



1  
00:00:01,000 --> 00:00:04,080



2  
00:00:04,080 --> 00:00:05,440  
>>In a laboratory setting

3  
00:00:05,440 --> 00:00:08,400  
you can artificially control  
different parts of the problem

4  
00:00:08,400 --> 00:00:10,080  
so each effect can be isolated.

5  
00:00:10,600 --> 00:00:12,240  
That's hard to find in nature.

6  
00:00:21,200 --> 00:00:22,800  
>>Seoul, South Korea.

7  
00:00:24,360 --> 00:00:27,480  
A megacity with over  
25 million people

8  
00:00:27,480 --> 00:00:29,080  
and a population density

9  
00:00:29,080 --> 00:00:31,120  
which is almost twice  
that of New York

10  
00:00:31,320 --> 00:00:33,520  
and eight times  
greater than Rome.

11  
00:00:35,320 --> 00:00:38,040  
Despite being a modern  
and massive megacity,

12

00:00:38,040 --> 00:00:40,760

South Korea still counts  
with many forests

13

00:00:40,760 --> 00:00:43,280

and rural farming communities  
throughout the country.

14

00:00:44,960 --> 00:00:48,400

But why is South Korea  
an ideal natural laboratory

15

00:00:48,400 --> 00:00:50,640

to carry out  
air quality studies?

16

00:00:52,240 --> 00:00:53,640

>>We have a bunch of factors.

17

00:00:53,640 --> 00:00:55,520

We have a very large megacity,

18

00:00:55,520 --> 00:00:57,360

the fourth largest  
city on the planet,

19

00:00:57,600 --> 00:00:59,080

with lots of cars,

20

00:00:59,080 --> 00:01:00,440

lots of power plants.

21

00:01:00,640 --> 00:01:02,880

And then, downwind from that,  
we have a forest.

22

00:01:03,080 --> 00:01:04,280

So we have the urban plume

23

00:01:04,280 --> 00:01:07,400  
reacting with the natural  
emissions from the forest.

24

00:01:07,560 --> 00:01:10,240  
>>This is a perfect  
place on the globe

25

00:01:10,240 --> 00:01:11,600  
to try to understand  
how the mixture

26

00:01:11,600 --> 00:01:13,200  
between man's emissions

27

00:01:13,200 --> 00:01:14,240  
and nature's emissions

28

00:01:14,240 --> 00:01:16,040  
can create poor air quality.

29

00:01:19,440 --> 00:01:22,200  
>>Air pollution is an important  
environmental problem

30

00:01:22,200 --> 00:01:23,880  
in modern societies.

31

00:01:26,160 --> 00:01:28,920  
The rapid growth of new  
economies and industries

32

00:01:28,920 --> 00:01:31,520  
in developing countries  
makes it very difficult

33

00:01:31,520 --> 00:01:33,680  
to address environmental issues.

34

00:01:35,760 --> 00:01:39,600

>>Korea has developed very quickly after Korean war.

35

00:01:40,160 --> 00:01:42,040

Actually, economic success

36

00:01:42,040 --> 00:01:44,560

gave many benefits to the people.

37

00:01:44,800 --> 00:01:46,840

However, this also brought

38

00:01:46,840 --> 00:01:48,400

many environmental issues,

39

00:01:48,400 --> 00:01:49,920

including air quality.

40

00:01:50,240 --> 00:01:51,880

>>So general public has known

41

00:01:51,880 --> 00:01:54,240

about the yellow dust issue before

42

00:01:54,240 --> 00:01:56,240

and, recently, they started to learn about

43

00:01:56,240 --> 00:01:58,440

the fine particle issues and ozone issues.

44

00:01:58,760 --> 00:02:00,560

They're starting to pay attention

45

00:02:00,560 --> 00:02:03,880  
to those newer issues  
emerging in our society.

46  
00:02:04,200 --> 00:02:05,880  
>>Korean government  
has been making

47  
00:02:05,880 --> 00:02:08,120  
persistent effort to  
improve air quality.

