromising the needs of future generations while ensuring a balance between economy growth, environmental care, and social well-being. So, those the ESE aspects of sustainability actually came from this, plus it actually highlighted like a need for preserving the resources for future generations also, otherwise, if this generation is able to exhaust all of it, what are the new generation people they are going to consume off and how they are going to meet their own needs. So, that will be a very, a weird situation.

So, but, unfortunately, the world is leaving still into, that direction at a much faster rate, which needs to be brought down.

(Refer Slide Time: 21:05)



So, this is the picture from that time, when this summit was held in Brazil. You can see the dignitaries from different countries participating. Well, this is not like an exhaustive, complete picture of all, all the members, but a few.

(Refer Slide Time: 21:30)

■ How the Rio Conventions formally work together



Numerous articles and decisions agreed and taken at the annual COPs of each Convention highlight the need for increased collaboration between them, in order to improve synergies and reduce the duplication of activities.

In August 2001, the Conventions established a Joint Liaison Group as an informal forum for exchanging information, exploring opportunities for synergistic activities and increasing coordination.

Options for collaboration have been explored in several meetings and documents, and a number of collaborative activities are already underway.

UN SDGs - Module 29

13

Dr. Shiva Ji
IIT Hyderabad, India



■ How the Rio Conventions formally work together



Such activities are for example the joint coordination of the work of scientists working on key reports relating to climate change, biodiversity and desertification, along with joint workshops on overlapping issues such as preventing deforestation and restoring drylands.

Finally, a Rio Conventions Pavilion installed at major international meetings also plays an important role in convening discussions aimed to build coordinated approaches and partnerships towards these interrelated goals of the Rio Conventions.

UN SDGs - Module 29

14

Dr. Shiva Ji
IIT Hyderabad, India



So, how the Rio Convention formerly work together, numerous articles and decisions agreed and taken at the annual COPs of each convention highlight the need for increased collaboration between them, in order to improve synergies and reduce the duplication of activities.

In August 2001, the conventions established a joint Liaison Group as an informal forum for exchanging information, exploring opportunities for synergistic activities and increasing coordination. Options for collaboration had been explored in several meetings and documents, and a number of collaborative activities are already underway.

Such activities are for example, the Joint Coordination of the work of scientists working on key reports relating to climate change, biodiversity, and desertification, along with joint workshops on overlapping issues such as preventing deforestation and restoring dry lands.

Finally, Rio conventions pavilion installed at major international meetings also plays an important role in convening discussions aimed to build coordinated approaches and partnerships towards these interrelated goals of the Rio conventions.

So, if you see Rio conventions, these Earth summits have happen taken to a place multiple times and multiple times, different places, and in Rio itself, it has happened, like, thrice or even more. So, these conventions if you see over the years, what do they do is actually look at they are also gradually growing as though this whole phenomena is expanding, we are able to discern its impacts and the scope in which it is now hampering the planets balances.

And so, in the same ratio, actually, these conventions are actually also evolving to include more and more in like a subject areas topics and regions and for controlling that impact. But yes, there is a coordinated effort to grow in a gradual, sequential format.

(Refer Slide Time: 23:41)

■ Earth Summits



- Earth Summit 1992 (Rio de Janeiro) - UNCED
- Earth Summit 2002 (Johannesburg) - World Summit on Sustainable Development (WSSD)
- Earth Summit 2012 (Rio de Janeiro) - UN Conference on Sustainable Development (UNCSD)



You can see like, Earth summits different to like at times, and different places. So, the first was an Earth summit in 1992 at Rio de Janeiro UNCED, second Earth Summit happened in year 2002 at Johannesburg, South Africa and it was called World Summit on Sustainable Development, WSSD, third one Earth Summit 2012, it again happened in Rio de Janeiro, Brazil, it was called UN Conference on sustainable development UNCSD.

(Refer Slide Time: 24:13)

■ Important outcomes



- ✓ • **Rio Declaration** - it contained 27 principles that were supposed to guide countries in future sustainable development.
- ✓ • **Agenda 21** - it is an action plan concerning sustainable development, but it is non-binding.
- ✓ • **Forest Principles** - it is formally called 'Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests'. It makes many recommendations for conservation and sustainable development forestry and is non-binding.

UN SDGs - Module 29

16

Dr. Shiva B
IIT Hyderabad, India



Well important outcomes we have seen earlier, the first outcome of Earth Summit 1992 was this Rio declaration, it contained 27 principles that were supposed to guide countries in future sustainable development. So, 27 principles, we will see these principles in a short while. Agenda 21 it is an action plan concerning sustainable development, but it is non-binding. The third, Forest principles it is formally called non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests, it makes many recommendations for conservation and sustainable development forestry and is non-binding.

Well, this non-binding is the one factor which it does not puts like this as a mandatory article on the countries and many of them have been like evading for a while.

(Refer Slide Time: 25:19)

■ Conventions opened for signatures



- • **UNCBD**: Convention on Biological Diversity
- • **UNFCCC**: United Nations Framework Convention on Climate Change
- • **UNCCD**: United Nations Convention to Combat Desertification

UN SDGs - Module 29

17

Dr. Shiva B
IIT Hyderabad, India



■ Alternate names of Rio Earth Summit 1992



- UN Conference on Environment and Development (UNCED)
- Earth Summit (1992)
- Rio de Janeiro Earth Summit
- Rio Conference



Well conventions open for signatures, UN CBD conventions on Biological Diversity, UNF Triple C, United Nations Framework Convention on Climate Change, UNCCD, United Nations Convention to Combat Desertification. Well, there are a few alternate names of the Earth Summit 1992, we know it as UN Conference on Environment and Development UNCCD. Earth Summit of course, maybe only to Rio de Janeiro Earth Summit also we call it and sometimes just Rio conference also.