



1

00:00:00,030 --> 00:00:04,180

The reason why we did this study was that years ago

2

00:00:04,200 --> 00:00:08,360

there was some concern about how much of the planet's net primary production

3

00:00:08,380 --> 00:00:12,620

people were demanding on an annual basis. In other words,

4

00:00:12,640 --> 00:00:16,790

can the Earth keep up?

5

00:00:16,810 --> 00:00:20,930

If you look at the planet, the land surface produces a certain amount of vegetation

6

00:00:20,950 --> 00:00:25,100

based on all the agricultural inputs we have now, our natural climate

7

00:00:25,120 --> 00:00:29,280

ecosystems - that's an amount that sort of constitutes the total

8

00:00:29,300 --> 00:00:33,450

available amount of biomass that's present for consumption.

9

00:00:33,470 --> 00:00:37,570

And the human appropriation component as we've measured it

10

00:00:37,590 --> 00:00:41,680

is actually how much NPP, or plant growth, is required

11

00:00:41,700 --> 00:00:45,790

to generate the products that are being consumed annually

12

00:00:45,810 --> 00:00:49,890

by people all over the world in terms of food, fiber,

13

00:00:49,910 --> 00:00:53,970

building materials, and also fuel for charcoal and wood-based fuels.

14

00:00:53,990 --> 00:00:58,010

We used satellite data over a

15

00:00:58,030 --> 00:01:02,040

long period of time to estimate how much plant material

16

00:01:02,060 --> 00:01:06,130

the land surface generates and then compared that against the amount

17

00:01:06,150 --> 00:01:10,240

plant material that humans need

18

00:01:10,260 --> 00:01:14,300

in terms of food, fiber, and fabrication, and we found that two things are happening.

19

00:01:14,320 --> 00:01:18,370

We are increasing our per-capita consumption, so as individuals

20

00:01:18,390 --> 00:01:22,420

we are increasing how much we consume on an annual basis, and

21

00:01:22,440 --> 00:01:26,480

we're also increasing our population, so both of those

22

00:01:26,500 --> 00:01:30,580

factors have come together to move us from about

23

00:01:30,600 --> 00:01:34,660

20 percent of the actual global supply to consuming

24

00:01:34,680 --> 00:01:38,790

25 percent. And so what we're concerned about is that in the future

25

00:01:38,810 --> 00:01:42,850

world where we've increased both populations and consumption

26
00:01:42,870 --> 00:01:46,860
that we'll hit some tipping point where the ecosystems

27
00:01:46,880 --> 00:01:51,030
where they are now and the current climate that we have will not be able to produce

28
00:01:51,050 --> 00:01:55,190
the products that we need to keep the lifestyle that we have now.

29
00:01:55,210 --> 00:01:59,360
If that future trend continues, we're going to be pushing

30
00:01:59,380 --> 00:02:03,550
55 percent of the capability of the land surface by 2050.

31
00:02:03,570 --> 00:02:07,720
If you bring into that now the conversion of

32
00:02:07,740 --> 00:02:11,900
land to produce fuels to replace fossil fuels

33
00:02:11,920 --> 00:02:16,120
then the pressure even becomes more severe.

34
00:02:16,140 --> 00:02:20,280
So, what we're finding is that the biosphere doesn't really care

35
00:02:20,300 --> 00:02:24,430
if you have a few people consuming a lot, or a lot of people

36
00:02:24,450 --> 00:02:28,560
consuming a little, it's the total amount in the end that actually matters.

37
00:02:28,580 --> 00:02:32,670
And so, we as a species we have two issues,

38
00:02:32,690 --> 00:02:36,780

we have our per capita consumption to think about, and our overall numbers.

39

00:02:36,800 --> 00:02:40,870

The implications of such high demand

40

00:02:40,890 --> 00:02:44,940

come about in various ways.

41

00:02:44,960 --> 00:02:49,000

One is that we are vulnerable to climate change and that we have to very carefully

42

00:02:49,020 --> 00:02:53,030

manage our ecosystems so that they keep producing

43

00:02:53,050 --> 00:02:57,220

the products that we require. Also we have to worry about the

44

00:02:57,240 --> 00:03:01,400

loss of biodiversity from the natural ecosystems because there will be fewer

45

00:03:01,420 --> 00:03:05,580

of those left as we have to convert more and more land