48  
00:02:08,400 --> 00:02:10,280  
We participate in this project

49  
00:02:10,280 --> 00:02:12,720  
with our understanding  
of the current situation

50  
00:02:12,720 --> 00:02:15,920  
with aerial, ground  
and ship (measurements)

51  
00:02:15,920 --> 00:02:19,000  
on top of simpler  
ground observation

52  
00:02:19,000 --> 00:02:21,240  
crucial in future improvement  
of air quality.

53  
00:02:21,400 --> 00:02:23,520  
>>We are definitely  
paying attention

54  
00:02:23,520 --> 00:02:24,840  
into solving this issue

55  
00:02:24,840 --> 00:02:26,760  
and general public wants to know

56

00:02:26,760 --> 00:02:29,080

how we can actually  
achieve that goal.

57

00:02:30,960 --> 00:02:34,360

>>Developing effective strategies  
to balance the economic growth

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00:02:34,360 --> 00:02:36,400

and the good health  
of the population

59

00:02:36,400 --> 00:02:40,520

is key to continue growing  
and prospering as a society.

60

00:02:42,040 --> 00:02:45,400

>>Unfortunately policy  
always lags emissions.

61

00:02:45,400 --> 00:02:48,080

And so it usually takes  
time to understand

62

00:02:48,080 --> 00:02:49,720

what's causing the  
poor air quality

63

00:02:49,720 --> 00:02:51,560

and then regulations  
can take effect.

64

00:02:51,760 --> 00:02:52,720

>>It's a tough problem,

65

00:02:52,720 --> 00:02:54,720

we haven't solved it  
completely in the US.

66

00:02:54,720 --> 00:02:58,080

But here we're  
learning a lot more

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00:02:58,080 --> 00:03:00,160

about the specific  
sources in this area

68

00:03:00,160 --> 00:03:03,080

so that here the  
government can decide

69

00:03:03,080 --> 00:03:06,320

what's the most effective  
strategies to use

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00:03:06,320 --> 00:03:10,240

because we don't want to hinder  
economic development...

71

00:03:10,240 --> 00:03:11,760

we just want to know what are

72

00:03:11,760 --> 00:03:13,200

the smartest choices  
you can make

73

00:03:13,200 --> 00:03:15,720

so you get the best  
bang for the Buck.

74

00:03:15,880 --> 00:03:17,440

>>In the United States and Europe

75

00:03:17,440 --> 00:03:19,680

this is taking place over  
a long period of time.

76

00:03:19,800 --> 00:03:21,440

Things in Asia are  
going very rapidly

77

00:03:21,440 --> 00:03:23,560

and so we're in the  
middle of that process.

78

00:03:24,480 --> 00:03:26,120

>>But the difference is that now,

79

00:03:26,120 --> 00:03:28,000

with our knowledge  
and technology,

80

00:03:28,160 --> 00:03:30,120

we are better  
prepared to address

81

00:03:30,120 --> 00:03:32,560

these complex  
environmental issues.

82

00:03:36,080 --> 00:03:39,240

>>In these days, many  
countries in East Asia

83

00:03:39,240 --> 00:03:41,720

have been developing  
very quickly as well.

84

00:03:41,960 --> 00:03:44,680

KORUS-AQ mission  
makes people aware

85

00:03:44,680 --> 00:03:47,520

of the seriousness  
of current air pollution.

86

00:03:48,080 --> 00:03:50,200

>>So, based on this mission,

87

00:03:50,200 --> 00:03:52,640

we are getting a more  
general understanding,

88

00:03:52,640 --> 00:03:53,920

getting better and better.

89

00:03:53,920 --> 00:03:56,760

And eventually we will  
be able to find something

90

00:03:56,760 --> 00:03:59,000

that can reflect on  
(better air quality) strategies.

91

00:04:00,920 --> 00:04:04,640

>>KORUS-AQ mission results will  
help develop improved ways

92

00:04:04,640 --> 00:04:06,640

to asses this challenging task.

93

00:04:08,960 --> 00:04:11,880

>>Current investigations will  
definitely help us gain